Hindawi
Complexity
Volume 2022, Article ID 8298451, 13 pages
https://doi.org/10.1155/2022/8298451

Research Article

Optimal Decision-Making in Chinese Cross-Border Mergers and Acquisitions: A Perspective of Overbidding

Yanping Bao,[1,2] **Chan Lyu**,[1] **Xia Wu**,[3] **and Jun Lian**[3]

[1]*School of Business, Macau University of Science and Technology, Macau, China*
[2]*Chongqing Finance and Economics College, Chongqing 401320, China*
[3]*School of International Business and Management, Sichuan International Studies University, Chongqing 400031, China*

Correspondence should be addressed to Chan Lyu; chlyu@must.edu.mo

Received 9 May 2022; Accepted 12 September 2022; Published 27 September 2022

Academic Editor: Yu Zhou

Chinese domestic firms engage actively in the cross-border merger and acquisition (CBMA) markets, which are crucial in China's foreign investment economics. Acquisition premium has attracted stakeholders' attention to determine whether the CBMA decision is optimal. This study employs a novel model to assess decision-making efficiency by overbidding based on a profit maximization assumption. Based on the Chinese CBMA transaction data from 2009 to 2019 of Chinese acquiring firms, the descriptive analysis indicates the widespread overbidding phenomenon in Chinese CBMAs. Moreover, empirical findings reveal that SOEs (vs. non-SOEs) experience less overbidding among acquiring firms. This study also shows that firms from the high-tech industry tend to be less overbidding (more efficient) in the CBMAs' setting. The findings may have policy implications for China's outward investment efficiency.

1. Introduction

Chinese cross-border mergers and acquisitions (CBMAs) are important foreign investments, accounting for 58.6% of China's total outward foreign direct investment in 2019 [1]. Government policies such as "Going Out policy," "Five-Year Plans," and other supporting policies help to ensure the safeguard of Chinese investors and contribute to Chinese firms' dynamic engagement in CBMAs [2, 3]. Despite the increasing number and deal value of CBMAs announced in recent years, acquisition overpayment in merger and acquisition (M&A) transactions is another fascinating economic phenomenon, which attracts the attention of scholars and practitioners. Acquisition overpayment, also called acquisition premium or takeover premium, refers to the price offered to the target firm over its preacquisition price [4]. To account for the market anticipation of the pending offer, prior studies have commonly used the base price 42 trading days before the deal announcement. For example, based on US stock market data, shreds of empirical evidence have shown that the average initial offer premium is 45% across the total sample with premium data [5]. The higher premium is more likely to be recognized in cross-border M&As (CBMAs) due to the higher transaction and negotiation costs and institutional differences [6]. Hope et al. documented the overpayment provided by firms from emerging markets from the perspective of national pride embedded in the management team [7]. The Chinese firms' active role in CBMAs activities is said to "never beat on willingness to pay for a target" (The Economist, 2010), and they tend to pay a higher premium than other acquirers from developed countries [8].

Some scholars try to explain the premium phenomenon of Chinese CBMAs from the perspective of state-owned equity nature [8, 9], arguing that state-owned enterprises (SOEs) pay higher acquisition premiums due to financial and policy support from the government and inefficiency in financial management. However, overpayment does not necessarily mean value-destroying or inefficiency in the decision-making process of CBMAs, as long as the shareholder's profits are maximized.

The innovation-driven CBMAs taken by Chinese firms are encouraged by the Chinese government to improve the domestic firms' innovative capability [10]. Bidding costs rise due to the sensitivity of advanced technology in the high-tech industry. Furthermore, due to the increased complexity of the deals, the information asymmetry between acquirers and targets in high-tech industries may be more severe in cross-border settings, resulting in overpayment by target firms. Chinese firms are regarded as late entrants in science development and innovative technologies [11], and Chinese acquiring firms are motivated by innovative capability at the expense of higher bidding prices. However, whether the bidding decision-making is optimal when acquiring firms from high-tech industries remains unclear.

This study examines whether the decision-making of Chinese CBMAs is relatively optimal from the perspective of overbidding, based on the first-order condition (FOC) of the acquirer's expected profit maximization [12]. In the complex economic environment, decision-makers often encounter problems of optimization. Existing studies developed an algorithm to help to derive Pareto set by minimizing the uncertainty in the complex process [13, 14], while this paper focuses on the single objective optimization considering profit maximization. In our paper, the measure of overbidding takes into account both the probability of the M&A's success and the acquirer's abnormal return. To measure overbidding, we first estimated the probability of acquisition success using CBMA transactions of completed and uncompleted ones. The bidder's profit is then the abnormal returns over the transaction's acquisition cost (proxied by the premium). In the empirical test, the bidder's profit is calculated as the cumulative abnormal returns (CARs) scaled by the probability of acquisition success [15]. If the FOC equals 0, a maximized profit is realized by taking a partial derivative of the bidder's profit for the bid premium. Overbidding is then measured as the FOC of the bidder's profit, with a negative value indicating that the pricing decision is overbidding. To make it easier to interpret overbidding, we transform the process of overbidding by multiplying −100 [16].

Based on the Chinese CBMA data from 2009 to 2019 of Chinese listed acquiring firms, the empirical results show that the overbidding phenomenon is pervasive among Chinese acquiring firms engaged in CBMAs. When the acquiring firms are grouped into SOEs and non-SOEs, the overbidding is notably more severe in non-SOEs. A different-in-different (DID) method is further applied to examine whether the institutional environment change plays a role in overbidding. The evidence shows that the efficiency of a bidding strategy in SOEs is more optimal than in nonSOEs. An interesting finding is that the bidding decisions in CBMA deals by high-tech firms tend to be more optimal, regardless of whether the bidder or the target firm belongs to the high-tech industry.

This study contributes to the Chinese CBMA literature from the perspective of overbidding based on the theory of optimal decision-making. Previous studies have examined the premium phenomenon of Chinese acquiring firms, whereas this study extends this line of literature more comprehensively to obtain a better understanding of Chinese outward investment efficiency. The findings on the state-ownership nature's effect on overbidding, which is inconsistent with previous findings [8], suggest that the efficiency of SOEs in overseas investment deserves further research as the institutional environment is changing.

The remainder of this paper is organized into the following sections: Section 2 provides a review of the related literature on overbidding, and Section 3 develops the hypothesis. Section 4 summarizes the sampling procedure, statistics, and overbidding measurement. Section 5 delves into the empirical findings. Section 6 provides further analysis. Finally, Section 7 concludes the paper.

2. Literature Review

An extensive body of research has explored the economic phenomenon of acquisition premiums in M&A activities. One stream of the literature focuses on the determinants of overpayment in CBMAs. The process of M&As, which involves various stakeholders such as acquirers, targets, intermediary parties, investors, and the government, is complex. Hence, prior studies have proposed different explanations to address why acquirers offer acquisition premiums, which is either irrational or inefficient decision-making.

2.1. Hubris or Overconfidence Hypothesis and Irrational Decision-Making. There is a significant body of literature on the acquisition premium from the standpoint of the top management team. The top management team is crucial in decision-making, especially for strategic decisions such as mergers and acquisitions (M&As). According to Hambrick and Mason upper echelons theory [17], the demographic traits of managers (e.g., gender, age, education background, and experience) influence a firm's strategic decisions. This research focuses on the ex-ante determinants of acquisition premium based on managers' personal characteristics. For example, Roll explained why bidding firms pay too much for their targets from the perspective of irrational behavior due to hubris, assuming that negative stockholder reaction indicates management hubris [18]. The irrational overbidding theoretical framework suggests that management's hubris and overconfidence cause the valuation error and result in acquirers overpaying for the target. This behavioral bias-driven overbidding is based on the assumption that people do not always make rational decisions, especially when faced with uncertainty. In the context of CBMAs, the acquirer management must exercise professional judgment and evaluate potential targets based on their experience and cognition. Other factors being equal, those managers with hubris and overconfidence in the bidding process for a potential target are more likely to make biased valuations and ignore the "winner's curse" [5, 12, 19].

Hayward and Hambrick further examined the hubris hypothesis by directly investigating the dynamics of managerial confidence [20], which reflects the individual bidder's decision process. Scholars have advanced this stream of

literature and extended our understanding of the role of management in the premium paid in M&A transactions. Overconfident CEOs overestimate their ability to gain synergies in M&A transactions and overpay for potential targets [21]. Another source of irrational behavior in strategic decision-making is CEO narcissism [17].

Scholars' attention has been drawn to firms from emerging markets that are actively engaged in CBMA transactions. A higher premium phenomenon has been observed in CBMAs of acquirers from developing countries targeting developed countries. In particular, Hope et al. [7] explained the phenomenon from a phycology standpoint, stating that national pride plays a role when acquirer managers consider the bidding premium decision. They contend that national pride can amplify the effects of individual pride, leading to a desire for pride in CBMA investment decisions.

2.2. Agency Theory and Inefficiency in M&A Strategic Decisions. Another well-accepted neoclassical theory that considers corporate governance is the agency theory [22]. The agency theory argues that managers may take advantage of the information asymmetry for their personal benefits or even make value-destroying strategic decisions. Intuitively, managers from acquiring firms and target firms may have an unequal information advantage, and the asymmetric bargaining power may result in different influences on the pricing negotiation process. Due to the conflicts between the principal and the agent, management (the agent) would be incentivized to make decisions that maximize their own interests at the expense of the shareholders (the principal). Moreover, managers may have an incentive to entrench when acquiring firms with rich internal resources, leading to rent-extracting behavior [18, 19, 23], especially when governance quality is poor. Meanwhile, managers from target firms may trade the premium in the M&A negotiation process for their post-M&A control rights in the newly merged firm, which could harm the target's shareholders [24]. In support of this claim, Qiu et al. presented evidence of a significant negative relationship between target CEO retention and takeover premium [25]. Jenter and Lewellen found that firms with retirement-age CEOs are more likely to be chosen as negotiation targets, arguing that these CEOs are more willing to accept takeover bids at their retirement age [26].

Either the hubris hypothesis or the agency conflict theory predicts that the shareholders' value will not be maximized. However, irrational behavior due to managers' hubris or overconfidence may differ from agency conflict theory in that managers may be acting in the best interests of their principals [21], even if their hubris reduces shareholder value. Meanwhile, the agency theory posits that agents may entrench for personal gain at the expense of their principals.

Several studies have been conducted based on the Chinese CBMAs setting to investigate the role of governance on acquisition from the perspectives of the principal-principal issue of governance [9], the efficiency of SOEs [8], and government involvement [27]. Chen and Young [9] specified that the Chinese government is the largest owner and has the controlling power to influence the firm's decisions based on the critical role of government ownership in Chinese public listed companies. In SOEs, this principal-principal governance conflict reduces the value of minority shareholders because the dominant owner is more likely to be motivated by political considerations rather than the firm's profit maximization.

In a similar vein, Guo et al. argued that the Chinese government, as the biggest shareholder in Chinese SOEs, plays an important role in CBMA transactions [8]. The Chinese government provides SOEs with preferential outward investment policy support, such as access to finance, interest subsidies, special fund projects, and tax privileges. The government's involvement indeed affects the CBMA activities of SOEs. Compared with non-SOEs, SOEs have the advantage of accessing CBMA transactions and the ability to pay a higher premium to beat rivals. The findings of the poor efficiency of Chinese SOEs' financial management in the CBMA call for further exploration. The authors argue that SOEs are the agents of the government and have the dual objectives of both social welfare and economic development. Moreover, management in SOEs is motivated to make decisions in favor of political benefits at the expense of the firm's profitability when the two objectives are in conflict. However, the two objectives might also be complementary because a well-developed economy can generate better social benefits, especially when managerial incentives change as the institutional environment changes.

The aforementioned studies have provided consistent evidence of the Chinese SOEs' inefficiency in CBMAs, assuming that the managers have self-incentives to conduct opportunistic behavior based on the traditional agency theory or that the dominant power from the controlling owner is more propolitically motivated. What other noneconomic motives may impact the decision-making process and the efficiency of Chinese SOEs in CBMAs remains unclear.

2.3. Stewardship Theory and Management Behavior in Decision-Making. Governance theories, such as the agency theory, assume that managers maximize their own self-interest; however, managers may be motivated by incentives other than monetary ones. Davis et al. proposed the stewardship theory [28], which challenges neoclassical economic theory and calls on researchers to pay attention to managers' personal needs, from social and psychological viewpoints. This theory questions agency theory's individualistic and financially self-interested assumptions [29]. It provides a dynamic perspective for understanding the role of managers' needs in the governance context, releasing the assumption of individualistic utility motivations in agency theory. Stewards prefer pro-organizational, collectivistic behaviors; hence, the nuanced view of treating managers as firm stewards may broaden our understanding of corporate governance. Traditional Chinese culture emphasizes collectivism and maintaining positive social relationships. For example, Confucian culture emphasizes the importance of stewardship and sustainable decision-making.

In the CBMA setting, the strategic decision-making of acquiring a potential target firm generally indicates the acquiring firm's goal of expanding or strengthening its competitive advantage. The acquiring firm's top management is in charge of strategic decision-making and implementation. The degree to which management's interests align with those of the firm has a significant impact on decision-making efficiency. In China, contemporary corporate managers have been educated with the socialist values of public service as the first and most valuable doctrine. Individuals in traditional Chinese culture are encouraged to engage in pro-organizational collectivist behavior rather than self-fulfilling individualistic behavior. Moreover, managers tend to take on the role of steward when their personal interests align with those of the company. Empirical evidence also suggests that the stewardship theory, rather than the agency theory, can better explain the situation of corporate governance in Chinese firms [30].

3. Hypothesis Development

3.1. Decision-Making Efficiency and Institutional Background. The ownership structure of Chinese public firms has improved as a result of the corporatization and privatization processes. However, the government still controls the majority of the shares in specific industries (e.g., natural resources, banking, and transportation) [31], indicating that the government continues to play a crucial role. Because of the highly concentrated ownership of Chinese listed firms, the agency conflict between management and shareholders may differ depending on the type of shareholder. Chen et al. proposed that the major agency conflict is between minority and controlling shareholders and their appointed managers [32]. The controlling shareholders' and managers' agency conflict is minimal. The controlling shareholders motivate managers to make corporate decisions that are aligned with the interests of the controlling shareholder. According to the institutional theory [33], formal social structures and informal cultural factors influence managers' behavior. From a cultural standpoint, China is known for embracing collectivist culture [34], which encourages people to prioritize group harmony and achievement over individual interests [35]. Based on the context of Chinese social development, managers in Chinese SOEs may act as stewards of controlling shareholders rather than merely as agents. The agency theory focuses on economic rewards, whereas the stewardship theory explains human behavior in a broader sense, in that stewards are motivated by nonfinancial goals in addition to basic financial needs from a firm [29]. The manager's behavior as a steward is more likely to be pro-organizational and responsible for the firm's best development. The rationale behind this is also intuitive; only a well-organized firm with promising growth development can secure individual needs. If the stewardship theory can explain the managers' behavior, Chinese SOE managers are expected to perform their duties. In the complicated CBMA transaction, which is more aligned with the strategic development at the country level, managers of SOEs may feel pride in fulfilling their goals. Furthermore, based on the favorable financial and other resource support from the government, SOEs enjoy the advantages of competing rivals in the CBMA transaction. Hence, if the stewardship theory holds, the decision-making efficiency of SOEs is better than that of non-SOEs in CBMAs. To obtain a better understanding of the decision-making efficiency, we must measure it by overbidding based on an optimal model [12].

The preceding argument leads to the following hypothesis:

> H1: the decision-making efficiency is relatively more optimal in SOEs than in non-SOEs in Chinese CBMA transactions.

3.2. Decision-Making Efficiency of CBMAs in the High-Tech Industry. Encouraged by the government's "Go Global" policy, Chinese firms have been actively engaged in CBMAs to seek advanced technology, knowledge, and managerial experience [36–38], which benefit the firm's sustainable development. For the acquirer, acquiring high-tech firms rather than developing the technology internally by themselves is more efficient [39], either because of the limited technical barriers or the high uncertainty of R&D, which is commonly time-consuming and costly.

However, due to the security sensitivity of high-tech industries, CBMA deals are more likely to be intervened by the native country's protectionists, increasing the costs for foreign firms to acquire targets with extensive knowledge and technological resources. The host country may be more active in intervening against foreign acquirers targeting firms in the high-tech industry, either by directly opposing the entry of foreign acquirers or by supporting domestic firms with competitive advantages to succeed in the bid. This is consistent with the viewpoint of economic nationalism [40], which refers to "the preference for natives over foreigners in economic activities."

Furthermore, the information asymmetry between acquirers and targets in high-tech industries may be more severe in cross-border settings due to the increased complexity of transactions. Seeking and assessing knowledge-based targets are expensive and frequently error-prone [41], resulting in an overpayment in most deals. Acquirers have less perfect information because of the tacitness of the knowledge resident in the targets; thus, the biased valuation may differ from the intrinsic value of the target firms. In the emerging markets, for example, China, acquirers do not have much bargaining power over the targets (especially high-tech firms) because Chinese firms are considered the latecomers in science development and innovative technologies [42, 43]. Therefore, targeting high-tech firms may require higher bidding prices.

Acquiring high-tech firms with advanced technology is expensive, and the potential synergies are expected to be value-enhancing; thus, managers have incentives to make efficient decisions. Meanwhile, managers are also under pressure if the acquisition price paid for the target is too high and the decision-making is damaging to shareholders' value. In this case, they would probably encounter the risk of losing their jobs. According to the stewardship theory, managers

can act as the shareholders' trusted agents and share the same interests as the shareholders. Moreover, managers have an incentive to actively participate in the due diligence process and negotiate a fair price, especially for CBMAs dealing with higher uncertainty. If the determined bidding price is higher than what the shareholders expected, they will make the best use of the acquisition to generate potential synergies and demonstrate that the investment is worthwhile by focusing on the optimal consideration. Therefore, although the bidding price for targets in high-tech industries may be higher, the decision-making process is more optimal.

SOEs receive more government support than non-SOEs in terms of outward investment, such as lower capital costs or state-funding guarantees [8]. The favorable policies, combined with ample financial support for SOEs, increase the chances of winning the CBMA deal. As the importance of the high-tech industry in economic and social development grows, SOEs in the high-tech industry are becoming one of the primary areas of government concern. In addition, the CBMA process is attracting the attention of all parties. In line with the stewardship hypothesis, the managers in SOEs are more likely to act with due diligence in the best interest of the controlling shareholder. Even if the agency conflict between the managers and the minority shareholders is inevitable, the decision-making process is less likely to be influenced by minority shareholders.

Based on these arguments, we propose the following hypotheses:

H2a: the overbidding of Chinese CBMAs is less pronounced in targets for high-tech industries

H2b: the overbidding of Chinese CBMAs is less pronounced when the acquiring firm is from the high-tech industry

H2c: the overbidding of Chinese CBMAs is less pronounced when the high-tech acquiring firms are state-owned

4. Research Methodology

4.1. Measurement of Overbidding. Following De Bodt et al. [12] and Bartov et al. [16], this study measures the overbidding of the acquirer in CBMAs based on the assumption of value maximization. In a competitive market without transaction costs or agency conflicts, rational managers make optimal decisions to realize the shareholders' expectations of value maximization. The maximization of a CBMA transaction is stated as follows:

$$\max_{bid} E(\text{Bidder's Profit}) = \Pr(\text{Success}) \times E(\text{Synergy} - \text{Bid Premium}|\text{Success}), \tag{1}$$

where Pr (.|.) is the probability function and E (.|.) is the expectation on condition. Specifically, Pr (Success) is the probability of a completed acquisition, and E (Synergy-Bid_Premium | Success) is the expected net profit from a successful acquisition. The bid premium is the value overpaid to the target firm.

According to the mathematical condition for optimization, for obtaining maximization of the bidder's profit, the FOC should be satisfied. In other words, the first derivative of (1) is zero. Given that Pr (Success) and E (Synergy-Bid_Premium | Success) are functions of bid premium, the corresponding FOC of (1) is derived by taking the partial derivative with respect to bid premium.

$$\begin{aligned} FOC = \frac{\partial E(\text{Bidder's Profit})}{\partial \text{Bid}} &= \frac{\partial \Pr(\text{Success})}{\partial \text{Bid}} \\ &\times E(\text{Snergy} - \text{Bid Premium}|\text{Success}) \\ &+ \Pr(\text{Success}) \\ &\times \frac{\partial E(\text{Synergy} - \text{Bid Premium}|\text{Success})}{\partial \text{Bid}} \\ &= \alpha \times E(\text{Snergy} - \text{Bid Premium}|\text{Success}) \\ &+ \beta \times \Pr(\text{Success}), \end{aligned} \tag{2}$$

where α denotes $\partial \Pr(\text{Success})/\partial \text{Bid}$, indicating the effect of one unit change in the bid premium on the changes in the success probability. α is predicted to have a positive sign because the probability increases as the bid premium increases. β denotes $\partial E(\text{Synergy} - \text{Bid Premium}|\text{Success})/\partial \text{Bid}$, and it is expected to have a negative sign because the net profit will decrease as the bid premium increases. A zero value of FOC denotes an optimal bidding decision to maximize the bidder's profit. Accordingly, a positive value of FOC indicates underbidding, whereas a negative value of FOC shows overbidding. To estimate FOC, this study follows De Bodt et al.'s way of estimating α and β by using the following two equations (17):

$$\Pr(\text{Success}) = \alpha_0 + \alpha_1 \times \text{Bid Premium} + \sum \text{Control} + \varepsilon_1, \tag{3}$$

$$\text{Bidder's Profit} = \beta_0 + \beta_1 \times \text{Bid Premium} + \sum \text{Control} + \varepsilon_2. \tag{4}$$

The error terms of ε_1 and ε_2 are potentially correlated. As the independent variables on the right-hand side of (3) and (4) are the same, the estimation should apply seemingly unrelated regression (SUR), (in a multivariate regression model, the errors in different equations might be correlated. Here, the efficiency of the estimation can be improved by considering these cross-equation correlations. Like OLS, the seemingly unrelated regression (SUR) method assumes that all regressors are independent variables, but SUR uses the correlations among the errors in different equations to

Table 1: Variables and definitions.

Variables	Definition
Premium	Takeover premium = (Transaction deal value − Target's market value of equity)/Target's market value of equity
Cash_payment	Dummy variable equals 1 if the CBMA deal is paid in cash
Target_size	Target's total assets before the CBMA announcement (logarithm is used in regression)
Target_turnover	Target's total revenue before the CBMA announcement (logarithm is used in regression)
Target_ROA	Target's net profit divided by its total assets before the CBMA announcement
Target_lev	Target's total liability is divided by its total equity
Target_hightech	Dummy variable equals 1 if the target firm is from the high-tech industry
Acquirer_size	Acquirer's total assets before the CBMA announcement (logarithm is used in regression)
Relative_size	Target size divided by the acquirer size
Acquirer_listed	Dummy variable equals 1 if the acquirer is a public listed company and 0 otherwise
Acquirer_hightech	Dummy variable equals 1 if the acquiring firm is from high-tech industry
Toehold	Dummy variable equals 1 if the acquirer holds a nonzero percentage of the target's shares before the announcement and 0 otherwise
Final_control	Dummy variable equals 1 if the acquirer holds a percentage of the target's share greater than 51% after the M&A deal and 0 otherwise
Horizontal	Dummy variable equals 1 if the target and acquirer are from the same industry and 0 otherwise
GDP	Nominal GDP in US$ translated using purchasing power parity exchange rates, divided by population (logarithm is used in regression)
TFP_FAPG	Total factor productivity is part of economic output, calculated by dividing GDP growth by employment growth and estimated growth in the capital stock
Export	Exports of goods and services at constant market prices of a country, rebased to 2010 constant prices and translated into US$ using the local currency unit:$ exchange rate in 2010 (logarithm is used in regression)
LogDistance	Geographical distance between the capital cities of the acquiring and target countries (logarithm is used in regression)

improve the regression estimates) which is the simplification of the general linear model. $\widehat{\alpha_1}$ is the estimate of $\partial \Pr(\text{Success})/\partial \text{Bid}$ and $\widehat{\beta_1}$ of $\partial E(\text{Synergy}-\text{Bid Premium}|\text{Success})/\partial \text{Bid}$.

The bidder's profit is calculated using CARs scaled by the probability of success, as described by Bhagat et al. [15]. CARs are based on a three-day event window that captures market reactions to CBMA announcements [44]. The abnormal return (AR) is the difference between the actual stock return and the estimated expected stock return based on Brown and Warner's standard market model [45]. Specifically, in equations (5) and (6), R_{it} is the actual daily stock return of firm i on day t, and R_{mt} is the market daily return from the Shanghai stock exchange composite index and Shenzhen stock exchange composite index. AR_{it} is the AR of firm i on day t, calculated by the estimated γ_i and φ_i. The coefficients γ_i and φ_i are estimated from the OLS regression of R_{it} on R_{mt}. CAR_t is then calculated as the sum of the cumulated AR for the period of day −1 to day +1.

$$R_{it} = \gamma_i + \varphi_i \times R_{mt} + \varepsilon, \tag{5}$$

$$AR_{it} = R_{it} - \left(\widehat{\gamma} + \widehat{\varphi} \times R_{mt}\right), \tag{6}$$

$$\text{CAR}_t = \sum_{t=1}^{n} AR_t. \tag{7}$$

4.2. Regression Model. Model (8) is designed to examine whether the state-ownership nature matters in the decision-making efficiency in Chinese CBMAs, with overbidding as the dependent variable, SOE as the main explaining variable (independent variable), and a set of control variables.

$$\begin{aligned}\text{Overbidding}_{it} = {} & \mu_0 + \mu_1 SOE_{it} + \gamma \sum \text{Deal level Control} \\ & + \delta \sum \text{Firm level Control} \\ & + \omega \sum \text{Coutry level Control} \\ & + \text{Year} + \text{Industry} + \varepsilon_i.\end{aligned} \tag{8}$$

Overbidding is the FOC described in the previous section. The dummy variable SOE_{it} takes the value of 1 if the acquiring firm is owned by the state and 0 otherwise. Table 1 defines the other variables in the model.

Model (9) is designed to test whether high-tech target firms with innovative capacity require higher overbidding.

$$\begin{aligned}\text{Overbidding}_{it} = {} & \delta_0 + \delta_1 \text{High Tech}_{it} + \delta_2 SOE_{it} \\ & + \delta_3 SOE \times \text{High Tech}_{it} \\ & + \omega \sum \text{Control} + \text{Year} + \text{Industry} + \varepsilon_i.\end{aligned} \tag{9}$$

Overbidding is the FOC described in the previous section. The dummy variable High Tech_{it} takes the value of 1 if a firm is from high-tech industries and 0 otherwise. The other variables in the model are defined in Table 1.

4.3. Sampling Procedure and the Overbidding Measurement

4.3.1. Sampling Procedure for Estimating the Success Probability of a CBMA. To estimate the probability of success in CBMAs, we collected a sample of 3,586 Chinese CBMA deals targeting member countries of the Organization for Economic Co-operation and Development (OECD) from 2009

Table 2: Sampling procedure for estimating the probability of success.

Cross-border mergers and acquisitions deals on and after January 1, 2009, and up to December 31, 2019, with the acquirer originating from China and the targets' countries from members of the Organization for Economic Co-operation and Development (OECD)	3,586
Less acquirer from banking, insurance, and other financial industry sectors	(1,602)
	1,984
Less missing financial or other deal information observations	(896)
	1,088

Data source: the cross-border merger and acquisition data are from the Zephyr database.

to 2019. Table 2 reports a summary of the sampling procedure.

4.3.2. Estimating the Probability of Acquisition Success. Using the 1,088 observations of Chinese CBMA transactions (with both completed and uncompleted deals), logistic regression is applied to estimate the probability of acquisition success. Table 3 reports the logistic regression results. Based on the regression coefficients, the predicted probability of the success of each CBMA is then calculated.

4.3.3. Sampling Procedure for Estimating the Bidder's Profits and the Measurement of Overbidding. In this section, observations of completed CBMAs are selected in regression because only completed CBMAs yield the bidder's profit.

The data used in this section are sampled as follows, with a detailed sampling procedure reported in Table 4.

From 2009 to 2019, 291 of the 1,088 samples of total Chinese CBMAs targeting OECD members were uncompleted. We obtained a sample of 346 observations for the empirical test after removing 290 observations with unlisted acquiring firms and 161 observations with missing data.

The bidder's profit is calculated by multiplying CAR by the estimated profitability of acquisition success from the previous section. The CARs are based on a three-day event window that captures market reactions to the CBMA announcement. Due to data availability, we estimated the CARs of the acquiring firms using the listed acquiring firms' stock returns and other financial data from the China Stock Market and Accounting Research Database (CSMAR).

4.3.4. Descriptive Statistics of Main Variables Used in SUR Regression for Estimating Overbidding. Table 5 presents the descriptive statistics of the main variables in the regression models (3) and (4).

4.3.5. SUR Regression Results. The regression estimation of (3) and (4) is obtained using the SUR procedure. The dependent variable in column (1) is the predicted probability of success and that in column (2) is the bidder's profits. The two key coefficients of interest are the coefficients on premium: $\widehat{\alpha}_1$ is the estimate of $\partial \Pr(\text{Success})/\partial \text{Bid}$ and $\widehat{\beta}_1$ of $\partial E(\text{Synergy} - \text{Bid Premium}|\text{Success})/\partial \text{Bid}$

Table 3: Logistic regression results in the probability of acquisition success.

Variables	Coefficients
Intercept	28.8620** (16.3420)
Premium	0.1365 (0.1439)
Cash_payment	−0.1381 (0.4966)
Toehold	−0.7451 (0.6350)
Horizontal	−0.3473 (0.4295)
Final_control	−1.9143*** (0.5816)
Target_Hightech	−0.3259 (0.5297)
Target_patent	0.0322 (0.1073)
Target_size	−0.6203** (0.3426)
Target_ROA	−0.3684 (0.5611)
Target _LEV	0.8450 (0.8860)
Acquirer_size	−0.8300*** (0.3134)
Acquirer_list	−0.3542 (0.4721)
GDP	−6.5926 (3.7833)
TFP_FAPG	0.3207 (0.2849)
Export	0.8058*** (0.2990)
LogDistance	2.3290** (1.3716)
No. of observations	1,088
Hosmer and Lemeshow test chi-square (pr > ChiSq)	8.4478 (0.3910)

Note. The dependent variable (success) is a dummy variable, with the value of 1 if the CBMA deal is finally completed and 0 otherwise. Standard errors are in parentheses; ***, **, and *indicate significance at 1%, 5%, and 10% levels, respectively.

$$\Pr(\text{Success}) = \alpha_0 + \alpha_1 \times \text{Bid Premium} + \sum \text{Control} + \varepsilon_1, \tag{10}$$

$$\text{Bidder's Profit} = \beta_0 + \beta_1 \times \text{Bid Premium} + \sum \text{Control} + \varepsilon_2. \tag{11}$$

The estimated $\widehat{\alpha}_1$ is significantly negative at the 1% level; however, it is inconsistent with the previous literature [12, 16]. Previous research suggests that the premium should be positively related to the probability of success. It turns out to be the opposite in this study. One possible explanation is that sample sources and size in Chinese CBMAs differ from those in other developed economies. The other factor could be the particular institutional

Table 4: Sample for estimating the bidder's profit.

Items	Number of deals
Cross-border merger and acquisition deals on and after January 1, 2009, and up to December 31, 2019, with the acquirer originating from China and the targets' countries from members of the Organization for Economic Co-operation and Development (OECD)	1,088
Less: uncompleted deals	(291)
Less: unlisted acquiring firms	(290)
Less: observation with missing data	(161)
	346

Data source: the cross-border merger and acquisition data are from the Zephyr database. The financial data and stock return data are from the China Stock Market and Accounting Research Database (CSMAR).

Table 5: Summary statistics.

Variables	Min	P25	Mean	Median	P75	Max	St. dev
Bidder's CAR	−0.2308	−0.0156	0.0092	0	0.0267	0.4247	0.0662
Probability of acquisition success	0.1646	0.6169	0.7156	0.7492	0.8531	0.9713	0.1783
Bidder's profit	−0.0857	−0.0102	0.00847	0	0.0146	0.2744	0.0492
Premium	−0.00001	−0.000012	0.4272	9.35E-7	0.3816	5.8334	0.9132

Table 5 reports the summary statistics of three main variables in SUR regression models (3) and (4). The sample size comprised 346 Chinese completed CBMAs. Bidder's CAR measures the bidder's abnormal returns in the [−1, +1] window around the CBMA announcement. The probability of acquisition success is the predicted probability of transaction completion. The bidder's profit is measured as the bidder's CAR is scaled by the estimated probability of success. Premium denotes the percentage of excess transaction deal value over the target's market value of equity relative to the target's market value of equity.

Table 6: SUR regression results of estimating the probability of acquisition success and the bidder's profit.

Variables	(1) Dependent variable: probability of success	(2) Dependent variable: bidder's profit
Intercept	−0.5844 (−1.23)	1.03691 (1.57)
Premium	**−0.02387 *** (−4.37)**	**−0.00385 (−0.51)**
Cash_payment	0.1174*** (9.22)	−0.02285 (−1.29)
Toehold	−0.0579*** (−4.33)	−0.0238 (−1.29)
Horizontal	0.0031 (0.27)	0.0059 (0.38)
Final_control	−0.1645*** (−11.84)	−0.0464** (2.40)
Target_size	−0.1996*** (−3.25)	0.14462* (1.69)
Target_Hightech	−0.08948*** (−7.20)	−0.01365 (−0.79)
Target_patent	−0.00399 (−1.16)	−0.0109** (−2.30)
Target_ROA	−0.03535** (−2.22)	−0.04454* (2.01)
Target _LEV	0.0661** (2.29)	0.0219 (0.55)
Acquirer_size	0.0105 (0.20)	−0.14108* (1.97)
RelativeSize	0.7517** (2.01)	−0.9646* (−1.85)
GDP	0.3039*** (3.54)	−0.00715 (−0.06)
TFP_FAPG	0.02467*** (3.63)	−0.00184 (−0.19)
Export	0.03534*** (5.17)	0.0033 (0.35)
LogDistance	0.0444 (1.33)	−0.02916 (−0.63)
No. of observations	346	346
Adj R^2	0.9513	0.023

Table 6 summarizes the estimation results of (3) and (4) for calculating overbidding. T-statistics are in parentheses. ***, **, and *indicate significance at 1%, 5%, and 10% levels, respectively. The regression estimation is obtained using the SUR procedure. The dependent variable in column (1) is the probability of success and that of column (2) is the bidder's profits. The two key coefficients of interest are the coefficients on premium: $\hat{\alpha}_1$ is the estimate of $\partial \Pr(\text{Success})/\partial \text{Bid}$ and $\hat{\beta}_1$ of $\partial E(\text{Synergy} - \text{Bid Premium}|\text{Success})/\partial \text{Bid}$.According to the research data we collected, we did not find significance for the regression coefficient of Premium in Column (2). The T-statistics (−0.51) are reported in parentheses.

context of China's transitional economy. In general, the higher the premium paid by the acquirer, the greater the likelihood of success. However, when a firm from an emerging market acquires targets from well-developed economies, the higher premium paid by the acquirer indicates that the target firm is crucial for the acquiring firm's development. Whether it is technology-oriented or resource-driven, the CBMA deals may probably be intervened by the target regulators, and the probability of success may be negatively influenced. The estimated $\hat{\beta}_1$ is negatively related to the bidder's profits, as expected; however, it is not significant.

Table 7: Summary of the statistics of the first-order condition test.

Variable	Min	P25	Mean	Median	P75	Max	Std
FOC	−0.0230	−0.0203	−0.0171	−0.0178	−0.0146	−0.0039	0.0042

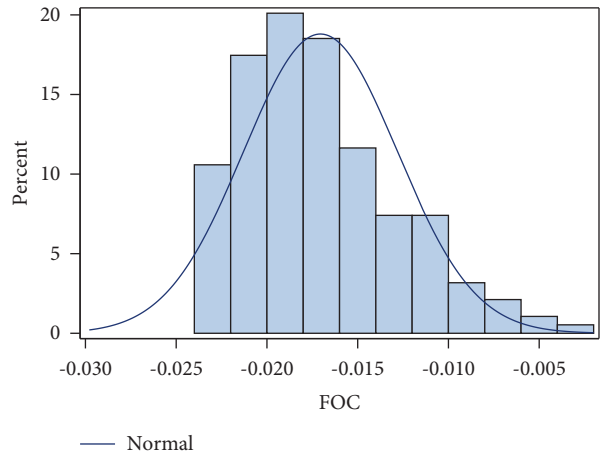

Figure 1: Histogram of the first-order condition test.

Table 8: Difference in premiums and overbidding between SOEs and non-SOEs.

	N	Mean of premium	Difference	*T*-test (Pr > |*t*|)
SOEs	92	0.5469	0.163	1.47 (0.1428)
Non-SOEs	254	0.3839		
	N	Mean of overbidding	Difference	*T*-test (Pr > |*t*|)
SOEs	92	1.5297	−0.2338***	3.36 (0.0009)
Non-SOEs	254	1.7635		

Note. The premium is the percentage of the transaction deal value over the target's market value of equity, and overbidding is calculated by −100 multiplied by FOC, assuming the maximization of the bidder's profits. ***, **, and *indicate significance at 1%, 5%, and 10% levels, respectively.

$$\Pr(\text{Success}) = \alpha_0 + \alpha_1 \times \text{Bid Premium} + \sum \text{Control} + \varepsilon_1, \tag{12}$$

$$\text{Bidder's Profit} = \beta_0 + \beta_1 \times \text{Bid Premium} + \sum \text{Control} + \varepsilon_2. \tag{13}$$

4.3.6. Overbidding Measurements. To obtain the FOC, we estimated the coefficients of α and β in (3) and (4) using the SUR method. The overbidding is then calculated as follows:

$$\text{FOC} = \widehat{\alpha_1} \times \text{Probability of Success} + \widehat{\beta_1} \times \text{Bidder's Profit}. \tag{14}$$

As a negative value of FOC indicates overbidding, in the empirical testing, the FOC is multiplied by −100. That is, the higher the value, the more overbidding and inefficiency it represents. Thus, overbidding = $(-100)_{\times \text{FOC}}$.

Table 7 presents the summary of the FOC test, and Figure 1 displays the histogram for 346 transactions included in the sample. The descriptive statistics indicate that all transactions tend to be overbidding as the values of FOC are negative, and they are centered in the range of [−0.025, −0.01]. In terms of profit maximization, the bidding strategies of these transactions in the sample period are not optimal (overbidding) because the FOC is negative.

Based on the assumption of the bidder's expected profit maximization, FOC denotes the marginal change in the bidder's profit given one unit change in bid premium [12]. Negative FOC values indicate overbidding, whereas positive values indicate underbidding.

5. Results

5.1. Difference in Premium and Overbidding Based on the T-Test. Table 8 provides the difference in premium and the overbidding of both SOEs and non-SOEs. Interestingly, the premium paid in the CBMA transaction is higher in SOEs on average, but the difference between SOEs and non-SOEs is not significant. However, the mean of overbidding is lower in SOEs, and it is significantly different from that of non-SOEs, which provides some evidence that the efficiency of SOEs in CBMAs is better than that of non-SOEs.

Table 9: Regression results.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	−0.53 (1.20)	−0.378 (−0.28)	−0.372 (−0.27)	−0.567 (−0.61)	−0.704 (−0.76)	−0.635 (−0.67)
SOE	−0.12*** (−2.79)	−0.13*** (−3.07)	−0.124** (−2.58)		−0.046* (−1.65)	−0.0429 (−1.47)
Target_hightech		−0.105** (−2.47)	−0.09** (−2.08)			
SOE ∗ Target_hightech			−0.058 (−0.55)			
Acquirer-hightech				−0.07*** (−2.65)	−0.08*** (−2.92)	−0.07*** (−2.63)
SOE ∗ Acquirer_hightech						−0.042 (−0.38)
Cash_payment	0.31*** (8.22)	0.32*** (8.53)	0.32*** (8.53)	0.29*** (13.17)	0.29*** (13.07)	0.29*** (12.89)
Horizontal	0.015 (0.39)	0.018 (0.47)	0.018 (0.45)	−0.04 (−1.65)	−0.038 (−1.56)	−0.036 (−1.48)
Toehold	−0.18*** (−3.97)	−0.19*** (−4.16)	−0.19*** (−4.19)	−0.13*** (−4.65)	−0.12*** (−4.42)	−0.12*** (−4.43)
Final_control	−0.27*** (−5.55)	−0.28*** (−5.97)	−0.28*** (−5.94)	−0.30*** (−10.7)	−0.29*** (−10.5)	−0.29*** (−10.44)
Target_turnover	−0.29*** (−11.75)	−0.29*** (11.96)	−0.29*** (−11.95)	−0.10*** (−5.72)	−0.10*** (−4.12)	−0.10*** (−5.58)
Target_ROA	−0.012 (−0.33)	0.006 (0.18)	0.007 (0.19)	−0.07*** (−3.47)	−0.07*** (−3.42)	−0.07*** (−3.43)
Target _LEV	−0.09 (−1.54)	−0.087 (−1.42)	−0.088 (−1.42)	0.12*** (3.11)	0.118*** (3.42)	0.121*** (3.10)
Relative_size	0.222 (1.50)	0.191 (1.31)	0.193 (1.32)	0.77** (1.81)	0.907** (2.09)	0.87** (1.98)
GDP	0.53 (1.63)	0.521 (1.63)	0.517 (1.61)	0.65*** (3.37)	0.66*** (3.46))	0.65*** (3.37)
TFP_FAPG	0.04 (1.36)	0.05 (1.55)	0.05 (1.58)	0.03** (1.88)	0.03** (1.79)	0.033** (1.78)
Export	0.07*** (2.91)	0.08*** (3.31)	0.08*** (3.29)	0.07*** (4.79)	0.068*** (4.79)	0.069*** (4.79)
LogDistance	0.168 (1.51)	0.145 (1.32)	0.149 (1.35)	0.189*** (2.91)	0.17*** (2.62))	0.169** (2.57)
Year fixed	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes	Yes
R-square	0.766	0.775	0.775	0.921	0.922	0.922
No. of observations	346	346	346	346	346	346

Note. The dependent variable is overbidding. *T*-values are in parentheses. ***, **, and *indicate significance at 1%, 5%, and 10% levels, respectively.

Table 10: Difference-in-difference regression results.

Variables	Coefficients
Intercept	−0.7443 (1.2789)
SOE	−0.1752** (0.0847)
POST	−0.0003 (0.059)
SOE ∗ POST	0.0522 (0.0976)
Cash_payment	0.3047*** (0.0371)
Toehold	−0.1979*** (0.0450)
Horizontal	0.0205 (0.0348)
Final_control	−0.2815*** (0.0460)
Target_turnover	−0.2939*** (0.0234)
Target_ROA	0.0042 (0.0331)
Target_LEV	−0.1012* (0.0612)
Relative_size	0.2059 (0.1377)
GDP	0.5512* (0.3002)
TFP_FAPG	0.0707*** (0.0211)
Export	0.0870*** (0.0225)
LogDistance	0.1498 (0.1080)
No. of observations	346

Note. The dependent variable is overbidding. Standard errors are in parentheses. ***, **, and *indicate significance at 1%, 5%, and 10% levels.

5.2. Regression Results. Table 9 summarizes the regression results in testing H1 and H2.

Column (1) summarizes the findings regarding the relationship between overbidding and the nature of state-ownership. After controlling for deal-level, firm-level, and country-level variables, we determined that the coefficient is negatively related to overbidding and significant at the 1% level. The findings show that the overbidding in CBMA deals of acquiring firms that are SOEs is lower than non-SOEs. In other words, SOEs are more efficient than non-SOEs, thus providing empirical evidence to support H1.

We then test whether the overbidding phenomenon is clearer when the Chinese acquiring firms target firms in the high-tech industry. Due to the increased complexity in the high-tech firm's valuation, the target firm likely requires a higher payment. However, a higher premium paid does not necessarily lead to inefficiency in the pricing decision-making.

Except in column (6), the coefficient of SOE is significantly negative to overbidding, indicating that bidding efficiency in SOEs is higher than in non-SOEs, which is consistent with the results in the previous section. The negative coefficient of Target_hightech is significant at the 5% level in columns (2) and (3), indicating that when Chinese firms target high-tech firms overseas, the bidding strategy is more optimal. The findings support the argument that acquirer management is sensitive to high-tech targets, and it strives to maximize the target's technology and knowledge to achieve potential synergy. Hence, H2a is supported.

Examining whether the acquired firms from the high-tech industry have the same effect is interesting. In columns (4)–(6), the results show analogical negative coefficients on Acquirer_hightech at the 1% significance level. When the acquiring firms belong to the high-tech industry, the bidding strategy tends to be optimal, probably due to the realized potential merging synergy. Again, this evidence supports the hypothesis that the overbidding of Chinese CBMAs is lower when the acquiring firm is from the high-tech industry.

When state-owned equity is considered, as proposed in the previous section, the effects of the high-tech industry may be exacerbated because state-owned high-tech firms are one of the critical focus areas. The government attaches great importance to the development of high-tech firms to improve the country's competitiveness in the international market and the stability of its economic growth. The results of the interaction of SOE and high-tech are negative, as expected, but they are not statistically significant in empirical testing.

6. Further Analysis: Difference-In-Difference (DID) Analysis of the Corporate Governance Reform on SOEs

To obtain a better understanding of the institutional environment in China, we further analyze whether the corporate governance reform in SOEs impacts the efficiency of the CBMA transaction decision-making. In the theoretical framework of the stewardship theory, managers of the firm act as stewards who make decisions that maximize the firm value. In the previous section, we find supporting evidence of the stewardship theory in explaining the efficiency of Chinese CBMAs' decision-making. We used an exogenous shock of the anticorruption campaign in 2013 to apply a DID analysis and examine whether governance reform matters in efficient decision-making.

The Communist Party of China issued "Rule 18" in October 2013, with the goal of reducing corruption between businesses and officials by requiring party and government officials to resign from enterprises. Prior to this rule, many Chinese SOE managers were appointed by the government and were more sensitive to their political careers. Managers of SOEs are more likely to build their empires through firm expansion or overinvestment. The Chinese government's anticorruption campaign demonstrates its desire to improve governance quality, which may result in a better institutional environment and benefits for long-term economic development. Research based on China's anticorruption campaign has shown that it does improve internal corporate governance in SOEs at the firm level [46]. However, whether the anticorruption campaign's improved corporate governance has an impact on decision-making in the context of Chinese CBMAs has not yet been fully understood. According to the stewardship theory, management in Chinese SOEs is more likely to be pro-organizational and responsible for the firm's best development.

The DID regression results are shown in Table 10. The SOE coefficient is negatively related to overbidding and significant at the 5% level, indicating that overbidding is lower in SOEs than in non-SOEs. In other words, SOEs have higher bidding efficiency. However, the coefficients of POST and the interaction term of SOE ∗ POST are not significant, indicating that the efficiency of a CBMA transaction bidding strategy has not changed significantly in SOEs since the 2013 anticorruption campaign. This finding contrasts with

previous studies [8, 9] that found the inefficient performance of SOEs based on the agency theory. As society and corporate ownership change, the role of managers in SOEs should be reconsidered. The stewardship theory offers a novel perspective on whether managers in SOEs serve as stewards of shareholders rather than as agents focused on economic rewards. If stewardship plays an important role, the efficiency of corporate performance is unlikely to be impacted by the anticorruption campaign, which improves transparency and governance quality. The insignificant coefficients of the interaction term of SOE ∗ POST in DID regression results confirm this argument, providing further evidence of the explaining power of stewardship theory in Chinese CBMA decision-making efficiency.

7. Conclusion

The phenomenon of acquisition premium has piqued the interest of academics and practitioners, with a focus on why it occurs and how it may affect firm value. This study adds to the literature on the phenomenon by employing a novel model to assess overbidding in Chinese CBMAs, focusing on optimal decision-making. In response to the overbidding phenomenon, descriptive statistics results indicate that overbidding is prevalent in Chinese CBMA transactions during the sample period from 2009 to 2019. Interestingly, compared with non-SOEs, SOEs experience less overbidding, and the decision-making is relatively more optimal. This finding is inconsistent with previous empirical results of Chinese SOEs' inefficient performance due to agency conflicts and poor corporate governance. The phenomenon is explained by the stewardship theory, which posits that managers in SOEs are stewards rather than agents who focus solely on economic rewards. Empirical evidence also suggests that firms in the high-tech industry are less likely to overbid.

In a subsequent analysis, this study examines whether the role of state-ownership has an impact on the overbidding of the CBMAs transaction within the changing institutional environment, using the exogenous shock of the Chinese government's anticorruption campaign in 2013. The DID analysis shows that governance reform in SOEs has no significant effect on CBMA decision-making efficiency, confirming the explanatory power of stewardship theory.

This study contributes to the Chinese CBMAs' literature on the overbidding phenomenon by providing evidence of the various overbidding of Chinese SOEs and non-SOEs' CBMAs transactions, focusing on optimal decision-making. Furthermore, from a theoretical perspective, the stewardship theory used to explain the efficiency of SOEs broadens our understanding of corporate governance. The findings may have policy implications for China's outward investment policy, particularly in terms of improving the efficiency of foreign investment.

Data Availability

The data for the cross-border merger and acquisition is released from Zephyr database, and the acquiring firms' stock returns and other financial data are supplied by the China Stock Market and Accounting Research Database (CSMAR). Both databases are under license and cannot be made freely available without permission. The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

This work was supported by the Chongqing Federation of Social Science Planning Project (Grant number: 2021NDYB079).

References

[1] Unctad, *World Investment Report 2020*, UNCTAD, Geneva, Switzerland, 2020.

[2] J. Chaisse and K. F. Olaoye, "The tired dragon: casting doubts on China's investment treaty practice," vol. 17, no. 1, pp. 134–193, 2020.

[3] Q. Xu, "Scoping the impact of the Comprehensive Agreement on investment: liberalization, protection, and dispute resolution in the next era of EU–China relations," *Asia Pacific Law Review*, vol. 30, no. 1, pp. 93–122, 2022.

[4] T. Laamanen, "On the role of acquisition premium in acquisition research," *Strategic Management Journal*, vol. 28, no. 13, pp. 1359–1369, 2007.

[5] B. E. Eckbo, "Bidding strategies and takeover premiums: a review," *Journal of Corporate Finance*, vol. 15, no. 1, pp. 149–178, 2009.

[6] M. Maung, M. Shedden, Y. Wang, and C. Wilson, "The investment environment and cross-border merger and acquisition premiums," *Journal of International Financial Markets, Institutions and Money*, vol. 59, pp. 19–35, 2019.

[7] O. K. Hope, W. Thomas, and D. Vyas, "The cost of pride: why do firms from developing countries bid higher," *Journal of International Business Studies*, vol. 42, no. 1, pp. 128–151, 2011.

[8] W. Guo, J. A. Clougherty, and T. Duso, "Why are Chinese MNES not financially competitive in cross-border acquisitions? The role of state ownership," *Long Range Planning*, vol. 49, no. 5, pp. 614–631, 2016.

[9] Y. Y. Chen and M. N. Young, "Cross-border mergers and acquisitions by Chinese listed companies: a principal-principal perspective," *Asia Pacific Journal of Management*, vol. 27, no. 3, pp. 523–539, 2010.

[10] A. Howell, J. Lin, and S. Worack, "Going out to innovate more at home: impacts of outward direct investments on Chinese firms' domestic innovation performance," *China Economic Review*, vol. 60, Article ID 101404, 2020.

[11] P. J. Buckley, L. J. Clegg, A. R. Cross, X. Liu, H. Voss, and P. Zheng, "The determinants of Chinese outward foreign direct investment," *Journal of International Business Studies*, vol. 38, no. 4, pp. 499–518, 2007.

[12] E. De Bodt, J. G. Cousin, and R. Roll, "Empirical evidence of overbidding in M&A contests," *Journal of Financial and Quantitative Analysis*, vol. 53, no. 4, pp. 1547–1579, 2018.

[13] G. Kou, H. Xiao, M. Cao, and L. H. Lee, "Optimal computing budget allocation for the vector evaluated genetic algorithm in multi-objective simulation optimization," *Automatica*, vol. 129, Article ID 109599, 2021.

[14] G. Kou, O. Akdeniz, H. Dinçer, and S. Yüksel, "Fintech investments in European banks: a hybrid IT2 fuzzy multidimensional decision-making approach," *Financ. Innov.*, vol. 7, no. 1, pp. 39–67, 2021.

[15] S. Bhagat, M. Dong, D. Hirshleifer, and R. Noah, "Do tender offers create value? New methods and evidence," *Journal of Financial Economics*, vol. 76, no. 1, pp. 3–60, 2005.

[16] E. Bartov, C. S. A. Cheng, and H. Wu, "Overbidding in mergers and acquisitions: an accounting perspective," *The Accounting Review*, vol. 96, no. 2, pp. 55–79, 2021.

[17] D. C. Hambrick and P. A. Mason, "Upper echelons: the organization as a reflection of its top managers," *Academy of Management Review*, vol. 9, no. 2, pp. 193–206, 1984.

[18] R. Roll, "The hubris hypothesis of corporate takeovers," *Journal of Business*, vol. 59, no. 2, pp. 197–216, 1986.

[19] N. Aktas, E. de Bodt, and R. Roll, "MicroHoo: deal failure, industry rivalry, and sources of overbidding," *Journal of Corporate Finance*, vol. 19, no. 1, pp. 20–35, 2013.

[20] M. L. A. Hayward and D. C. Hambrick, "Explaining the premiums paid for large acquisitions: evidence of CEO hubris," *Administrative Science Quarterly*, vol. 42, no. 1, pp. 103–127, 1997.

[21] U. Malmendier and G. Tate, "Who makes acquisitions? CEO overconfidence and the market's reaction," *Journal of Financial Economics*, vol. 89, no. 1, pp. 20–43, 2008.

[22] M. C. Jensen, "Agency problems of free cash flow," *Mark. Corp. Control*, vol. 76, no. 2, pp. 323–329, 1986.

[23] A. Pan, W. Liu, and X. Wang, "Managerial overconfidence, debt capacity and merger & acquisition premium," *Nankai Business Review International*, vol. 10, no. 4, pp. 570–590, 2019.

[24] J. Wulf, "Do CEOs in mergers trade power for premium? Evidence from 'mergers of equals," *Journal of Law, Economics, and Organization*, vol. 20, no. 1, pp. 60–101, 2004.

[25] B. Qiu, S. Trapkov, and F. Yakoub, "Do target CEOs trade premiums for personal benefits?" *Journal of Banking & Finance*, vol. 42, no. 1, pp. 23–41, 2014.

[26] D. Jenter and K. Lewellen, "CEO preferences and acquisitions," *The Journal of Finance*, vol. 70, no. 6, pp. 2813–2852, 2015.

[27] Q. Gu, C. Ju, and F. Bao, "The cross-border mergers and acquisitions of local state-owned enterprises: the role of home country government involvement," *Sustainability*, vol. 12, no. 7, p. 3020, 2020.

[28] J. H. Davis, F. D. Schoorman, and L. Donaldson, "Toward a stewardship theory of management," *Academy of Management Review*, vol. 22, no. 1, pp. 20–47, 1997.

[29] R. E. Till and M. B. Yount, "Governance and incentives: is it really all about the money?" *Journal of Business Ethics*, vol. 159, no. 3, pp. 605–618, 2019.

[30] M. W. Peng, S. Zhang, and X. Li, "CEO duality and firm performance during China's institutional transitions," *Management and Organization Review*, vol. 3, no. 2, pp. 205–225, 2007.

[31] Y. Luo, Q. Xue, and B. Han, "How emerging market governments promote outward FDI: experience from China," *Journal of World Business*, vol. 45, no. 1, pp. 68–79, 2010.

[32] Z. Chen, B. Ke, Z. Yang, Z. Chen, and B. Ke, "Minority shareholders ' control rights and the quality of corporate decisions in weak investor protection countries: a natural experiment from China," *The Accounting Review*, vol. 88, no. 4, pp. 1211–1238, 2013.

[33] W. R. Scott, K. G. Smith, and M. A. Hitt, "Institutional theory: contributing to a theoretical research program chapter prepared for great minds in management: the process of theory," *Gt. minds Manag. Process theory Dev*, pp. 460–485, 2004.

[34] G. Hofstede, *Geert Hofstede, Culture's Consequences: Comparing Values, Behaviours, Institutions, and Organizations across Nations*, pp. 1–621, Sage Publications, Thousand Oaks, California, USA, 2001.

[35] C. Lyu, D. C. Y. Yuen, and X. Zhang, "Individualist-collectivist culture, ownership concentration and earnings quality," *Asia-Pacific Journal of Accounting & Economics*, vol. 24, no. 1–2, pp. 23–42, 2017.

[36] P. Deng, "Why do Chinese firms tend to acquire strategic assets in international expansion?" *Journal of World Business*, vol. 44, no. 1, pp. 74–84, 2009.

[37] L. Cui, K. E. Meyer, and H. W. Hu, "What drives firms' intent to seek strategic assets by foreign direct investment? A study of emerging economy firms," *Journal of World Business*, vol. 49, no. 4, pp. 488–501, 2014.

[38] N. Zheng, Y. Wei, Y. Zhang, and J. Yang, "In search of strategic assets through cross-border merger and acquisitions: evidence from Chinese multinational enterprises in developed economies," *International Business Review*, vol. 25, no. 1, pp. 177–186, 2016.

[39] N. Kohers and T. Kohers, "Takeovers of technology firms: expectations vs. Reality," *Financial Management*, vol. 30, no. 3, p. 35, 2001.

[40] I. Serdar Dinc and I. Erel, "Economic nationalism in mergers and acquisitions," *The Journal of Finance*, vol. 68, no. 6, pp. 2471–2514, 2013.

[41] A. Mukherji, J. Mukherji, C. Dibrell, and J. D. Francis, "Overbidding in cross-border acquisitions: misperceptions in assessing and valuing knowledge," *Journal of World Business*, vol. 48, no. 1, pp. 39–46, 2013.

[42] W. Guo, *Cross-border mergers and acquisitions from emerging market nations: evidence from Chinese acquirers*, Ph.D. Dissertation, University of Illinois Urbana-Champaign, Urbana, IL, USA, 2014.

[43] X. Wu, X. Yang, H. Yang, and H. Lei, "Cross-border mergers and acquisitions by Chinese firms: value creation or value destruction?" *Journal of Contemporary China*, vol. 25, no. 97, pp. 130–145, 2016.

[44] S. Betton, B. E. Eckbo, R. Thompson, and K. S. Thorburn, "Merger negotiations with stock market feedback," *The Journal of Finance*, vol. 69, no. 4, pp. 1705–1745, 2014.

[45] S. J. Brown and J. B. Warner, "Using daily stock returns," *Journal of Financial Economics*, vol. 14, no. 1, pp. 3–31, 1985.

[46] Q. Jin, Y. Jin, G. G. Tian, and Y. Xuan, "Does internal corporate governance complement or substitute for external auditing? Evidence from China's anti-corruption campaign," *Abacus*, vol. 57, no. 1, pp. 153–182, 2021.