

# The impact of related party transactions on M&A performance: mediating effect of private targets discounts

Frank Zhao<sup>1</sup>

Lina El-Jahel<sup>2</sup>

Michelle Li<sup>3</sup>

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<sup>1</sup> [Fank.Zhao@auckland.ac.nz](mailto:Fank.Zhao@auckland.ac.nz)

<sup>2</sup> [l.eljahel@auckland.ac.nz](mailto:l.eljahel@auckland.ac.nz)

<sup>3</sup> [michelle.li@auckland.ac.nz](mailto:michelle.li@auckland.ac.nz)

## **Abstract**

The evaluation of privately held companies has received significant attention in mergers and acquisitions research. While there is a common belief among academics, practitioners, courts, and regulators that private targets are sold at discounts, the empirical evidence is mixed. This study examines target evaluation reports from China and finds that unlisted targets are indeed sold at a discount. The discount can primarily be attributed to the relationship between the acquirer and the target company. Furthermore, when acquirers take over unlisted targets, the market reacts positively, as indicated by the acquirers' cumulative abnormal returns (CARs). This positive reaction can be explained by the relationship between the acquirers and the targets, with the discount acting as a mediating factor. Additionally, the mediating effect of the discount is more prominent for acquiring firms that are non-state-owned enterprises. The mediating effect of the discount is not driven by the acquiring firm's power. While the liquidity needs of parent companies do impact the discount, they do not diminish the influence of the relationship between acquirers and targets. These findings are robust under various tests.

## 1. Introduction

Acquisitions of publicly traded firms often yield unimpressive value implications for acquiring firm shareholders, as indicated by average abnormal returns around zero during the announcement period (e.g., Bruner, 2004). In the contrast, acquiring firm shareholders gain from buying a private firm or subsidiary (e.g., Fuller et al., 2002; Moller et al., 2004), and unlisted targets comprise a substantial portion of the mergers and acquisitions (M&A) market, with transactions involving these entities representing a noteworthy proportion. Jaffe et al. (2019) document that between the years 1984 and 2014, a substantial 83% of all acquisitions were directed towards unlisted targets. These acquisitions involving unlisted targets accounted for approximately 41% of the total aggregated deal value during that period. Suk and Wang's (2021) M&A also reveal that a mere 10% of M&A cases between 1987 and 2016 involved both listed acquirers and listed targets in the US.

The favourable market reaction to acquisitions of private firms and the higher announcement returns for acquirers in comparison to takeovers of public firms can be attributed, in part, to the fact that private targets are typically sold at a discounted price. However, accurately assessing the actual value of unlisted targets is challenging (e.g., Officer, 2007; Jaffe et al., 2019). The difficulty arises from the absence of mandatory requirements to disclose financial information related to unlisted targets. For example, the Securities and Exchange Commission (SEC) mandate acquirers to disclose financial information of target companies only when they are deemed “significant”<sup>4</sup> (Mason and Stegemoller, 2022). Given the costs associated with releasing information, including administrative expenses and the potential disclosure of proprietary information, many acquirers opt to avoid disclosing even the basic details of a transaction if they have the choice (Beyer et al. 2010). The limited availability of information regarding unlisted targets presents a significant obstacle for the market in accurately determining their true value.

To address the valuation challenge of unlisted targets, previous scholars in finance have developed various methods that rely on multiples derived from comparable listed companies. These methods have produced evidence indicating that unlisted targets are often priced at a discount compared to their publicly traded counterparts, as supported by studies from Koeplin

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<sup>4</sup> In order to determine whether a private target is considered "significant" to an acquirer in the US market, the evaluation is based on three tests. If any one of the following three criteria exceeds 20%, the target is deemed significant: 1) target pre-tax income as a percentage of acquirer pre-tax income, 2) target total assets as a percentage of acquirer total assets, 3) the investment in the target as a percentage of acquirer total assets.

(2000), Kooli (2003), and Officer (2007). However, the absence of a standardized approach for evaluating unlisted targets raises methodological concerns when attempting to assess their value, resulting in mixed findings regarding whether they are sold at a discount or not. For instance, Jaffe et al. (2019) argue that Officer's (2007) valuation procedure for unlisted targets may be susceptible to Jensen's inequality bias, potentially leading to an underestimation of the observed discount. Jaffe et al. (2019) did not find consistent evidence supporting the notion that unlisted targets are consistently sold at discounted prices. The question of whether unlisted targets exhibit a discount or not remains an area of ongoing investigation.

Despite the considerable research conducted on the discount associated with unlisted targets, financial scholars have faced challenges in offering a definitive explanation for the factors that cause this discount (Capron and Shen, 2007). One of the prominent explanations for the unlisted target discount is the lack of market liquidity (Fuller et al., 2002). When valuing nonmarketable interests within the framework of a fair market value business valuation, it is common to include a valuation adjustment for the discount for lack of marketability. The discount for lack of marketability accounts for the illiquidity and restricted marketability of these interests, which can affect their value compared to freely tradable assets (Zanni, 2015). Empirical studies investigating the role of liquidity as an explanation for the discount observed in unlisted targets have yielded inconsistent and inconclusive results. Officer (2007) proposes that the discount arises due to liquidity constraints faced by corporate parents when divesting their unlisted subsidiaries. However, Faccio et al. (2006) did not find strong evidence supporting the liquidity discount. Furthermore, Jaffer et al. (2019) challenge Officer's (2007) findings and provide limited evidence to support the liquidity explanation. These mixed results suggest that the discount observed in private firms cannot be solely attributed to the liquidity effect.

The primary objective of this study is to tackle the methodological challenges involved in valuing unlisted targets by leveraging evaluation reports within China's M&A market. Additionally, the study offers an alternative explanation for the discount observed in unlisted targets, focusing specifically on the relationship between acquirers and unlisted targets, particularly within the context of related-party transactions.

Similar to the US market, a significant majority of target companies involved in domestic mergers and acquisitions (M&A) in China are private firms (Bhabra and Huang, 2013). Different from the US, the "Management Measures for the Acquisition of Non-Listed Public

Companies" mandates that the acquiring firm must enlist the services of a third-party financial advisor to evaluate the target company if the acquiring firm is seeking to take over a private firm. As part of this evaluation process, the reports generated by the financial advisor must be published and disclosed in the M&A announcement. As a result, the evaluation reports provide comprehensive information regarding the valuation of private companies, including evaluation methods, book value of targets, and evaluation value of targets. These reports are publicly available, which effectively overcomes the challenge of limited information concerning unlisted targets. By comparing the evaluation report with the transaction price paid by the acquiring firm, it becomes possible to directly determine if the target is sold at a discount. This approach eliminates the methodological uncertainty associated with selecting listed multiples of private firms when conducting evaluations.

Regarding the evaluation methods, the fundamental approaches for assessing enterprise valuation typically include the income approach, market approach, and asset-based approach. In the case of unlisted targets, it is the responsibility of a third-party financial advisor to evaluate these methods and select the most suitable one for determining the value of the target. This selection process should be accompanied by a thorough explanation justifying why the chosen method is deemed the most appropriate compared to other available methods. Once the evaluation method is chosen, the third-party financial advisor is required to disclose detailed calculations and provide an explanation of how they arrived at the evaluation value and the amount the acquiring firm should pay to the unlisted target. Based on this evaluation value, the acquiring firm will then make the final decision regarding how much it is willing to pay for the unlisted target. Analysis of evaluation reports reveals that in China's M&A market, the asset approach and income approach are commonly employed for valuing unlisted targets, while the market approach (comparing them to listed peers) is less frequently used. Moreover, upon examination of the evaluation reports, it becomes apparent that the assigned evaluation value for the unlisted target is lower than its book value. Furthermore, the transaction value is lower than the evaluation value. These findings strongly suggest that the unlisted target is indeed valued at a discount and is subsequently sold at an even further discounted price.

The discount, defined as the variance between the evaluation value and the transaction value, is argued to be potentially explained by the relationship between acquiring firms and target firms in this study. However, it is important to note that the difference between the book value and evaluation value should not be attributed to this relationship. According to the "Management Measures for the Acquisition of Non-Listed Public Companies," financial

advisors engaged by acquirers are expected to maintain independence, adhere to industry norms, and uphold professional ethics. Their role includes conducting due diligence on provided information, verifying and validating disclosed documents, and expressing objective and impartial professional opinions on acquisition matters. Thus, the book value and evaluation value provided by the financial advisor for unlisted targets should be impartial and not influenced by the relationship between acquirers and targets. Only the variance between the evaluation value and transaction value is potentially affected by this relationship between acquiring firms and target firms, or related party transaction<sup>5</sup>.

Previous studies in finance have established that the impact of related-party transactions can be explained by either the efficiency-enhancing theory or the agency theory (Habib et al., 2015). According to the efficiency-enhancing theory, related-party transactions can be utilized to optimize internal resource allocation and reduce transaction costs (Khanna and Palepu, 2000). On the other hand, the agency theory suggests that related-party transactions may result in the extraction of wealth from the firm for individual benefit (Chang and Hong, 2000). In our empirical analysis, we find support for the efficiency-enhancing theory. Specifically, in cases where a listed acquiring firm in China acquires an unlisted target, we observe that when the acquirer and target are related parties, the target is sold at a greater discount to its related acquirer. Additionally, we conduct a market reaction analysis of the announcement of related-party mergers and acquisitions (M&A) involving unlisted targets by publicly listed firms. Our study aligns with prior research and confirms the positive impact of acquirers' announcement returns, indicating that related-party transactions can benefit the acquiring firms (e.g., Jian and Wang, 2010; Peng et al., 2011; Cheung et al., 2009).

In addition, we contend that the discount serves as a mediating factor in the relationship between related-party transactions and the market reaction on acquirers' stocks. Previous research suggests that related-party transactions can have a positive effect on acquirers' return on assets, mitigate potential bankruptcy risk, or improve efficiency (Khanna & Palepu, 2000; Chen et al., 2012; Liu and Liu, 2007). These "future" benefits contribute to the positive market reaction on acquirers' returns. However, the discount provides a more immediate benefit for the acquiring firm in related-party transactions. By paying less to its related target firm, the

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<sup>5</sup> According to the CSMAR M&A database, if the M&A event is a related party transaction, Relevance = 1. Otherwise, Relevance = 0. Related-party transactions are defined as transactions that take place between parties that have a relationship. According to the regulations set by the Ministry of Finance of China, if one party possesses the capability to exercise direct or indirect control over another party's financial and operational decisions, or exerts a significant influence on the other party, they are deemed as related parties.

acquiring firm directly gains from the M&A transaction. Since the related-party transaction and target valuation are public information, the market can easily identify the discount and react to acquirers' stock positively, as evidenced by the positive cumulative abnormal returns (CARs) of acquirers. Therefore, the discount acts as a mechanism through which the market demonstrates a positive reaction to related-party transactions. Our empirical findings substantiate the contention that there is a positive association between related party transactions and the discount, as well as the acquiring firm's cumulative abnormal returns (CARs). Furthermore, we observe that the discount acts as a mediating variable, mediating the positive relationship between related party transactions and the acquiring firm's CARs.

Moreover, our findings highlight that the relationship between an acquirer and a target as shareholders has the most significant impact compared to other types of relationships in the channel analysis. To gain deeper insights, we divide the sample into state-owned enterprises (SOEs) and non-SOEs, as their ultimate goals differ. SOEs prioritize fulfilling political agendas, while non-SOEs aim to maximize firm value. This divergence in objectives may influence the amount of money the acquiring firm is willing to pay to the targets. Our results reveal that the mediating effect of the target discount is more pronounced when the acquiring firm is a non-SOE. To explore potential factors that could influence the main results, we examine the role of market liquidity of unlisted targets, considering insights from Officer (2007). By considering the historical performance of the listed parent company of unlisted targets before the M&A announcement, we find that liquidity constraints faced by corporate parents were not the primary driver behind the targeting of unlisted targets. Instead, our analysis suggests that the primary driver was the presence of a related party transaction. Additionally, we investigate the impact of acquirers' power on the observed discount in transactions. El-Khatib et al. (2015) propose that higher network power centrality provides acquirers with an advantage in bargaining and negotiation. By constructing the acquirer's network centrality based on the framework proposed by El-Khatib et al. (2015) and Tao et al. (2019), we explore its influence. However, our findings indicate that acquirers' network centrality does not significantly affect our main results. The presence of a related party transaction remains the most crucial factor driving the discount observed in the transactions.

This paper is organized as follows. Section 2 Introduces and discusses the M&A filing requirements in both the United States and China. Section 3 Presents a review of existing literature related to the topic of the study, and develops hypotheses based on the gaps identified in the literature. Section 4 describes the process of collecting data for the study, including the

sources of data. Then discusses the methodology for sample selection, including any criteria or restrictions. Lastly, presents summary statistics of the main variables used in the analysis. Section 5 presents and discusses the empirical findings. Section 6 concludes the paper.

## 2. Background --- M&A filing requirements

In various time periods and countries, there is evidence from academic literature that private companies play a significant role in identifying and evaluating potential targets in corporate takeovers (Capron and Shen, 2007; Moeller et al., 2004; Faccio et al., 2006; Bhabra and Huang, 2013). Previous studies in the field of finance, focusing on acquisitions in the United States, have shown that acquiring companies tend to experience either zero or negative cumulative abnormal returns during the announcement period when acquiring publicly listed targets. Conversely, when acquiring unlisted targets, they tend to observe positive average abnormal returns (Fuller et al., 2002; Moeller et al., 2004; Faccio et al., 2006). Furthermore, these studies have suggested that the reason behind the favorable deals involving unlisted targets lies in the presence of an illiquidity discount (Meng and Sutton, 2022). For example, Officer (2007) indicates that unlisted targets were consistently valued at lower multiples compared to their listed counterparts. Massa and Xu (2013) further demonstrate that the liquidity of the target is valued, and acquirers stand to gain liquidity by acquiring targets with higher liquidity levels. While the illiquidity discount explanation aligns with the impact on acquirer returns due to listing status, the existence of such a discount has recently been subject to scrutiny. Both academics and practitioners (e.g., Zanni, 2015) have questioned its validity. Notably, Jaffe et al. (2019) challenge the notion of a discount for private targets. Using a distinct methodological approach from Officer (2007), Jaffe et al. (2019) examine a sample encompassing completed and withdrawn takeovers of both listed and unlisted, and they find no supporting evidence for a discount associated with unlisted firms.

The limited availability of information regarding unlisted targets is a crucial factor that contributes to questioning the existence of an acquisition discount for private firms. Since comprehensive information about unlisted targets is often lacking, external parties involved in M&A transactions, such as researchers, practitioners, and regulators, are required to rely on their own estimations and choose listed multiples as proxies to assess the potential discount for unlisted targets. This process introduces uncertainty and subjectivity in determining whether and to what extent a discount may apply.



The limited availability of information on unlisted targets arises from the absence of compulsory disclosure regulations when it comes to acquiring unlisted targets. According to Mason and Stegemoller (2022), in the US, the Securities and Exchange Commission (SEC) has outlined Rule 3-05 of Regulation S-X, which mandates acquirers to disclose financial information of target companies only when they are deemed "significant"<sup>6</sup>. This regulatory requirement indicates that disclosure obligations are primarily triggered when the target company holds substantial importance in the context of the transaction. Furthermore, given the costs associated with releasing information, including administrative expenses and the potential disclosure of proprietary information, many acquirers opt to avoid disclosing even the basic details of a transaction if they have the choice (Beyer et al. 2010). As a result, in cases where disclosure is not mandated, acquiring firms typically provide minimal or no information regarding the deal or the target company.

In China, the China Securities Regulatory Commission (CSRC) has implemented the "Management Measures for the Acquisition of Non-Listed Public Companies," which requires acquiring firms to engage a financial advisor to evaluate unlisted targets. This evaluation process is intended to provide a more accurate and reliable valuation of unlisted targets. The acquiring firms are obligated to disclose the evaluation reports in the M&A announcement, making them accessible to the public. The financial advisor, acting as an "insider" in the M&A transaction, has the ability to interact with the target company and access its financial information. As a result, the evaluation reports produced by the financial advisor are expected to offer a more precise estimation of the value of the unlisted targets, eliminating the need for external parties to rely on different methods or estimations as outsiders.

According to Article 17 of the Professional Standards for Asset Valuation, the evaluation of unlisted targets should encompass three key approaches: the income approach<sup>7</sup>, market

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<sup>6</sup> In order to determine whether a private target is considered "significant" to an acquirer in the US market, the evaluation is based on three tests. If any one of the following three criteria exceeds 20%, the target is deemed significant: 1) target pre-tax income as a percentage of acquirer pre-tax income, 2) target total assets as a percentage of acquirer total assets, 3) the investment in the target as a percentage of acquirer total assets.

<sup>7</sup> In enterprise value assessment, the income approach refers to the evaluation method of capitalizing or discounting expected earnings to determine the value of the subject of assessment. Asset valuation professionals should consider the applicability of the income approach by combining the historical operating conditions of the assessed entity, the predictability of future earnings, and the adequacy of the assessment data obtained. The commonly used methods in the income approach include the dividend discount model and the discounted cash flow model. The dividend discount model involves discounting expected dividends to determine the specific value of the subject of assessment. It is usually applicable for evaluating the value of partial equity interests where control is lacking. The discounted cash flow model typically includes the enterprise free cash flow discount model and the equity free cash flow discount model. Asset valuation professionals should appropriately select the cash

approach<sup>8</sup>, and asset-based approach<sup>9</sup>. These approaches provide a comprehensive framework for assessing the value of unlisted targets. The financial advisor, in compliance with the Professional Standards for Asset Valuation, is required to employ all three methods and select the most appropriate method for evaluating the unlisted target. The advisor should conduct a thorough analysis using each method and provide detailed calculations and explanations to support their evaluation<sup>10</sup>.

As evidenced in the 2016 NO.0994053 Evaluation Reports<sup>11</sup>, a comprehensive evaluation was conducted using all three methods (income approach, market approach, and asset-based approach). The report concluded that the most appropriate method for assessing the value of the target was the asset-based approach. The report provides the following explanation:

"... Evaluating using the asset-based approach, the appreciation rate is 40.33%. (Income approach) ... Evaluating using the income approach, the appreciation rate is 3.47%. The asset-based approach evaluation value is 3.01 billion yuan, and the income approach evaluation value is 2.22 billion yuan, with a difference rate of 26.27%. The main reason for the difference between the results of the asset-based approach and the income approach evaluations is that the asset-based approach focuses on market value and reflects the current value of assets, while the income approach reflects the value of the enterprise from the perspective of its future profit-

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flow discount model based on factors such as the assessed entity's industry, business model, capital structure, and development trends.

<sup>8</sup> In enterprise value assessment, the market approach refers to the evaluation method of comparing the subject of assessment with comparable listed companies or comparable transaction cases to determine its value. Asset valuation professionals should consider the applicability of the market approach based on factors such as the adequacy and reliability of the obtained operational and financial data of comparable companies and the availability of a sufficient number of comparable companies. The two commonly used methods in the market approach are the comparable company method and the transaction case method. The comparable company method involves obtaining and analyzing the operational and financial data of comparable listed companies, calculating value ratios, and determining the specific value of the subject of assessment based on the comparative analysis. The transaction case method involves obtaining and analyzing transactional data of comparable companies in terms of buying, selling, and merging cases, calculating value ratios, and determining the specific value of the subject of assessment based on the comparative analysis.

<sup>9</sup> In enterprise value assessment, the asset-based approach refers to the evaluation method that determines the value of the subject of assessment based on the balance sheet of the assessed entity as of the evaluation reference date. It includes assessing the value of assets and liabilities included in the balance sheet as well as identifiable off-balance-sheet items. The asset-based approach is used when there are significant assets or liabilities that have a substantial impact on the value of the subject of assessment and are difficult to identify and evaluate.

<sup>10</sup> The examples can be found via <https://q.stock.sohu.com/newpdf/201832137411.pdf>, <https://q.stock.sohu.com/newpdf/201833716216.pdf>, <http://static.cninfo.com.cn/finalpage/2008-05-13/39660682.PDF>.

<sup>11</sup> [http://pdf.dfcfw.com/pdf/H2\\_AN201705250602546503\\_01.pdf](http://pdf.dfcfw.com/pdf/H2_AN201705250602546503_01.pdf).

making ability. ... .. After evaluation, the total equity value of the evaluated unit's shareholders is RMB 3,010,836,310.02."

From this excerpt, it is evident that the evaluation report carefully considered the results obtained from each method. The asset-based approach was selected as the most suitable method, as it captured the market value and current worth of the assets. The income approach, on the other hand, considered the target's future profit potential. The report highlights the difference in evaluation values between the two approaches and provides a clear explanation for this discrepancy. Ultimately, the evaluation report concluded with the total equity value of the evaluated unit's shareholders, which was determined to be RMB 3,010,836,310.02 based on the selected evaluation method.

By gathering information from the evaluation reports, it becomes evident that there is a disparity between the book value and evaluation value of unlisted targets. Additionally, by examining transaction data from the CSMAR database, it is possible to observe the distinction between the evaluation value and the actual transaction value of acquiring unlisted targets. These pieces of information can be utilized to assess whether unlisted targets are being sold at a discount and identify where the discount may occur.

### 3. Literature review and hypothesis development

We argue that related-party transaction is an alternative explanation for the discount of unlisted targets. The literature extensively discusses the role of related-party transactions, with two contrasting arguments being prevalent. These arguments are commonly known as the efficiency-enhancing theory and the agency theory, as discussed in studies by Habib et al. (2015) and (2021). The efficiency-enhancing theory proposes that imperfect markets result in increased transaction costs, and related-party transactions can be employed within corporate groups to optimize internal resource allocation, minimize transaction costs, and enhance the return on assets (Khanna and Palepu, 2000). Chen et al. (2012) supports this theory and provide evidence consistent with the hypothesis that regular related-party transactions reduce transaction costs, thus mitigating potential bankruptcy risks, particularly in competitive industries rather than non-competitive ones. Furthermore, Liu and Liu (2007) find that related-party sales and purchases of goods and services effectively decrease transaction costs and sales expenses.

In contrast, the agency theory argues that related-party transactions can be utilized opportunistically for expropriation purposes. According to Chang and Hong (2000), individuals with control or influence over listed firms may exploit related-party transactions to divert resources or wealth from these firms. Cheung et al. (2006) provide empirical evidence demonstrating the use of related-party transactions for wealth expropriation in Hong Kong, particularly in cases where the ultimate ownership of the firms could be traced back to China. These findings suggest that related-party transactions can facilitate tunneling effects, leading to the extraction of wealth from public firms. In addition, studies by Chen et al. (2011) and Ryngaert and Thomas (2012) highlight the adverse consequences of abusive related-party transactions on future firm performance and firm values. The abusive use of related-party transactions can potentially erode shareholder wealth and impede the long-term growth and sustainability of the organization.

The impact of related-party transactions on abnormal returns (CARs) in M&A transactions is noteworthy. According to the efficiency-enhancing theory, these transactions can create synergies and foster resource-sharing opportunities between the acquirer and the related parties, thereby positively influencing the acquirer's CARs. Conversely, the agency theory posits that related-party transactions might be utilized to extract private benefits, potentially leading to value-destruction, and negatively affecting the acquirer's CARs. The impact of related-party transactions is expected to be more pronounced when acquiring unlisted targets due to their inherent characteristics such as low transparency and high information uncertainty.

*H1: Related-party transactions have a substantial influence on the abnormal returns (CARs) of acquirers.*

The discount applied to unlisted targets in M&A transactions can also be influenced by related party transactions. According to studies conducted by Khanna and Palepu (2000) and Chen et al. (2012), such transactions can result in a reduction of transaction costs. This reduction in costs can lead to a decrease in the amount the acquirer pays to the target, thereby explaining the presence of a discount.

Conversely, related party transactions can also result in a reduced discount or an overpayment to the target company, which can be explained by the propping effect. This effect involves the temporary transfer of resources to enhance the performance of a financially troubled listed company. According to Peng et al. (2011), controlling shareholders have been

observed using their private resources to support such companies. In the context of M&A transactions, if the acquirer and the target are related parties, the acquirer may pay a higher price to assist a troubled target. Consequently, the related party transaction can lead to overpayment by the acquirer. In the similar vein, Officer (2007) suggests that a higher discount is observed when the parent company of an unlisted target has significant liquidity constraints before the M&A. Expanding on Officer's findings, in related party transactions, the acquirer may be willing to purchase the target at a higher price, particularly when the parent company is facing liquidity constraints.

*H2: Related-party transactions have a substantial influence on the unlisted target discount*

We propose that the market's reaction to an acquirer's M&A announcement is influenced by the presence of an unlisted target discount. Existing literature in finance suggests that the impact of related party transactions is typically observed over the long term, whereas market reactions to acquirers' M&A announcements are more immediate. Previous studies have highlighted various long-term effects of related party transactions, such as improvements in the firm's return on assets, mitigation of potential bankruptcy risks, wealth expropriation from public firms, or damage to future performance and value (Khanna & Palepu, 2000; Chen et al., 2012; Cheung et al., 2006; Chen et al., 2011; Ryngaert & Thomas, 2012).

These effects are presumed to occur in the future, and the market makes assumptions based on the anticipated impact of the related party M&A transaction. Consequently, the market reacts to the acquirer's stock price. However, at the time of the M&A announcement, the valuation of the unlisted target and the transaction value become public information. The market can directly assess whether the unlisted target is being sold at a discount or a premium, and whether the acquirer and the target are related parties. This information provides the market with a more direct perspective on whether the M&A transaction benefits or harms the acquirer on the announcement day. Empirical evidence in financial research has consistently shown that acquirer announcement returns tend to be higher when unlisted targets are acquired at a discount (e.g., Fuller et al., 2002; Moeller et al., 2004; Faccio et al., 2006).

The discount might play a mediating role in the influence mechanism of related party transactions on acquirers' cumulative abnormal returns (CARs). When an acquirer is looking to acquire an unlisted target, they rely on evaluation reports provided by financial advisors to determine the purchase price. At this stage, the acquirer must decide whether to pay a discount

or a premium to the evaluated value of the unlisted target. This decision depends on the motivation of the acquirer. If the acquirer aims to pay at a discount, it aligns with the efficiency-enhancing theory, which suggests that the acquirer seeks to secure a more advantageous deal. On the other hand, paying at a premium indicates the acquirer's intention to assist troubled targets (Peng et al., 2011).

The difference between the evaluated value and the transaction value plays a crucial role in influencing the perceived value of the M&A deal. A larger discount signifies that the acquirer has obtained a more favourable deal, potentially increasing the perceived value of the transaction. This increased value, in turn, positively impacts the market's reaction and leads to higher Cumulative Abnormal Returns (CARs) for the acquirer. The mediating effect occurs because the discount offered on unlisted targets helps explain the impact of related party transactions on CARs. By considering the discount, investors can assess the financial gains that the acquirer may realize from the M&A deal. This information influences their perception of the deal's value and subsequently affects the market's reaction and the acquirer's CARs. Conversely, if an acquirer decides to make an overpayment for an unlisted target, it suggests that the acquirer is utilizing its resources to assist the target, regardless of the target's lack of marketability. The mediating effect of overpayment occurs because it indicates that the unlisted target might pose a burden for the acquirer. In such cases, the M&A deal may not bring benefits to the acquiring firm but rather become a burden, leading to a negative market reaction and impacting the acquirer's CARs adversely. Therefore, we propose the following hypothesis:

*H3: The discount of unlisted target acts as a mediating mechanism in the relationship between related party transactions and acquirer's CARs. That is, related party transaction → discount → acquirer's CARs.*

#### 4. Data and descriptive statistics

Data on M&A deals between 2009 and 2021 in China are collected from the China Stock Market & Accounting Research (CSMAR), the SDC Platinum Database of Thomson Financial, and RESSET database. Data on firm financial information is obtained from the China Stock Market & Accounting Research (CSMAR) and RESSET database.

The M&A sample is identified following the literature by the following criteria (e.g., Liu et al., 2021; Su and Xue, 2023).

1. The deal announcement date is between January 1, 2008, and December 31, 2021.

2. The book value, evaluation value and deal value disclosed in the CSMAR is non-missing and more than ¥7 million Yuan (around \$1 million USD), and the acquirer take over at least 25% of the share of the target.
3. The acquiring firm is non-financial company listed on the Shanghai and Shenzhen stock exchange and has financial information available from the CSMAR and RESSET database.

Table 1 presents the distribution of the full sample consisting of 2,870 observations, categorized by year and industry. Panel A of Table 1 reveals a significant surge in acquisitions during the years 2015 and 2016, aligning with previous research findings (e.g., Li et al., 2019). In Panel B of Table 1, we notice that the manufacturing industry constitutes the largest portion of the acquisitions, accounting for approximately 59.34% of the entire sample.

[Table 1]

The primary dependent variable examined in this study is the acquirer's cumulative abnormal returns (CARs) during the period surrounding the announcement of a merger or acquisition (M&A). Specifically, the performance of stock-based M&A acquirers is assessed by analysing their CARs for a period of three days before and three days after the M&A announcement. To calculate the abnormal returns during the M&A announcement period, the standard event study methodology introduced by Brown and Warner (1985) is employed. In this study, the estimation window spans 250 trading days, starting 280 trading days prior to each M&A event in the sample. During the estimation window, the daily returns of firms announcing an M&A are regressed against the value-weighted market return on the Shanghai and Shenzhen Stock exchanges. The regression results provide estimates for the factor loading. The daily abnormal return is then computed as the difference between the actual daily return and the return expected by the market model, utilizing the estimated factor loading. To assess the acquirer's stock abnormal performance following an M&A announcement, the daily abnormal returns are calculated over the event windows of the three days prior to the announcement and the three days following the announcement (-3, 3).

The two key independent variables are related party transaction indicator (*Relevance*) in CSMAR, and the value difference between the evaluation value and transaction value (*Change\_ratio*).

*Relevance* is a dummy variable, that equals one if M&A transaction is a related party transaction, and zero otherwise. Following the prior literature (Officer, 2007; Jaffe et al., 2019),

the variable "*Change\_ratio*" is a measure used to assess the ratio between the transaction value and evaluation value of an unlisted target in an M&A transaction. Specifically, it quantifies this ratio by taking the natural logarithm of the transaction value divided by the evaluation value, expressed as  $\ln((\text{transaction value})/(\text{evaluation value}))$ . When the transaction value is lower than the evaluation value, indicating a discount, the ratio of transaction value to evaluation value will be less than 1. Consequently, the natural logarithm of this ratio will be negative. To facilitate the interpretation of the results, the natural logarithm of the transaction value to evaluation value ratio is multiplied by -1, yielding the final measurement of "*Change\_ratio*." Higher values of "*Change\_ratio*" indicate a larger discount, implying that the transaction value is comparatively lower relative to the evaluation value of the unlisted target.

Several control variables are considered in this study, which have been previously employed in literature to explain takeover exposure. These control variables encompass the following. Firm size (Size): It is represented by the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ): This variable measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage (Lev): It is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets (ROA): It is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow): This variable is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board): It represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST): This variable indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment): This binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise.

The summary statistics for dependent variables, independent variables, and control variables are reported in Table 2. The acquirer's CARs are all significantly positive in different even windows (-5to5, -3to3, -1to1) in Panel B of Table 2. Table C provides the CAR(-3,3) difference between the listed targets and unlisted targets. The acquirer's cumulative abnormal returns (CARs) do not exhibit a significant difference between the listed targets and unlisted targets. This finding contradicts previous literature, which suggests that acquirers tend to gain more from acquiring unlisted targets compared to listed targets. however, it is important to note



that the sample is predominantly composed of unlisted targets, and this unbalanced subgroup may not provide meaningful inferences or robust conclusions.

[Table 2]

## 5. Results

### 5.1 Unlisted target discount

In order to address the methodological issues surrounding the valuation of unlisted target (e.g., Officer, 2007 and Jaffe et al., 2019), we examine the evaluation reports associated with the M&A transactions to gain insight into the evaluation process employed by financial advisors, as well as the actual acquisition prices paid by acquiring firms. This approach allows us to shed light on the methods utilized by financial advisors in assessing the value of unlisted targets and the corresponding financial outlays made by acquiring firms.

Table 3 provides a comprehensive overview of the unlisted target valuation through its summary statistics. Panel A of Table 3 specifically focuses on the comparison between unlisted targets and listed targets. Consistent with previous research findings, the majority of M&A cases in our sample involve unlisted targets, with only approximately 77 cases involving listed targets. In this study, the determination of the discount is based on the evaluation value and expense value, represented by the variable "ValueChange" in Table 3. The occurrence of a related party transaction between an acquirer and a target has the potential to impact the amount that the acquirer would be willing to pay for the related target. This assertion is based on the notion that financial advisors involved in evaluating the target should adhere to regulations and maintain independence as third-party entities. Consequently, the relationship between the acquirer and the target should primarily influence the disparity between the evaluation value and the transaction value, rather than the distinction between the book value and the evaluation value.

The results presented in Panel A indicate that both listed and unlisted targets exhibit discounts. However, it is noteworthy that the discount amount for listed targets is greater than that for unlisted targets. Nevertheless, only the discount observed in unlisted targets reaches statistical significance. This finding implies that the discount observed in unlisted targets carries greater significance compared to the discount observed in listed targets.

Panel B of Table 3 delves into the analysis by dividing the sample into three distinct subsamples based on the evaluation methods employed in the evaluation reports. Regardless

of the specific evaluation method used by the financial advisor, it is consistently observed that the acquiring firm tends to pay less than the valuation assigned to the target. Among the three evaluation methods considered, the market-based approach stands out as having the most pronounced discount when compared to the other methods. Panel C of Table 3 provides an analysis of the discounts based on the industry of the M&A transactions. The findings indicate that target discounts are prevalent across the majority of industries. However, it is interesting to note that the accommodation and restaurant industry, as well as the technology industry, do not exhibit significant discounts.

Panel D of Table 3 focuses on the target valuation analysis based on related party transactions. The results presented in Panel D reveal that more than half of the M&A sample in our study involved related party transactions. Additionally, it is observed that M&A transactions involving related parties exhibit a larger discount compared to transactions without related party involvement. Furthermore, the discount observed in the related party transaction sample is statistically significant, indicating that the disparity between the valuation assigned to the target and the actual payment made by the acquiring firm is more substantial in related party transactions compared to transactions without any related party involvement. These findings provide first empirical evidence that related party transactions tend to involve a more significant discount, highlighting the potential influence of the relationship between the parties on the valuation outcome.

Panel E of the analysis divides the sample into acquiring firms that have conducted only one M&A deal and acquiring firms that have engaged in multiple M&A deals throughout the sample period. Approximately 43% of the acquirers in the sample conducted more than one M&A deal during this period. Summary statistics for this division are presented in Panel D. The results in Panel D shows that when an acquiring firm engages in multiple M&A deals, those involving related party transactions exhibit a significant discount, whereas deals without related party transactions tend to result in overpayment. This finding provides further evidence that related party transactions have a substantial impact on the disparity between the assessed value and the actual cost.

[Table 3]

## 5.2 Channel analysis

In order to establish initial evidence that the market reacts to changes in the value of an unlisted target and related party transactions in a merger and acquisition (M&A) scenario, we perform regression analysis. We use ordinary least squares (OLS) regression models to estimate the relationship between the acquirer's cumulative abnormal returns (CARs) and two key variables, the value change ratio and a dummy variable representing related party transactions. In the context of an acquirer seeking to acquire an unlisted target, the acquirer typically relies on evaluation reports prepared by financial advisors to determine the appropriate purchase price. When the acquirer and the target are considered related parties, this relationship is likely to have an impact on the amount the acquirer is willing to pay. Therefore, this pricing decision can influence the market's reaction to the acquirer's stock. In order to analyse the impact of related party transactions on the acquirer's cumulative abnormal returns (CARs), taking into account the role of target valuation as a mediator in Figure 1, a set of recursive equations (1), (2), and (3) have been formulated.

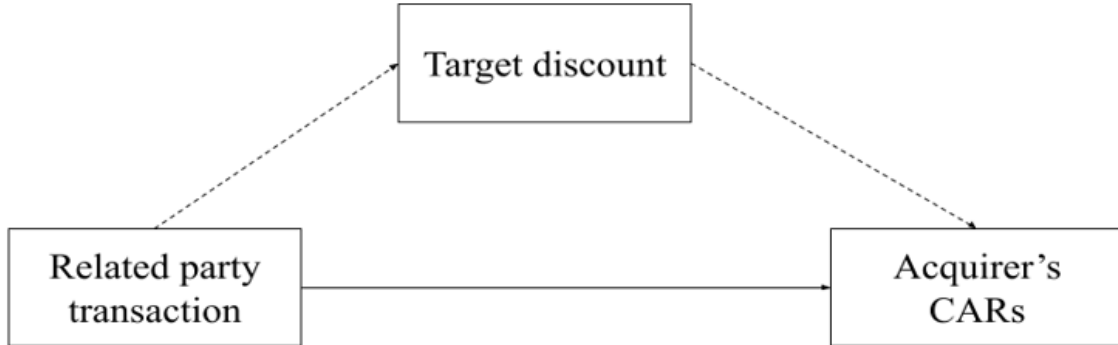


Figure 1: Path Analysis

$$CAR(-3, +3) = \alpha_0 + \beta_1 * Relevance + \beta_5 * Controls_{it-1} + \varepsilon_{it} \quad (1)$$

$$Change\_ratio = \alpha_0 + \beta_2 * Relevance + \beta_5 * Controls_{it-1} + \varepsilon_{it} \quad (2)$$

$$CAR(-3, +3) = \alpha_0 + \beta_3 * Relevance + \beta_4 * Change\_ratio + \beta_5 * Controls_{it-1} + \varepsilon_{it} \quad (3)$$

Where the dependent variable  $CAR(-3,+3)$  is the acquirer's cumulative abnormal returns over the (-3 to +3) event-day window, capturing the market reaction to the M&A announcement. *Relevance* is a dummy variable which equals 1 if the M&A transaction involved related party

transaction and 0 otherwise. *Change\_ratio* is a continuous variable, that measures the value change between the evaluation value provided by financial advisors and the actual transaction value. It is calculated as -1 times the natural logarithm of the ratio of the transaction value to the evaluation value. A higher *Change\_ratio* indicates a higher discount in the transaction value compared to the evaluation value. *Controls<sub>it-1</sub>* is a set of control variables measured at the end of the previous year of the M&A announcement, aimed at accounting for factors that may affect takeover exposure. The control variables include the acquirer's firm size, Tobin's Q, leverage, returns on assets, cash flow, board size, institutional shareholding, and payment method. These variables help control for the potential influence of various firm-specific characteristics on CARs. Additionally, the regression model incorporates industry and year fixed effects to control for any industry-specific or time-specific factors that may impact the results. Furthermore, the standard errors are adjusted to account for firm-level clustering, which allows for the potential correlation of observations within the same firm.

Equation (1) results are reported in Table 4. The results of Table 4 indicate a positive and significant regression coefficient for *Relevance* in Column (1) to Column (3). This suggests that the market reaction is favourable when the M&A transaction involves a related party. The results of the regression analysis indicate that the market reacts positively to the acquirer's stock when the acquirer engages in a related party merger and acquisition (M&A) transaction. This finding provides support for the efficiency-enhancing theory, suggesting that the acquiring firm can derive benefits from such related party transactions. This result aligns with the arguments put forth by Khanna and Palepu (2000), Chen et al. (2012), and Liu and Liu (2007). Related party M&A transactions can lead to improved allocation of resources between the parties involved. By merging with a related party, the acquiring firm can potentially access complementary resources, expertise, or market positions that enhance its overall operational efficiency. This optimization of resource allocation is perceived positively by the market, resulting in increased stock prices for the acquirer.

[Table 4]

Table 5 presents the results of Equation (2), the coefficient of *Relevance* is found to be significantly positive in Column (1) to Column (3). This finding indicates that related party transactions are associated with a higher target discount. Essentially, when the acquiring and target firms are related parties, the acquiring firm tends to pay significantly less to acquire the target. This outcome provides empirical evidence supporting the notion that related party

transactions can be advantageous in terms of reducing transaction costs (e.g., Khanna and Palepu, 2000; Liu and Liu, 2007). The parties involved in a related party M&A transaction often have pre-existing relationships and knowledge of each other's operations, which can facilitate smoother negotiations, due diligence, and integration processes. This familiarity and reduced information asymmetry can contribute to lower transaction costs for the acquiring firm (Capron and Shen, 2007). An alternative explanation could be the occurrence of a "tunneling" effect within a related party transaction, whereby an acquiring party purchases a target entity at a price that is lower than its market value.

[Table 5]

The findings presented in Table 6 indicate a significant positive coefficient for both *Relevance* and *Change\_ratio* in Equation (3). These results, in conjunction with the findings reported in Table 4 to Table 6, offer empirical evidence supporting the use of path analysis. Specifically, they establish that related party M&A transactions elicit a positive market response, reflected in the increased value of acquirers' returns around the announcement date. This positive effect is attributable to the discount obtained by the acquirer in the transaction with the target entity. The variable *Change\_ratio* act as a mediating role in this relationship. Essentially, the related party transaction amplifies the discount applied to the target, and the market recognizes this advantageous scenario wherein the acquirer acquires the target at a reduced price. Consequently, a positive reaction occurs in the acquirer's stock.

[Table 6]

The results presented in Tables 4 to 6 indicate that the discount offered to the target company is influenced by the presence of related party transactions, which serve as a channel for this influence on the acquirer's CARs (Cumulative Abnormal Returns). We now proceed to further analyze the different types of related party transactions to determine which ones have the most significant impact. Fome CSMAR M&A database, we establish links between acquirers and targets and examine their associations with M&A deals. Table 7, consisting of Panel A and Panel B, provides a summary of the statistics for *Change\_ratio* and acquirers' CARs based on various types of related party transactions.

In Panel A, we find that when the target company is a subsidiary of the acquiring firm, the discount is the highest among all types of connections. Furthermore, when acquirers hold shares in the targets, a discount is observed. However, in cases where acquirers and targets have an affiliated relationship (other than shareholding relationships), such as family, strategic,

or professional relationships, or other relatively weak connections, the discount disappears, resulting in a negative `Change_ratio`.

Panel B of Table 7 demonstrates that the market generally responds positively to most types of connections, with one notable exception: connections where the acquirer exercises ultimate control over the target, such as when the acquirer is the controlling shareholder and actual controller, or when the target is a wholly-owned subsidiary. Additionally, connections involving acquirers who are insiders, such as managers, also show a negative market reaction. One potential explanation for these findings is that when an acquirer holds ultimate control or is an insider, there may be a motivation to extract economic benefits or engage in tunneling activities through the M&A transaction.

[Table 7]

In Table 8, a revised analysis is conducted by replacing the Relevance variable with different connection indicators based on the nature of related party transaction types. The analysis is rerun, taking into account the findings from Tables 4 to 6. Column (1) of Table 8 reveals that the market exhibits a positive reaction to M&A deals when acquirers hold shares in targets and when there are other connections or weak connections between them. Column (2) of Table 8 demonstrates that certain connection types, such as acquirers being controlling shareholders of targets, acquirers being shareholders of targets, or targets being subsidiaries, have the potential to influence the target discount in M&A deals. By examining the results of the channel analysis across Column (1) to Column (3), it is observed that the coefficient for the Shareholder connection type is consistently positive, indicating that it holds the most significant influence among all connection types in the channel analysis.

[Table 8]

### 5.3 SOE vs non-SOE

Chinese firms are generally classified as state-owned enterprises (SOEs) and private-owned enterprises (non-SOEs). State-owned enterprises (SOEs) and non-state-owned enterprises (non-SOEs) exhibit notable distinctions in terms of their objectives and business status. Non-SOEs primarily aim to maximize shareholder wealth as their ultimate objective. Conversely, SOEs prioritize fulfilling specific political agendas, which include generating increased tax revenues for the government and upholding societal stability (e.g., Chen et al., 2017; Lin et al., 2012). In order to assess the effects of state-owned enterprises (SOEs) and non-SOEs, the data was divided into separate groups and the analysis from Table 6 was re-

conducted. The outcomes for SOEs are presented in Panel A of Table 9. In both Column (1) and Column (3), the coefficients for Relevance remain significantly positive, indicating that the market still responds favourably to an acquirer's stock when they initiate a related party M&A transaction. However, the related party transaction fails to explain the value change of the unlisted target. In Column (3), the coefficient for Change\_ratio is positive but no longer statistically significant, suggesting that the market no longer reacts to the discount associated with the unlisted target when the acquirer is an SOE. This may be attributed to the fact that the motivation for an SOE to acquire a target might not be solely focused on maximizing the value of the acquirer firm, but rather driven by other political agendas. Consequently, even though a discount exists, the acquirer firm may not benefit from the M&A deal. Potential reasons for this could include the target not being a suitable fit for the acquirer or the target posing a burden for the acquirer. While the related party transaction might potentially assist the acquiring firm by providing additional resources or market positioning, it does not occur through the channel of reducing the transactional burden.

Panel B of Table 9 exhibits comparable outcomes to Table 6, indicating that the market perceives non-state-owned enterprises (non-SOEs) as being more efficient than state-owned enterprises (SOEs). In Panel B of Table 9, the coefficient of Relevance is more significant compared to Panel A, indicating a stronger relationship between related party transactions and their impact on acquiring firms for non-state-owned enterprises (non-SOEs). Additionally, the coefficient of Change\_ratio is significant in Panel B, suggesting that the market still reacts to the discount associated with the unlisted target when the acquirer is a non-SOE. The related party transaction continues to play a beneficial role for non-SOEs by reducing transaction costs, thereby positively impacting the acquiring firm. The market displays a favourable inclination towards related party transactions and discounts associated with non-SOEs.

[Table 9]

### 5.3 Firm power

We also examine whether the acquiring firm power drives the unlisted target discount instead of the relevance, whereas the power is measured by the network centrality. Previous studies in finance literature have established that entities with significant network power tend to possess better access to information. This advantage stems from their ability to efficiently connect with others within the network. Moreover, a network-powerful entity may enjoy enhanced bargaining and negotiation capabilities due to their favourable network position. This

advantageous position provides them with increased opportunities and reduced constraints, ultimately strengthening their ability to navigate and leverage their network effectively (e.g., El-Khatib et al., 2015). Based on the notion that an acquiring firm with high network centrality has enhanced bargaining power, it is plausible that such a firm could leverage its position to negotiate favourable terms with target firms. This includes potentially exerting pressure on target firms to sell at a discounted price, which ultimately benefits the acquiring firm. The ability to secure acquisitions at a discounted rate can contribute to increased profitability and value creation for the acquiring firm.

Following the methodology employed by El-Khatib et al. (2015) and Tao et al. (2019), we have constructed a measure of acquiring firm network centrality based on the social connections of CEOs and directors. In order to account for the impact of acquiring firm network centrality, we have introduced it as a new control variable in the regression analysis conducted in Table 6. The findings of this analysis are presented in Table 10.

The results presented in Table 10 demonstrate that the main findings from Table 6 remain consistent. The coefficients of Relevance and Change\_ratio continue to exhibit statistically significant positive values across Column (1) to Column (3). Furthermore, even after accounting for the acquiring firm network centrality, the mediation effect of Change\_ratio remains intact. These results suggest that the influence of related party transactions and the impact of the discount on the acquiring firm's value are robust and unaffected by the inclusion of acquiring firm network centrality as a control variable.

[Table 10]

#### 5.4 The liquidity needs.

As proposed by Officer (2007), the liquidity requirement of corporate parents before divesting a subsidiary can influence the discount applied to unlisted targets. In this section, we investigate whether the liquidity need of the parent company and the past performance of the target entity have an impact on the discount. The findings are presented in Table 11, which focuses on the liquidity need of the parent company.

The analysis in Table 6 was initially conducted using the entire sample, which included 74 unlisted targets with listed parents. In order to further explore the influence of listed parent financial constraints, we narrowed down the sample to only those 74 targets with listed parents. Subsequently, we reanalyzed the data and present the results in Table 11.



If we consider the explanation of liquidity needs, we would expect that parent firms facing higher financial constraints would sell their subsidiaries at a higher discount. In Column (2) of Table 11, we observe that related party transactions still have a significant impact on the discount of unlisted targets. The parent firms' return on assets (ROA) and net profit, however, do not seem to affect the discount. On the other hand, parent firms with higher leverage ratios tend to lead to higher discounts. This finding provides partial evidence suggesting that the financial constraints of parent firms do have some influence on the discount applied to subsidiaries. Importantly, the financial constraint explanation does not dismiss the impact of related party transactions on the discount. Column (3) of Table 11 shows that the market does not show any reaction to the financial constraints of parent firms. Table 11 results indicate that the presence of related party transactions continues to affect the discount of unlisted targets, while parent firms' financial constraints, particularly higher leverage ratios, also contribute to larger discounts. This conclusion is restricted by the limited sample size. Similar to Jaffe et al. (2019), that they do not include the liquidity measures in their robustness analysis because the lack of liquidity data for many deals would cause the sample sizes too small for meaningful inferences.

[Table 11]

### 5.5 Different event windows

Table 12 presents the regression results for different event windows. In Panel A of Table 12, the event windows range from -1 to 1, while in Panel B, the event windows range from -5 to 5. The regression results hold for both event window specifications. Regardless of the difference in event windows, the mediating effect of Change\_ratio remains consistent. This suggests that the influence of Change\_ratio as a mediating variable is not affected by the variation in event windows.

[Table 12]

## 6. Conclusion

Scholars, professionals, courts, and regulators often claim that private firms and subsidiary targets are sold at lower prices compared to public targets (Jaffe et al., 2019). However, the existing empirical research provides conflicting evidence in support of this assertion. For instance, Officer (2007) presents data showing that standalone private firms and subsidiaries of other firms (unlisted targets) are acquired at discounts ranging from 15% to 30%

compared to publicly traded targets with similar characteristics. Nevertheless, Jaffe et al. (2019) raise concerns about the methodology employed by Officer (2007), suggesting that the results are biased due to sample truncation and Jensen's inequality. Using an alternative method, Jaffe et al. (2019) find no evidence of discounts for unlisted targets. Additionally, previous studies have failed to offer a satisfactory explanation for the causes of the private firm discount (Capron and Shen, 2007). One possible explanation that has been proposed is the lack of market liquidity experienced by private firms (Fuller et al., 2002). However, empirical studies have not found support for the existence of a liquidity discount (e.g., Faccio et al., 2006).

This study focuses on China's M&A cases to address the methodological concerns related to target evaluation and offer an alternative explanation for the discount observed. The main methodological concern arises from the lack of available data on the valuation of unlisted targets. The SEC does not require acquirers to disclose information about unlisted targets unless they are deemed "significant" (Mason and Stegemoller, 2022). However, in China's M&A market, financial advisors hired by acquirers are obligated to evaluate the target and disclose evaluation reports. By collecting information from these reports, we can ascertain the value of targets. By comparing this value with the transaction price paid by the acquirer, we can directly measure whether the target is being sold at a discount. Analysis of the evaluation reports reveals, we find that the targets are indeed discounted by the acquirers. Furthermore, the study finds that related party transactions contribute to the target discount, and the target discount, in turn, mediates the market's positive reaction to M&A transactions.

Additionally, our findings indicate that the connection between an acquirer and a target as shareholders contributes more significantly to the target discount compared to other types of related party transactions in our channel analysis. Moreover, we observe that the mediating effect of the target discount is more pronounced when the acquiring firm is a non-state-owned enterprise (non-SOE). The power of the acquiring firm, as measured by its network centrality in the acquisition market, does not significantly affect the main results. We also discover that when the parent firms of unlisted targets have higher leverage prior to the M&A announcement, the unlisted targets experience greater discounts, supporting the theory that parent firms may have liquidity needs. However, the liquidity need does not affect the influence of related party transactions on the discount. Lastly, our main findings remain robust even when different event windows are chosen for analysis.

## 7. Tables

**Table 1**

**Sample distribution by year and industry.** Panel A reports the distribution of the sample by year from 2008 to 2021. Panel B reports the distribution of the sample by industry from 2008 to 2021.

Panel A: Year

	Obs.	Percent	Cum.
2008	48	1.67	1.67
2009	75	2.61	4.29
2010	67	2.33	6.62
2011	98	3.41	10.03
2012	160	5.57	15.61
2013	208	7.25	22.86
2014	300	10.45	33.31
2015	448	15.61	48.92
2016	331	11.53	60.45
2017	325	11.32	71.78
2018	293	10.21	81.99
2019	230	8.01	90.00
2020	214	7.46	97.46
2021	73	2.54	100.00
Total	2870	100.00	

Panel B: Industry

	Obs.	Percent	Cum.
Accommodation and Restaurant	8	0.28	0.28
Agriculture	34	1.18	1.46
Business Service	43	1.50	2.96
Construction	70	2.44	5.40
Education	4	0.14	5.54
Entertainment	40	1.39	6.93
Environment	40	1.39	8.33
Health and Social Work	7	0.24	8.57
Information Technology Service	215	7.49	16.06
Manufacturing	1703	59.34	75.40
Mining	67	2.33	77.74
Other	15	0.52	78.26
Real estate	146	5.09	83.34
Retail	177	6.17	89.51
Supply	166	5.78	95.30
Technology	28	0.98	96.27
Transportation	107	3.73	100.00
Total	2870	100.00	

**Table 2**

**Summary statistics.** The table reports summary statistics for the key variables and controls, the full sample runs from 2008 to 2021. In Panel A, CAR(-3,3) is the acquirer's cumulative abnormal returns from three days before the M&A announcement to the three days after the M&A announcement. Change\_ratio is the  $\ln((\text{transaction value})/(\text{evaluation value}))$ . Relevance is a dummy variable, that equals one if M&A transaction is a related party transaction, and zero otherwise. Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is

considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Panel B shows the significant levels of different event windows. Panel C shows the CAR(-3,3) based on the target listing status.

**Panel A:**

	N	Mean	SD	Min	p25	Median	p75	Max
CAR(-3,3)	2870	4.427	16.314	-36.013	-3.698	.955	9.202	48.97
Change_ratio	2870	.003	.459	-1.741	-.038	-.001	0	2.322
Relevance	2870	.525	.499	0	0	1	1	1
Size	2870	22.108	1.285	19.236	21.172	21.91	22.876	26.105
TQ	2870	2.115	1.401	.802	1.274	1.683	2.431	17.729
Lev	2870	.441	.208	.031	.274	.433	.599	.991
ROA	2870	.042	.055	-.398	.016	.039	.069	.222
Cashflow	2870	.042	.069	-.224	.005	.042	.081	.282
Board	2870	8.674	1.767	5	7	9	9	15
INST	2870	.383	.232	0	.18	.386	.571	.887
Cash_payment	2870	.65	.477	0	0	1	1	1

**Panel B:**

Event windows	Mean	t	p	star
CAR(-5,5)	4.427	8.659	0.0000	***
CAR(-3,3)	5.011	8.705	0.0000	***
CAR(-1,1)	4.733	8.288	0.0000	***

**Panel C: CAR(-3,3)**

listed_target	N	Mean	SD	Min	p25	Median	p75	Max
No	2793	4.424	16.274	-36.013	-3.65	.923	9.044	48.97
Yes	77	4.554	17.814	-36.013	-5.224	3.369	11.236	47.301

**t test: listed target CARs vs unlisted target CARs**

	Unlisted	Listed	dif	St Err	t value	p value
Unlisted - Listed	4.424	4.554	-0.13	1.8849	-0.0690	0.9450

**Table 3**

**Valuation statistics.** Table 3 presents a comprehensive summary of the valuation measurements for various subsamples, encompassing key statistical details. The valuations considered in this table encompass the book value and evaluation value derived from the evaluation reports, as well as the transaction value obtained from the M&A announcement reports.

**Panel A: Listed target VS unlisted target**

**Unlisted target**

	N	Mean	SD	Min	Median	Max
BookValue	2793	9.703e+08	2.213e+10	502.17	77431110	1.161e+12
EvaluationValue	2793	6.431e+08	8.562e+08	4558900	2.675e+08	3.059e+09
ExpenseValue	2793	5.871e+08	7.013e+08	7020000	2.722e+08	2.260e+09
ValueChange	2793	-55937355	3.373e+08	-3.040e+09	-253200	2.220e+09

**Listed target**

BookValue	77	9.132e+08	2.051e+09	5928800	1.405e+08	8.494e+09
EvaluationValue	77	1.081e+09	1.027e+09	46556200	7.267e+08	3.059e+09
ExpenseValue	77	9.456e+08	7.831e+08	34000000	6.668e+08	2.260e+09

ValueChange	77	-1.357e+08	3.005e+08	-7.988e+08	-2000000	2.155e+08
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**t test : ExpenseValue vs EvaluationValue**

	N	ExpenseValue	EvaluationValue	dif	St Err	t value	p value
Unlisted target	2793	5.871e+08	6.431e+08	-5.60e+07	2.09e+07	-2.6741	0.0075
Listed target	77	9.456e+08	1.081e+09	-1.35e+08	1.47e+08	-0.9200	0.3591

**Panel B: Evaluation method**

**Asset-based**

	N	Mean	SD	Min	Median	Max
BookValue	1064	6.930e+08	2.751e+09	502.17	80947138	4.005e+10
EvaluationValue	1064	5.216e+08	8.269e+08	4558900	1.494e+08	3.059e+09
ExpenseValue	1064	4.793e+08	6.837e+08	7020000	1.502e+08	2.260e+09
ValueChange	1064	-42309200	3.153e+08	-2.979e+09	0	2.220e+09

**Income-based**

BookValue	1554	1.191e+09	2.957e+10	31145.49	74689020	1.161e+12
EvaluationValue	1554	7.074e+08	8.368e+08	4558900	3.902e+08	3.059e+09
ExpenseValue	1554	6.454e+08	6.844e+08	7110100	3.850e+08	2.260e+09
ValueChange	1554	-61902209	3.277e+08	-3.040e+09	-759029.5	2.125e+09

**Market-based**

BookValue	75	1.360e+09	2.559e+09	28845.77	1.703e+08	1.191e+10
EvaluationValue	75	1.121e+09	1.179e+09	4558900	3.932e+08	3.059e+09
ExpenseValue	75	9.973e+08	9.128e+08	17000000	5.300e+08	2.260e+09
ValueChange	75	-1.238e+08	5.301e+08	-8.686e+08	-5997800	2.073e+09

**Mixed**

BookValue	177	5.112e+08	1.626e+09	220691.54	91721200	1.840e+10
EvaluationValue	177	7.968e+08	1.015e+09	6312600	3.641e+08	3.059e+09
ExpenseValue	177	7.053e+08	7.942e+08	7064635	3.465e+08	2.260e+09
ValueChange	177	-91426135	4.194e+08	-2.965e+09	-630000	1.804e+09

**Panel C: Industry**

**Accommodation and Restaurant**

	N	Mean	SD	Min	Median	Max
BookValue	8	1.726e+08	1.988e+08	4945011.6	92252550	5.488e+08
EvaluationValue	8	4.592e+08	6.626e+08	5404125.6	1.267e+08	1.844e+09
ExpenseValue	8	6.440e+08	8.770e+08	35010000	2.694e+08	2.260e+09
ValueChange	8	1.848e+08	4.304e+08	-43740500	-653355	1.189e+09

**Agriculture**

BookValue	34	2.290e+08	3.603e+08	2136938.5	80420036	1.586e+09
EvaluationValue	34	6.314e+08	7.577e+08	4558900	2.892e+08	3.059e+09
ExpenseValue	34	5.346e+08	6.050e+08	8443959.6	2.595e+08	2.260e+09
ValueChange	34	-96722268	5.098e+08	-2.965e+09	-138117.25	2.108e+08

**Business Service**

BookValue	43	1.827e+08	3.710e+08	935003.44	38714000	2.054e+09
EvaluationValue	43	3.855e+08	4.565e+08	13041600	2.413e+08	2.416e+09
ExpenseValue	43	3.836e+08	4.776e+08	13041600	2.268e+08	2.260e+09
ValueChange	43	-1907052.8	2.158e+08	-6.647e+08	-500000	7.682e+08

**Construction**

BookValue	70	4.348e+08	1.588e+09	17482.945	89120069	1.293e+10
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EvaluationValue	70	6.211e+08	8.365e+08	4558900	3.349e+08	3.059e+09
ExpenseValue	70	5.725e+08	6.742e+08	8670000	3.115e+08	2.260e+09
ValueChange	70	-48611512	2.260e+08	-7.988e+08	-9.07	5.760e+08

#### Education

BookValue	4	38159550	54273672	6243091	13698504	1.190e+08
EvaluationValue	4	2.589e+08	2.219e+08	89250000	1.823e+08	5.818e+08
ExpenseValue	4	2.527e+08	2.243e+08	85170000	1.720e+08	5.818e+08
ValueChange	4	-6179182	9799220.3	-20595028	-2060850	0

#### Entertainment

BookValue	40	1.585e+08	2.756e+08	2899982.2	42425551	1.401e+09
EvaluationValue	40	7.593e+08	8.641e+08	4714319.4	3.256e+08	2.908e+09
ExpenseValue	40	7.213e+08	7.475e+08	9520000	3.587e+08	2.260e+09
ValueChange	40	-37981406	2.820e+08	-9.628e+08	-247049.69	1.033e+09

#### Environment

BookValue	40	3.891e+08	1.306e+09	2451696	71937829	8.179e+09
EvaluationValue	40	5.350e+08	7.518e+08	7638800	1.939e+08	3.059e+09
ExpenseValue	40	4.977e+08	6.557e+08	8150000	2.025e+08	2.260e+09
ValueChange	40	-37246173	2.117e+08	-9.339e+08	-644792.5	3.495e+08

#### Heal and Social Work

BookValue	7	1.879e+08	1.568e+08	50016600	1.042e+08	4.352e+08
EvaluationValue	7	8.497e+08	8.628e+08	1.219e+08	6.310e+08	2.698e+09
ExpenseValue	7	7.603e+08	7.214e+08	1.097e+08	4.500e+08	2.260e+09
ValueChange	7	-89427864	1.680e+08	-4.380e+08	-12183300	18103100

#### Information Technology Service

BookValue	215	1.910e+08	8.269e+08	37805.472	46874300	1.139e+10
EvaluationValue	215	6.003e+08	7.101e+08	4558900	3.724e+08	3.059e+09
ExpenseValue	215	5.576e+08	5.901e+08	9600000	3.618e+08	2.260e+09
ValueChange	215	-42702418	3.469e+08	-2.692e+09	-1040000	1.804e+09

#### Manufacturing

BookValue	1703	5.936e+08	3.060e+09	28845.77	78000615	7.422e+10
EvaluationValue	1703	6.376e+08	8.620e+08	4558900	2.573e+08	3.059e+09
ExpenseValue	1703	5.820e+08	7.021e+08	7020000	2.580e+08	2.260e+09
ValueChange	1703	-55606807	3.351e+08	-3.040e+09	-368615.53	2.220e+09

#### Mining

BookValue	67	4.879e+08	9.013e+08	745750.35	1.387e+08	5.346e+09
EvaluationValue	67	9.426e+08	9.081e+08	16408000	6.675e+08	3.059e+09
ExpenseValue	67	8.930e+08	7.709e+08	10000000	7.235e+08	2.260e+09
ValueChange	67	-49513970	4.500e+08	-1.671e+09	-20	1.871e+09

#### Other

BookValue	15	5.060e+08	1.033e+09	5584259.8	1.499e+08	3.949e+09
EvaluationValue	15	7.753e+08	9.736e+08	7291619.6	1.870e+08	3.059e+09
ExpenseValue	15	7.083e+08	8.545e+08	7292300	1.776e+08	2.260e+09
ValueChange	15	-66972891	2.079e+08	-7.988e+08	-14	53200

#### Real estate

BookValue	146	9.153e+08	3.209e+09	1503135	95079723	2.792e+10
EvaluationValue	146	7.282e+08	8.868e+08	7974425	3.289e+08	3.059e+09
ExpenseValue	146	7.059e+08	7.736e+08	7110100	3.420e+08	2.260e+09
ValueChange	146	-22362786	3.538e+08	-1.413e+09	-133396	1.999e+09

#### Retail

BookValue	177	7.278e+09	8.727e+10	308958	94344044	1.161e+12
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EvaluationValue	177	7.787e+08	1.004e+09	4558900	3.051e+08	3.059e+09
ExpenseValue	177	6.685e+08	7.856e+08	7153900	2.760e+08	2.260e+09
ValueChange	177	-1.102e+08	3.642e+08	-2.875e+09	-8500	1.426e+09

#### Supply

BookValue	166	5.950e+08	1.282e+09	347067	1.255e+08	8.607e+09
EvaluationValue	166	6.630e+08	9.069e+08	4558900	2.708e+08	3.059e+09
ExpenseValue	166	5.901e+08	7.279e+08	7800000	2.717e+08	2.260e+09
ValueChange	166	-72963262	2.894e+08	-1.471e+09	0	1.262e+09

#### Technology

BookValue	28	1.555e+08	4.183e+08	2606800	51485603	2.232e+09
EvaluationValue	28	3.233e+08	5.849e+08	7344500	1.213e+08	2.812e+09
ExpenseValue	28	3.233e+08	5.042e+08	10280000	1.175e+08	2.260e+09
ValueChange	28	42471.103	1.645e+08	-5.517e+08	-249960	6.468e+08

#### Transportation

BookValue	107	8.629e+08	3.061e+09	502.17	1.163e+08	2.188e+10
EvaluationValue	107	7.708e+08	1.015e+09	4558900	2.529e+08	3.059e+09
ExpenseValue	107	6.339e+08	7.592e+08	7320000	2.582e+08	2.260e+09
ValueChange	107	-1.369e+08	3.818e+08	-2.979e+09	-8940	1.315e+08

#### Panel D: Related party transaction and valuation

##### RelevanceSign: N

	N	Mean	SD	Min	Median	Max
BookValue	1364	2.656e+08	2.620e+09	31145.49	45570414	7.422e+10
EvaluationValue	1364	4.070e+08	5.718e+08	4558900	1.917e+08	3.059e+09
ExpenseValue	1364	3.925e+08	5.022e+08	7020000	1.916e+08	2.260e+09
ValueChange	1364	-14441159	2.582e+08	-3.040e+09	-510151	2.220e+09

##### RelevanceSign: Y

BookValue	1506	1.606e+09	3.002e+10	502.17	1.470e+08	1.161e+12
EvaluationValue	1506	8.793e+08	1.010e+09	4558900	4.311e+08	3.059e+09
ExpenseValue	1506	7.817e+08	8.059e+08	7069600	4.355e+08	2.260e+09
ValueChange	1506	-97597013	3.902e+08	-3.038e+09	-14750	2.209e+09

#### t test : ExpenseValue EvaluationValue

	N	ExpenseValue	EvaluationValue	ValueChange	St Err	t value	p value
N	1364	3.925e+08	4.070e+08	-1.40e+07	2.06e+07	-0.6794	0.4969
Y	1506	7.817e+08	8.793e+08	-9.70e+07	3.33e+07	-2.9131	0.0036

#### Panel E: Acquiring firms with multiple M&A transactions

##### Acquirer multiple M&A transactions

	Obs.	Percent	Cum.
1	1622	56.52	56.52
>1	1248	43.48	100.00
Total	2870	100.00	

##### RelevanceSign: N

	N	Mean	SD	Min	Median	Max
BookValue	585	2.521e+08	3.082e+09	31145.49	45661493	7.422e+10
EvaluationValue	585	3.799e+08	5.010e+08	4558900	2.029e+08	3.059e+09
ExpenseValue	585	3.810e+08	4.673e+08	7020000	2.024e+08	2.260e+09
ValueChange	585	1054340.8	2.065e+08	-1.383e+09	-454000	1.999e+09

**RelevanceSign: Y**

BookValue	663	2.745e+09	4.517e+10	502.17	1.543e+08	1.161e+12
EvaluationValue	663	8.998e+08	1.022e+09	4558900	4.522e+08	3.059e+09
ExpenseValue	663	8.028e+08	8.112e+08	7069600	4.500e+08	2.260e+09
ValueChange	663	-97007044	3.774e+08	-2.875e+09	-13941	1.981e+09

**t test : ExpenseValue EvaluationValue**

	N	ExpenseValue	EvaluationValue	ValueChange	St Err	t value	p value
N	585	3.810e+08	3.799e+08	1054340.9	8535722.5	.1	0.9015
Y	663	8.028e+08	8.998e+08	-97007043	14655502	-6.6	0.0000

**Table 4**

**Acquirer's cumulative abnormal returns and related party transaction.** This table presents the findings of regression analyses investigating the impact of the related party transaction on acquirers' cumulative abnormal returns. The dependent variable is the acquirer's CARs (-3,3). The key independent variable is Change\_ratio =  $-1 * \ln((\text{transaction value})/(\text{evaluation value}))$ . All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Columns (1) and (2) include industry fixed effects and year fixed effects, Column (3) adds firm fixed effects. Standard errors adjusted for firm-level clustering and robust t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) CAR(-3,3)	(2) CAR(-3,3)	(3) CAR(-3,3)
Relevance	5.863*** (3.4148)	3.8629*** (3.7919)	6.8865** (2.1861)
Size		-1.3135 (-1.5755)	-1.287 (-.3328)
TQ		-.3179 (-.8989)	1.4802 (.8616)
Lev		.091 (1.4581)	-.1171 (-.8113)
ROA		-.4509 (-1.4297)	-1.2491*** (-3.3045)
Cashflow		.1062 (1.5446)	.4133 (1.6036)
Board		.0247 (.1292)	-.6461 (-.4131)
INST		-.0911 (-1.391)	-.2286** (-2.1582)
cash_payment		-.0916*** (-5.5868)	-.0941*** (-2.7805)
_cons	-6.7426 (-1.6239)	26.1437 (1.3886)	51.0169 (.5319)
Observations	2793	2793	2793
R-squared	.0285	.0483	.5747
Industry fixed effects	YES	YES	YES
Firm fixed effects	NO	NO	YES
Year fixed effects	YES	YES	YES



*t-values are in parentheses*  
 \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 5**

**Related party transaction and target discounts.** This table presents the findings of regression analyses investigating the impact of the discount applied to unlisted targets on acquirers' cumulative abnormal returns. The dependent variable is the Relevance, related party transaction dummy. The key independent variable is Relevance, which is a dummy variable, equals 1 if M&A transaction is a related party transaction, and 0 otherwise. All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Columns (1) and (2) include industry fixed effects and year fixed effects, Column (3) adds firm fixed effects. Standard errors adjusted for firm-level clustering and robust t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
	Change_ratio	Change_ratio	Change_ratio
Relevance	.0341*	.0377**	.0573*
	(1.8894)	(2.1018)	(1.7031)
Size		.0049	-.0479
		(.4327)	(-1.1593)
TQ		.0118	-.0144
		(1.6177)	(-.7852)
Lev		-.0001	.0004
		(-.1997)	(.2636)
ROA		.0015	.0017
		(.6897)	(.4146)
Cashflow		-.0021	-.0028
		(-1.3608)	(-1.0263)
Board		-.0031	-.0277*
		(-.5841)	(-1.6608)
INST		-.0002	-.0002
		(-.4516)	(-.1889)
cash_payment		-.0001	0
Size		.0049	-.0479
_cons	-.1033	-.1837	1.2326
	(-.8199)	(-.7136)	(1.2042)
Observations	2793	2793	2793
R-squared	.012	.0139	.5761
Industry fixed effects	YES	YES	YES
Firm fixed effects	NO	NO	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*  
 \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 6**

**Acquirer's cumulative abnormal returns, related party transactions, and value change ratio.** This table presents the regression results analysing the impact of related party transactions and value change ratio on

acquirers' cumulative abnormal returns (CARs), and value change ratio is an intermediate variable. The dependent variable is the acquirer's CARs (-3,3). Relevance is a dummy variable, that equals one if M&A transaction is a related party transaction, and zero otherwise. The key independent variable is Relevance that equals one if M&A transaction is a related party transaction, and zero otherwise. Change\_ratio is an intermediate variable, calculated by  $-1 * \ln((\text{transaction value})/(\text{evaluation value}))$ . All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Columns (1) and (2) include industry fixed effects and year fixed effects, Column (3) adds firm fixed effects. Standard errors adjusted for firm-level clustering and robust t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) CAR(-3,3)	(2) CAR(-3,3)	(3) CAR(-3,3)
Relevance	5.7356*** (3.4547)	3.7218*** (3.8449)	6.357** (2.0245)
Change_ratio	3.7349** (2.1168)	3.7402** (2.1017)	9.2458*** (3.3848)
Size		-1.3318 (-1.6105)	-.8445 (-.2192)
TQ		-.3619 (-1.043)	1.6134 (.943)
Lev		.0915 (1.4572)	-.1208 (-.8411)
ROA		-.4566 (-1.4399)	-1.2646*** (-3.3601)
Cashflow		.1139 (1.6219)	.4394* (1.7117)
Board		.0362 (.1873)	-.3898 (-.2501)
INST		-.0903 (-1.387)	-.2266** (-2.1491)
cash_payment		-.0913*** (-5.6182)	-.0937*** (-2.781)
_cons	-6.3569 (-1.5521)	26.8309 (1.4444)	39.6203 (4.147)
Observations	2793	2793	2793
R-squared	.0301	.0499	.5788
Industry fixed effects	YES	YES	YES
Firm fixed effects	NO	NO	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 7**

**Related party transaction subsamples.** This table reports the summary statistic of Change\_ratio and acquirers' CARs based on the subsamples of related party transaction.

**Panel A: Related party types and Change\_ratio**

Related party transaction types	N	Mean	SD	Min	Median	Max
Direct shareholding relationship	108	.0474	.3176	-2.0903	.0021	1.3795

Controlling shareholder	450	.0217	.4753	-2.3868	0	1.7413
Actual controller	27	.0286	.5029	-1.7887	0	1.7413
Indirect controller	12	.1113	.3647	-.2978	0	1.1909
Controlling shareholder and actual controller	8	.1828	.3462	0	.0294	1.0017
Concerted action relationship	1	-2.3868	.	-2.3868	-2.3868	-2.3868
Affiliated relationship	439	-.0104	.4887	-2.3868	0	1.7413
Wholly-owned subsidiary	2	.6662	.9421	0	.6662	1.3323
Holding subsidiary	11	.2504	.5123	0	.0323	1.7413
Prospective shareholder	35	.2624	.4117	-.1355	.1979	1.7413
Management shareholding	5	.0319	.0563	0	.0095	.1323
Investee company	6	-.0013	.0032	-.0079	0	.0001
Other	344	-.02	.5051	-2.3868	.0028	1.7413
Total	1448	.0124	.4797	-2.3868	.0000	1.7413

**Panel B: Related party types and acquirer's CARs**

Related party transaction types	N	Mean	SD	Min	Median	Max
Direct shareholding relationship	108	15.3403	21.9074	-33.6701	10.9436	49.0922
Controlling shareholder	450	2.2476	12.2982	-36.0131	.3007	49.0922
Actual controller	27	3.9095	16.6357	-25.2619	2.2522	47.57
Indirect controller	12	2.5437	21.933	-29.4764	-2.7214	49.0922
Controlling shareholder and actual controller	8	-8.1534	16.9888	-36.0131	-6.9002	16.1147
Concerted action relationship	1	-9.4219	.	-9.4219	-9.4219	-9.4219
Affiliated relationship	439	4.0643	13.9894	-36.0131	.9677	49.0922
Wholly-owned subsidiary	2	-6.5549	5.7307	-10.6071	-6.5549	-2.5027
Holding subsidiary	11	.1972	4.4265	-5.1395	.185	10.1879
Prospective shareholder	35	16.6698	24.1608	-27.5955	12.3682	49.0922
Management shareholding	5	-1.4023	7.0439	-10.0682	.8353	7.8866
Investee company	6	-4.1035	9.5352	-23.3824	-.9468	2.3474
Other	344	11.3091	20.6064	-36.0131	6.2982	49.0922
Total	1448	6.1775	17.0485	-36.0131	1.6875	49.0922

**Table 8**

**Acquirer's cumulative abnormal returns, related party transaction types, and value change ratio.** This table presents the regression results analysing the impact of related party transactions and value change ratio on acquirers' cumulative abnormal returns (CARs), and value change ratio is an intermediate variable. The dependent variable is the acquirer's CARs (-3,3). The key independent variables are, Controlling shareholder is a dummy variable, that equals one if related party transaction type is controlling shareholder, and zero otherwise. Shareholder is a dummy variable, that equals one if related party transaction type is an acquirer holding share of a target but not controlling shareholder, and zero otherwise. Controller is a dummy variable, equals one if related party transaction type is controller (the individual or entity has the actual power and control over a company, even if they may not be the registered or legal owner of the majority shares), and zero otherwise. Subsidiary is a dummy variable, equals one if the target is a subsidiary of the acquirer, and zero otherwise. Other is a dummy variable that equals one if an acquirer and a target have relation other than previous connections, and zero otherwise. Change\_ratio is an intermediate variable, calculated by  $-1 * \ln((\text{transaction value}) / (\text{evaluation value}))$ . All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Columns (1), (2) and (3) include industry fixed effects and year fixed effects. Standard errors adjusted for firm-level clustering and robust

t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) CAR(-3,3)	(2) Change_ratio	(3) CAR(-3,3)
Controlling shareholder	.6672 (.9026)	.0562** (1.9718)	.5614 (.762)
Shareholder	7.1218*** (4.1098)	.1245*** (3.8322)	6.8876*** (4.0096)
Controller	-1.4948 (-.5465)	.0672 (.8001)	-1.6212 (-.5913)
Subsidiary	-.5966 (-.339)	.3631*** (2.8184)	-1.2801 (-.7458)
Other	3.4921*** (4.846)	.0045 (.2107)	3.4836*** (4.8427)
Change_ratio			1.8823*** (2.6913)
Size	-1.7819*** (-4.8651)	.0034 (.2897)	-1.7883*** (-4.8856)
TQ	-.5365* (-1.7508)	.0108 (1.4817)	-.5569* (-1.8159)
Lev	.0161 (.8097)	-.0002 (-.2952)	.0164 (.8266)
ROA	-.0792 (-1.2403)	.0014 (.6183)	-.0817 (-1.2777)
Cashflow	.0673 (1.2455)	-.0023 (-1.4624)	.0716 (1.3235)
Board	.0362 (.2087)	-.0044 (-.8491)	.0445 (.2556)
INST	-.0124 (-.7799)	-.0002 (-.3794)	-.0121 (-.7573)
cash_payment	-.0701*** (-9.3166)	-.0001 (-.3346)	-.07*** (-9.3302)
_cons	37.626*** (4.6659)	-.1454 (-.547)	37.8996*** (4.7117)
Observations	2793	2793	2793
R-squared	.1844	.0195	.1873
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 9**

**SOE and non-SOE.** This table presents the regression results based on SOE, in Panel A, and non-SOE, in Panel B. The dependent variable is the acquirer's CARs (-3,3). Relevance is a dummy variable, that equals one if M&A transaction is a related party transaction, and zero otherwise. The key independent variable is Relevance that equals one if M&A transaction is a related party transaction, and zero otherwise. Change\_ratio is an intermediate variable, calculated by  $-1 * \ln((\text{transaction value}) / (\text{evaluation value}))$ . All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors

in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Columns (1), (2) and (3) include industry fixed effects and year fixed effects. Standard errors adjusted for firm-level clustering and robust t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: SOE

	(1) CAR(-3,3)	(2) Change_ratio	(3) CAR(-3,3)
Relevance	1.475* (1.881)	.033 (.94)	1.441* (1.835)
Change_ratio			1.037 (1.14)
Size	-1.057** (-2.2)	.001 (.032)	-1.057** (-2.2)
TQ	-.429 (-.779)	.02 (1.352)	-.45 (-.81)
Lev	.025 (.925)	-.001 (-1.086)	.026 (.972)
ROA	.043 (.392)	-.004 (-.78)	.047 (.422)
Cashflow	-.003 (-.036)	0 (-.119)	-.003 (-.032)
Board	.015 (.064)	.005 (.582)	.01 (.043)
INST	-.038 (-1.394)	.001 (1.314)	-.04 (-1.435)
cash_payment	-.105*** (-8.806)	-.001 (-1.352)	-.104*** (-8.783)
_cons	27.052*** (2.585)	-.106 (-.262)	27.162*** (2.597)
Observations	1040	1040	1040
R-squared	.199	.038	.201
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Panel B: non-SOE

	(1) CAR(-3,3)	(2) Change_ratio	(3) CAR(-3,3)
Relevance	5.186*** (3.139)	.035* (1.7)	4.97*** (3.198)
Change_ratio			6.17* (1.864)
Size	-.49 (-.229)	.004 (.317)	-.517 (-.243)
TQ	-.095 (-.159)	.01 (1.204)	-.159 (-.276)
Lev	.132 (1.291)	0 (.391)	.13 (1.279)
ROA	-.796 (-1.482)	.004 (1.64)	-.821 (-1.5)
Cashflow	.187 (1.62)	-.003 (-1.551)	.205* (1.7)
Board	.385 (1.093)	-.011 (-1.565)	.455 (1.228)
INST	-.107 (-1.1)	-.001* (-1.915)	-.101 (-1.068)

cash_payment	-.089*** (-3.092)	0 (.448)	-.09*** (-3.092)
_cons	1.817 (.037)	-.184 (-.542)	2.955 (.06)
Observations	1753	1753	1753
R-squared	.056	.018	.059
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 10**

**Acquirer network centrality.** This table repeats the regression in Table 6 and adds acquirer network centrality as a control variable. The dependent variable is the acquirer's CARs (-3,3). Relevance is a dummy variable, that equals one if M&A transaction is a related party transaction, and zero otherwise. The key independent variable is Relevance that equals one if M&A transaction is a related party transaction, and zero otherwise. Change\_ratio is an intermediate variable, calculated by  $-1 * \ln((\text{transaction value}) / (\text{evaluation value}))$ . Firm\_pctile\_centrality is yearly acquiring firm level network centrality variables, and constructed by using acquirer CEOs and directors social connections (e.g., El-Khatib et al., 2015; Tao et al., 2019). All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Columns (1), (2) and (3) include industry fixed effects and year fixed effects. Standard errors adjusted for firm-level clustering and robust t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) CAR(-3,3)	(2) Change_ratio	(3) CAR(-3,3)
Relevance	3.73*** (3.611)	.038** (2.049)	3.581*** (3.658)
Change_ratio			3.934** (2.077)
firm_pctile_cen~y	.07 (1.163)	-.001 (-1.379)	.073 (1.189)
Size	-1.485** (-2.008)	.007 (.597)	-1.513** (-2.072)
TQ	-.378 (-1.096)	.011 (1.512)	-.422 (-1.236)
Lev	.09 (1.468)	0 (-.249)	.091 (1.467)
ROA	-.447 (-1.446)	.001 (.614)	-.453 (-1.456)
Cashflow	.101 (1.514)	-.002 (-1.569)	.11 (1.616)
Board	-.081 (-.383)	-.002 (-.43)	-.072 (-.339)
INST	-.097 (-1.403)	0 (-.316)	-.096 (-1.4)
cash_payment	-.093*** (-5.462)	0 (-.117)	-.093*** (-5.478)

_cons	27.851 (1.551)	-.174 (-.667)	28.537 (1.612)
Observations	2712	2712	2712
R-squared	.049	.015	.051
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 11**

**The liquidity needs of parent company.** This table includes the parent firm control in the main regression. The dependent variable is the acquirer's CARs (-3,3). Relevance is a dummy variable, that equals one if M&A transaction is a related party transaction, and zero otherwise. The key independent variable is Relevance that equals one if M&A transaction is a related party transaction, and zero otherwise. Change\_ratio is an intermediate variable, calculated by  $-1 * \ln((\text{transaction value}) / (\text{evaluation value}))$ . All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. Parent leverage (Lev\_p) is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Parent return on assets (ROA\_p) is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Parent loss indicator (Loss\_p) is a dummy variable equal 1 if parent firm net profit less than 0, and 0 otherwise. Columns (1), (2) and (3) include industry fixed effects and year fixed effects. Standard errors adjusted for firm-level clustering and robust t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) CAR(-3,3)	(2) Change_ratio	(3) CAR(-3,3)
Relevance	11.321** (2.471)	.162* (1.724)	11.348** (2.649)
Change_ratio			-.163 (-.018)
Size	-7.247*** (-2.692)	.007 (.108)	-7.246*** (-2.654)
TQ	-5.421** (-2.159)	.083 (1.182)	-5.407* (-1.957)
Lev	.231 (1.206)	.003 (.756)	.232 (1.18)
ROA	1.23 (1.49)	-.013 (-.802)	1.228 (1.491)
Cashflow	.351 (.628)	.023* (1.952)	.355 (.68)
Lev_p	.072 (.464)	.007** (2.458)	.073 (.383)
ROA_p	.509 (.663)	.003 (.208)	.509 (.653)
Loss_p	3.102 (.37)	-.011 (-.064)	3.101 (.366)
_cons	99.928* (1.757)	-.827 (-.597)	99.793* (1.715)
Observations	74	74	74
R-squared	.536	.572	.536
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

**Table 12**

**Difference event windows.** This table presents the regression results in different event windows. The dependent variable is the acquirer's CAR(-1,1) in Panel A, and CAR(-5,5) in Panel B. Relevance is a dummy variable, that equals one if M&A transaction is a related party transaction, and zero otherwise. The key independent variable is Relevance that equals one if M&A transaction is a related party transaction, and zero otherwise. Change\_ratio is an intermediate variable, calculated by  $-1 * \ln((\text{transaction value})/(\text{evaluation value}))$ . All control variables are Firm size (Size) is the natural logarithm of assets. Larger values indicate larger firm size. Tobin's Q (TQ) measures the market value of the firm relative to its book value. It serves as a proxy for firm's investment opportunities and growth prospects. Leverage is calculated as the ratio of total debt to total assets. This variable captures the level of debt financing utilized by the firm. Return on assets is computed by dividing net income by total assets. ROA provides insights into the firm's profitability. Cash flow (Cashflow) is determined by dividing net operating cash flow by total assets. It reflects the firm's ability to generate cash from its operations. Board number (Board) represents the number of directors serving on the board of the firm. It is considered as a measure of corporate governance structure. Institutional investors' shareholding ratio (INST) indicates the proportion of shares held by institutional investors in the firm. Payment method (Cash\_payment) is the binary variable takes a value of 1 if the primary method of payment in the takeover is cash, and 0 otherwise. Columns (1), (2) and (3) include industry fixed effects and year fixed effects. Standard errors adjusted for firm-level clustering and robust t-statistics are displayed in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: CAR(-1,1)

	(1) CAR(-1,1)	(2) Change_ratio	(3) CAR(-1,1)
Relevance	2.287*** (2.599)	.041** (2.313)	2.165*** (2.631)
Change_ratio			2.984* (1.816)
Size	-.467 (-.619)	.004 (.371)	-.479 (-.64)
TQ	.052 (.206)	.011 (1.553)	.019 (.077)
Lev	.084 (1.395)	0 (-.253)	.085 (1.394)
ROA	-.431 (-1.477)	.001 (.709)	-.436 (-1.483)
Cashflow	.09* (1.785)	-.002 (-1.351)	.096* (1.842)
Board	.014 (.106)	-.003 (-.644)	.024 (.178)
INST	-.085 (-1.343)	0 (-.342)	-.085 (-1.342)
cash_payment	-.066*** (-4.512)	0 (-.451)	-.066*** (-4.54)
_cons	10.301 (.6)	-.158 (-.633)	10.773 (.635)
Observations	2793	2793	2793
R-squared	.031	.014	.032
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$ 

Panel B: CAR(-5,5)

	(1) CAR(-5,5)	(2) Change_ratio	(3) CAR(-5,5)
Relevance	3.135*** (4.265)	.041** (2.313)	3.024*** (4.135)



Change_ratio			2.739*** (3.247)
Size	-1.892*** (-4.452)	.004 (.371)	-1.903*** (-4.482)
TQ	-.395 (-1.094)	.011 (1.553)	-.425 (-1.177)
Lev	.005 (.19)	0 (-.253)	.005 (.207)
ROA	-.102 (-1.346)	.001 (.709)	-.106 (-1.404)
Cashflow	.08 (1.197)	-.002 (-1.351)	.085 (1.28)
Board	.071 (.328)	-.003 (-.644)	.08 (.37)
INST	-.039** (-2.138)	0 (-.342)	-.039** (-2.11)
cash_payment	-.084*** (-9.462)	0 (-.451)	-.084*** (-9.479)
_cons	39.553*** (4.258)	-.158 (-.633)	39.986*** (4.315)
Observations	2793	2793	2793
R-squared	.176	.014	.18
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES

*t-values are in parentheses*

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

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