# Does Performance Commitment Protect M&A Bidders?

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**Abstract**

We evaluate whether performance commitment clauses in M&A deals protect bidders from M&A risks. Using a sample of Chinese M&A deals from 2007 to 2019, we find that the adoption of performance commitment clauses is associated with higher corporate risk-taking. Such an effect is alleviated in related-party transactions. Performance commitment is generally related to aggressive bidding. It imposes negative long-term economic consequences to bidding firms on goodwill impairment, earning management, and firm valuation. However, it helps target firms achieve backdoor listing, gains bidding firms superior short-term performance, and promotes target-asset sellers to obtain career development. Overall, our findings highlight that performance commitment clauses fail to protect M&A bidders and even increase the M&A risk.

**Keywords**: performance commitment, corporate risk-taking, bidding aggressiveness

**JEL Classification:** G10, G11, G14

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## 1. Introduction

Acquirers in the M&A activities are concerned about valuing target assets rationally and protect themselves from M&A risks. They struggle to construct well-defined clauses, such as performance commitment clauses, to decrease the financial risk associated with M&A activities. They are designed to reduce information asymmetry (Kohers and Ang, 2000; Barbopoulos and Sudarsanam, 2012; Cadman et al., 2014; Song et al., 2019). However, we wonder whether performance commitment clauses protect the bidding firms from the valuation problem in China, or on the contrary, bring about more adverse effects in the long run.

Empirical evidence concerning earnouts (a similar clauses as performance commitment clauses) discovers that the use of earnouts bridges the value gap (Cadman et al., 2014), mitigates the value risk in acquisitions (Barbopoulos and Sudarsanam, 2012), and provokes higher gains in announcement and post-acquisition returns (Barbopoulos and Sudarsanam, 2012). However, consistent influences are not observed in a similar clause called performance commitment. A large proportion of unfulfilled performance commitment is documented to be associated with goodwill impairment in major asset restructuring (Deng, 2019). At the deal level, performance commitment clauses decrease current stock price crash risk (Song et al., 2019). However, bidding firms have a large stock price crash risk at the firm level in the post-performance commitment period (Li et al., 2019). Mixed discoveries raise our conjecture that whether performance commitment is a short-term benefit but long-term damage.

Existing literature has documented the long-term underperformance of bidders and stock price crashes following M&A deals (He et al., 2019; Jory et al., 2020), which provides rough evidence about the negative consequences of performance commitment in M&A activities. Therefore, this study aims to fill the gap in prior research by considering how performance commitment clauses in M&A activities are related to bidding firms' corporate risk-taking and the economic consequences of performance commitment clauses in a longer period. We focus on risk transmission within firms involved in M&A activities, taking into account performance commitment clauses that significantly impact corporate performance. In this way, our study establishes a new

analytical framework for examining the financial risk brought by M&A activities with the introduction of performance commitment clauses. In addition, our detailed examinations of the short-term and long-term economic effects provide novel evidence concerning the role of performance commitment in the fulfillment of earnings goals following M&A deals.

[Insert Figure 1 about here]

Performance commitment clauses are among the most important sections of the valuation adjustment mechanism (VAM) in the M&A deal arrangement. Performance commitment clauses reflect the two parties' growth prospects and risk preferences involved in the acquisition deals. It sets specific performance goals for the target assets and outlines the conditions under which target-asset sellers must compensate bidders if target assets fail to achieve the pre-specified earnings goals. In some cases, bidding firms also provide performance incentives for target firms or target-asset sellers if they successfully fulfill performance commitments. Earnout clause facilitates the agreement on the deal under disagreement on value (Elnahas et al., 2017), and performance clauses work similarly. Therefore, commitment performance is a two-way payment in two stages. However, since all value of M&A is initially paid to target firms, it is intuitional that target-asset sellers may utilize the commitment period to sell their ownership with a better price despite compensations many years later.

The earnout clause is also a two-stage arrangement of payment. An earnout agreement includes an upfront fixed payment and additional future payment based on the performance of target assets (Cain et al., 2011), and thus it is merely a one-way payment from acquiring firms to target firms. Firms with high-quality auditors (Allee and Wangerin, 2018) or financial constraints (Bates et al., 2018) are more likely to use earnout contracts. Generally, earnout deals perform better than non-earnout deals, and acquirers gain most, especially when initial payments are based on stocks (Barbopoulos et al., 2018). However, payment in the second stage may not be sufficient to motivate managers in the target firms. Therefore, when targets hold more private information, a large payment in the first stage of performance commitment creates the opportunity for

target-asset sellers to obtain more gains in M&A activities.

Chinese M&A data provides several advantages to our study. First, M&A activities in the Chinese A-share market witness the increasing popularity of performance commitment clauses in deal arrangements. As far as we are concerned, the wide adoption of performance commitment clauses associated with Chinese listed firms is a unique stylized fact. Previous studies mainly focus on performance commitment originated from VAM involving venture capital and private equity. Performance commitment clauses had existed sporadically in M&A activities in China before the clauses were first officially introduced in 2008[2]. At this point, M&A deals with major asset restructurings were required to sign detailed clauses of performance commitment and compensation if they were priced based on expected future performance.

Although the regulation is changed to allow for voluntary adoption for non-related-party transactions in 2014[3], performance commitment clauses have become even more popular among listed firms. By the end of 2019, the number of M&A deals involving performance commitments has reached 3,800, and the cumulative aggregate amount of earnings committed in M&A deals exceeded 137 billion Yuan. The detailed and mandatory disclosure of performance commitment clauses enables examining the economic consequences on the financial risk in M&A. Second, the booming M&A market in China and pervasive serious slumps following M&A deals provide practical motivation to our study. The Chinese A-share market has witnessed tremendous growth of M&A activities, with a rapid increase in aggregate goodwill from about 98 billion Yuan in 2010 to about 1.31 trillion Yuan in 2019. The average proportion of goodwill in total assets also rose from 0.37% to 6.10%. Market crashes continuously occur as a result of goodwill impairment after the expiration of the performance commitment period. Therefore, the Chinese M&A market is ideal for examining the economic effects of financial risk derived from M&A activities and performance commitment.

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[2] Article 33 of <u>Measures for the Administration of the Material Asset Restructurings of Listed Firms</u>, China Securities Regulatory Commission (CSRC), 2008.

[3] Article 35 of <u>Measures for the Administration of the Material Asset Restructurings of Listed Firms (2014 Amendment)</u>, CSRC, 2014.

Based on a deal-level sample comprising listed firms that have engaged in acquisition activities from 2007 to 2019, we find that the use of performance commitment clauses is positively associated with corporate risk-taking. The impact is less profound in related-party transactions for information advantages. Because performance commitment is related to large deal size, bidding premium, and goodwill accumulation, bidding firms will experience severe goodwill impairment and damage to firm value in the future. They have to manipulate earnings, especially in operating cash flow, to maintain the corporate performance.

Moreover, we figure the motivations about why both parties agree to the performance commitment. In the short term, the use of performance commitment clauses is a triple-win. Bidding firms have a positive response around the deal announcements. Target firms succeed in listing through a shell firm. Target-asset sellers also obtain retention in bidding firms. Finally, we conduct a battery of robustness checks, including endogenous treatment effect regression, propensity score matching, and alternative specifications. Our primary findings of the economic effects of performance commitment clauses remain quantitatively similar under all circumstances.

This study contributes to three strands of the literature. First, our study contributes to the emerging literature on the performance of M&A activities with performance commitment. We further discover why performance commitment clauses increase the firm risk and what benefits all parties in M&A deals obtain. Li et al. (2019) and Song et al. (2019) report mixed findings concerning the relationship between performance commitment and acquirers' subsequent crash risk. We provide empirical evidence that aggressive bidders tend to witness the poor performance of M&A activities. In the short term, target firms realize listing, bidding firms obtain a positive response from the stock market, and target-asset sellers get a professional promotion. However, in the long run, bidding firms will have large goodwill impairment, severe earning management, and a decrease in firm value. Our findings explain that performance commitment clauses have short-term benefits at the cost of long-term damage.

Our study also contributes to the literature on the consequences of earnouts.

Performance commitment clauses have a similar arrangement as earnouts. Although performance commitment clauses also have high announcement gains consistent with earnouts (Barbopoulos and Sudarsanam, 2012), they have to experience long-term underperformance in firm value because of severe goodwill impairment. Shareholders of target firms utilize performance commitment to cash out since performance commitment pay more in the first stage than earnouts, and gain current professional benefits in aggressive M&A. The preferred choices of performance commitment for target firms indicate potential baneful post-acquisition performance and firm value damage. Despite the limited results about earnouts' negative consequences, earnouts are related to a higher premium (Barbopoulos and Adra, 2016). Earnouts are widely used when targets have more private information (Datar et al., 2001). Managers may also try to cut significant discretionary expenses to manage their earnings during the earnout period (Elnahas et al., 2017). Given the above signals, further long-term analyses may tell some negative impacts of earnouts in the long run.

Besides, our study contributes to the study on the career development of directors in M&A. Existing literature about M&A activities concern most about target-firm or bidding-firm directors. Firms hire directors for their acquisition experience (Field and Mkrtchyan, 2017), and target-firm directors have a higher retention rate post of connected acquisition activities with common directors (Renneboog and Zhao, 2014). We document novel evidence that target-asset sellers involved in performance commitment clauses are more likely to be appointed to the board member or senior executives of the bidding firms when signing the performance commitment. Our study highlights the real effect of performance commitment clauses on the professional career of target-asset sellers. Therefore, we enrich the understanding of target-asset sellers' motivations in M&A activities and performance commitment clauses.

The remainder of the paper is organized as follows: Section 2 reviews the relevant literature and proposes testable hypotheses; Section 3 describes the sample, variable constructions, and research design, and reports descriptive statistics; Section 4 presents the empirical results of the determinants of use of performance commitment clauses and economic effects of performance commitment; Section 5 explores the benefits of

performance commitment clauses on bidding firms, target-asset sellers, and target firms; Section 6 conducts a series of robustness checks, and Section 7 finally concludes the study.

**2. Hypothesis Development**

The performance commitment clause is widely adopted in M&A deal agreements in the recent decade in China. It is one of the most critical parts of the VAM, designed to provide performance commitment to bidders by pre-specifying the target assets' earnings level in the subsequent years following the M&A. It adds the requirement of future compensation to bridge the valuation divergence and reach an agreement in negotiation. Therefore, bidders try to employ this mechanism to reduce the uncertainty in M&A activities. However, targets have large private information (Datar et al., 2001). The compensation may be insufficient to adjust the uncertainty, and the target-asset sellers may utilize the performance commitment to gain private benefits. Therefore, we argue that the use of performance in M&A deals increases the risk of bidding firms on the contrary.

Our first reason is informative asymmetry. Theory of information insider claims that target sellers hide the bad news of target assets. Li et al. (2019) document a positive association between performance commitment and stock price crash risk of acquiring firms. Therefore, we expect target-asset sellers have the motivation to hide the bad news of target assets. Compared to the opportunity cost of commitment compensation about 2-3 years later, target-asset sellers may prefer the current ownership cash-out. Therefore, bidding firms will be more risk-taking because of the information asymmetry between target sellers and bidding firms. Performance commitment clauses provide a promise and comfort, and the value uncertainty and risk of target assets will be eventually transferred into bidding firms.

Our second reason is bidding aggressiveness. Performance commitment clauses are closely related to managerial overconfidence in M&A activities. Specific clauses reflect the growth prospects and risk preferences of both parties. For the bidding firms, overconfident managers tend to conduct aggressive M&A and set high-performance

commitment while paying aggressive bidding premiums ([Xu, 2017](#)), hoping to reap the synthesis and valuation benefits of M&A activities. However, overconfident managers are likely associated with poor screening ability to identify truly outperforming targets ([Malmendier and Tate, 2008](#)). Therefore, it is evident that aggressive M&A activities are deleterious in recognizing profitable underlying assets and possibly fulfilling committed performance. Thus the poor performance of target assets under aggressive M&A events will make bidding firms more risk-taking. For target assets, aggressive M&A deals usually require outstanding performance of target assets. Therefore, if the target assets want to fulfill the hard-to-achieve goals, they will choose to take risky projects with a high return and high risk. This risk will be incorporated into the risk of bidding firms.

However, for related transactions, bidding firms have a better advantage in the information of target assets. They face less asymmetry in target valuation and less uncertainty in business running. A related relationship may also facilitate M&A convenience and lower payment for long-term business corporations. Therefore, performance commitment used in related transactions will make bidding firms take less risk. Therefore, we propose our first hypothesis:

*H1: Performance commitment increases corporate risk-taking, and this is less pronounced in related-party transactions.*

Although the use of performance commitment clauses might negatively affect bidding firms, the active use of performance commitment clauses may agree in a deal under the disagree in valuation. Thus, they speed up the deal agreement and facilitate the completion of M&A deals ([Homburg and Bucerius, 2006](#)). Moreover, performance commitments generally set 2-3 years of the commitment period. Hence, although investors may not realize the risk of M&A deals when bidding firms announce the use of performance commitment, the negative economic effects of performance commitment clauses will eventually break out as the intrinsic profitability of target assets reveal.

First, target buyers and sellers both have the incentive to agree on aggressive bidding. The use of performance commitment provides a strong placebo effect to

comfort the worry to target valuation. Overconfident managers perform poorly in identifying outperforming targets (Malmendier and Tate, 2008). When managers choose to apply performance commitment, they are willing to ignore the risk of conducting M&A with large size and high premium. The goodwill from M&A activities also satisfies the market to increase equity value (Jennings et al., 1996). Therefore, bidding firms' managers will cater to the market for short-term outperformance. Shareholders and sellers of target firms can also benefit from performance commitment clauses by making commitments on future earnings to exchange higher bidding premiums. They ask a high premium to depict a bright future of target assets guaranteed by performance commitment. Therefore, aggressive M&A activities with performance commitment clauses cause aggressive biddings.

Second, although many assets accumulated through M&A activities appear promising, they will be impaired when facing a depressed economic or industry circle under the continuous goodwill impairment tests. A large proportion of unfulfilled performance commitment of M&A deals is a signal effect of future goodwill impairment (Deng, 2019). The over-required performance of target assets is hard to fulfill. Therefore, aggressive M&A deals will witness inferior performances below pre-specified earnings goals, resulting in goodwill impairment.

Third, the dominant payment structure of cash will limit bidding firms' cash flow and requirement manipulation in a financially tight situation. Nearly 90% of M&A payment is totally by cash in China. We also find that performance commitment is usually associated with aggressive bidding activities. Therefore, bidding firms may have tight cash holding after the finish of the M&A payment. Suppose the performance of M&A activities is poor. In that case, it will harm the development of bidding firms because they spend numerous cash to complete M&A activities but do not reap the development return brought by M&A investment. The purpose of M&A is to expand, improve and integrate the corporate business. The original intention is to improve business performance. Therefore, once the M&A project performs badly, the negative business performance will be transferred to bidding firms, so bidding firms may have to manipulate earnings to make up the gap between the exceptional and real earning,

especially through cash flow.

Finally, the incorporated risk from target assets will damage firm value in the long run. Once the negative attributes of target assets expose, or the targets begin to pursue high short-term returns under high risks, such risks will make investors gradually lower their valuation of bidding firms. Moreover, the goodwill impairment reduces earnings and long-term profitability (Li et al., 2011; Li et al., 2019). Firms with intensive goodwill assets are also associated with higher stock price crash risk (He et al., 2019). Thus the use of performance commitment may also signate a reduced firm value in the post-M&A period.

*H2: Performance commitment clause associate large bidding aggressiveness, resulting in large goodwill impairment, earning management, and damage firm value.*

## 3. Data and Methodology

### 3.1 Data and Sample

The data used in this paper are obtained from the China Stock Market Accounting Research (CSMAR). Specifically, we collect the details of performance commitment clauses, M&A deal arrangement, manager characteristics, corporate governance, ownership structure, standard financial and accounting information, and stock returns from the respective database in CSMAR.

The initial deal-level sample includes 35,018 M&A events conducted by all A-share listed firms in China from 2007 to 2019 (see distribution details of M&A deals and performance commitment clauses in Table A2). The number of M&A deals applied performance commitment clauses depict the considerable expansion of demand for acquisition revaluation. For all categories of M&A activities, equity M&A accounts for most of the deals. Approximately 50% of M&A deals in each year are equity M&A, and correspondingly nearly all M&A deals with performance commitment clauses are also equity M&A. Other categories of asset M&A or mixed M&A with both assets and equity do not matter among all M&A deals.

M&A deals conducted by firms that operate in the finance industry (687 events) and only B-share only for foreign investors (233 events) are also excluded. We further

exclude 129 events in which the commitment parties contain the target firms. These screening procedures leave the final sample to 33,969 deal-level observations. All continuous variables in the regression are winsorized at the 1st and 99th percentiles to reduce outliers' impact.

**3.2 Measures of Corporate Risk-Taking**

Following John et al. (2008), Low (2009), Boubakri et al. (2013), and Ferris et al. (2017), we construct three main measures for the risk-taking behavior of listed firms. *VolM1Y*, *VolM2Y*, and *VolM3Y* are calculated as the annualized standard deviations of monthly returns in the next one, two, and three years following M&A deals, respectively. We also apply similar variables using weekly and daily returns and get other six alternative measures, *VolW1Y*, *VolW2Y*, *VolW3Y*, *VolD1Y*, *VolD2Y*, and *VolD3Y*. Large stock returns volatility suggests more corporate risk-takings.

Although M&A deals with performance commitment set goals of target assets performance, we have no information about the M&A performance of those M&A deals without performance commitment clauses. Therefore, when we try to quantify the risk that bidding firms take after M&A activities, a straightforward way is to use equity risk as a proxy (Low, 2009). Meanwhile, using equity risk is consistent with our hypothesis that target assets' risk is transferred into bidding firms through M&A deals with performance commitment clauses.

**3.3 Econometric Model**

We examine the association between the use of performance commitment and corporate risk-taking using the following fixed-effect regression model at the deal level:

$$RiskTaking_i = \alpha_i + \beta_1 PerfCommit_i + \gamma X_i + \theta_i + \eta_t + \varepsilon_i, \qquad (1)$$

where *RiskTaking* denotes risk-taking measures. We use the volatility of daily, weekly, and monthly returns in the one, two, and three years after M&A to reveal the long-term risk. The main explanatory variable is *PerfCommit*, which is a dummy variable that equals one if any performance commitment clause is used in the M&A deal and zero otherwise. *X* is a vector of control variables. We include industry and year fixed effects to account for time-invariant industry characteristics and the influences of macro factors

and general business cycles[4].

Following previous literature, we include a series of deal-level characteristics, such as relatedness (Peng et al., 2011) and payment methods (Heron and Lie, 2002; Sudarsanam and Mahate, 2003; Vladimirov, 2015). Payment methods reflect the acquirers' risk attitude and prospect on M&A deals (Faccio and Masulis, 2005). Bidding firms that pay in cash may be careful in target selection and cautious in monitoring target firms to deliver performance commitment. *Cash* is a dummy variable that equals one if the cash is the dominant form of payment for the M&A deal and zeroes otherwise. *Related* is a dummy variable that equals one if the M&A deal is mainly involved with related-party transactions and zeroes otherwise. The size effect exists in M&A (Moeller et al., 2004). Major assets restructuring contributes to business integration and performance improvement, such as in assets productivity (Healy et al., 1992). After being acquired by bidding firms, target firms may share the operating benefits through the spillover effect and perform better in the future. *Major* is a dummy variable that equals one if the M&A deal constitutes a major asset restructuring.

We also include several firm characteristics in our study. *Size* is the natural logarithm of the firm's total assets. *Age* is the number of years since the establishment of the firm. *ROA* is the return on total assets. *Lev* is the leverage ratio calculated as total liabilities over total assets. *BM* is the book-to-market ratio. *SOE* is the dummy variable for state-owned enterprises.

Moreover, we control corporate governance structure to reflect CEO power and board monitoring (Grinstein and Hribar, 2004), conducive to the better realization of performance commitment. First, we include several manager characteristics, such as the percentage of shares held by senior managers *Mgrshare* and CEO duality *Duality*. In addition, as Grinstein and Hribar (2004) find that CEO compensation encourages the completion of M&A deals, we include *Mgrpay,* which is calculated as the total salary of the top three senior managers scaled by the total annual salary of directors,

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[4] The industry code is the latest edition of secondary industry classification code from the China Securities Regulatory Commission in 2012.

supervisors, and executives.

In terms of board characteristics, ownership in the hands of directors and the board's balanced power improve post-M&A performance by reducing agency problems (Bhaumik and Selarka, 2012). Therefore, we control board size *Boardsize* percentage of shares held by the board members *Boardshare*, and the proportion of independent directors *Indep*. Finally, we also consider ownership structure, including ownership-control wedge *Separate* and product market competition *Top3HHI*, defined as the Herfindahl-Hirschman Index of the firm's top three shareholders.

### 3.4 Summary Statistics

Table A2 shows the distribution of M&A deals and listed firms' performance commitments from 2007 to 2019. The cumulative number of M&A deals involving performance commitment soar and peaked in 2015 for about 758 cases. However, in 2015, the stock market in China experiences a tremendous crash. Shanghai Stock Exchange Index crashed from the highest point of 5178 on June 12, 2015, to the lowest point of 2850 on August 26, 2015. The total market value of Shanghai and Shenzhen stock markets evaporated about 33 trillion yuan. The result indicates that the use of performance commitment may be harmful.

Table 1 reports the summary statistics of the main variables. The mean of the *Vol1MY*, *VolM2Y*, and *VolM3Y* are 0.238, 0.236, and 0.233, with standard deviations of 0.101, 0.090, and 0.075, respectively. The result suggests that corporate risk-taking has large variations among different firms. The average of *Cash* is 0.893, larger than *Stock* of 0.052, which indicates the dominant role of cash payment in acquisitions.

[Insert Table 1 about here]

### 4. Empirical Results

### 4.1 Determinants of Use of Performance Commitment

First, we examine the determinants of the use of performance commitment using acquisition aggressiveness along with numerous financial and governance characteristics of Chinese listed firms. The dependent variable *Perfcommit* is a dummy variable that equals one if the performance commitment clauses are used and zero

otherwise. We introduce deal characteristics, general financial variables, managerial features, and corporate governance factors step by step in Table 2.

Table 2 reports the relevant results. In Column (1), we include deal characteristics as the explanatory variables. We find that the use of performance commitment clauses is positively associated with major asset restructuring, as the coefficient is positive and significant at the 1% level. By contrast, stock- and cash-paid deals and deals involving related-party transactions are associated with a lower probability of using performance commitment clauses. Major asset restructuring deals seek designed clauses of performance commitment to alleviate M&A uncertainty and adjust valuation by requesting committed future performances. However, related-party transactions are less likely to employ performance commitment clauses since participants own informative advantage and do not over-rely on performance commitment.

Columns (2) and (3) control for additional firm and manager characteristics in the regression specification. The result shows that the probability of using performance commitment clauses decreases with firm size, firm age, and book-to-market ratio, as the estimated coefficients of *Size*, *Age*, and *BM* are all negative and statistically significant. The result suggests that the performance commitment clauses are less likely to be used in large or mature firms. Large and mature firms are financially strong firms, and they are experts in target selection and are more capable of bearing the risky consequences of acquisitions. The coefficient of *Lev* is negatively significant. Firms with high leverage benefit more from banks and loans. These firms usually merge and acquire target assets when firms have an increasing income, and they are profitable in terms of leverage. Thus, they are less probable to choose performance commitment. The estimated coefficient of *SOE* is also negative. SOEs are more risk-aversed and usually invest in target firms with lower risk. Therefore, they have a lower probability of using performance commitment because they have less need to prevent risks. The positively significant coefficient of *Mgrshare* indicates that the high shareholding ratio of managers results in more need in risk prevention, and thus a large probability of using performance commitment.

Finally, we account for corporate governance and ownership structure in Column

(4), and the result demonstrates that ownership concentration of the top three shareholders is negatively associated with the probability of use of performance commitment clauses, as the coefficients of *Top3HHI* is negative and statistically significant at the 1% level. The result suggests that the performance commitment clauses are less likely to be used when they have a high concentration of large shareholders. The findings are generally consistent with the notion that a low degree of agency issues and information asymmetry reduces the application of performance commitment clauses in the acquisition deals.

[Insert Table 2 about here]

**4.2 Performance Commitment and Corporate Risk-Taking**

Table 3 presents the results of the association between performance commitment and corporate risk-taking. In Column (1), the estimated coefficient of *PerfCommit* is 0.0032, significant at the 1% level when we use the annualized standard deviation of daily returns as the proxy of corporate risk-taking. The result suggests that M&A deals with performance commitment clauses are related to high corporate risk-taking in the following year. When we use other corporate risk-taking measures in Columns (2) and (3), we obtain similar results. Corporate risk-taking constructed from weekly and monthly returns also has a positive association with performance commitment. The above results suggest the positive association between performance commitment in M&A deals and corporate risk-taking the following year. In longer windows of two and three years, we obtain similar results in Columns (4)-(9). The finding suggests that the impact of performance commitment has a long effect on future corporate risk-taking.

Amid deal characteristics, the coefficients of *Related* are significantly negative, suggesting that related-party transactions are less risk-taking in M&A activities. For related party M&A, both parties of the transaction have more clear and rich information, and they are more familiar with the operation and financial situation of the target firms. Related-party M&A is a resource integration of related parties. Therefore, after the completion of M&A, firms will have a more mature business structure and corporate management, and thus corporate risk-taking will be reduced.

Among firm characteristics, the coefficient of *Size* is significantly negative at the 1% level. Large firms are often mature enterprises. They pursue to make progress while maintaining stability, so they are more cautious in decision-making. In the absence of counterfeiting, it is obvious that they will be less risk-taking. *ROA* also has a significantly negative coefficient in all columns. For investors, a high ROA means good profitability. Firms only need to maintain the normal basic operation, and they will receive a good return from profitable income. Therefore, firms with high ROA have less firm risk. The coefficients of *Lev* are significantly negative at the 1% level. Highly leveraged firms can enlarge their profits when they have good earning, but they will also increase their financial burden when they are at a loss. Therefore, in the increasingly uncertain modern economy, highly leveraged firms will become more risk-taking. The negative coefficients of *SOE* indicate that the state's dominant ownership tends to bear the corporate risk. One possible explanation is that SOEs are more risk-averse, and they only pursue a stable operation. They are also guaranteed by national and governmental credit.

[Insert Table 3 about here]

**4.3 Related-Party Transaction**

We further examine how the deal characteristics matter for the performance realization following M&A activities. We especially consider the role of related-party transactions in affecting the future performance of target firms. The potential tunneling intentions may exist in M&A activities, especially in deals that involve related parties. In related-party-transactions, bidding firms may pay high premiums or buy underlying assets with a poor value in favor of target firms' shareholders, showing a large potential conflict of interest as managers of bidding firms are prone to tunnel resources to target firms (Bhaumik and Selarka, 2012). However, related parties may be familiar with each other. Bidding firms will have more information about the business and financial situations of target assets. M&A of related-party transactions will be fairer in value estimation. The result is against one of the causes of corporate risk-taking in information asymmetry between bidding firms and target assets. Considering the

negative coefficients of *Related* in Table 3, we conjecture that acquisition deals involving related-party transactions weaken the positive association between firms' performance commitment and risk-taking behavior.

Table 4 examines how M&A deals involving related-party transactions affect the relationship between performance commitment and corporate risk-taking. *Related* is a dummy variable that equals one if the M&A deal is classified as a related-party transaction and zero otherwise. Column (1) shows that M&A deals involving related-party transactions tend to weaken the positive relationship between performance commitment and bidding firms' risk-taking. The estimated coefficient of the interaction term *PerfCommit*Related* is negative and significant at the 1% level. In Columns (2) and (3), we obtain consistent results. The results support our conjecture that related-party transactions benefit using performance commitment because of insiders' information and decrease the future corporate risk-taking of bidding firms following M&A activities.

Overall, the findings in Table 4 demonstrate that related-party transactions affect the relationship between performance commitment and corporate risk-taking of bidding firms.

[Insert Table 4 about here]

**4.4 Impacts of Performance Commitment**

**4.4.1 Bidding Aggressiveness**

In this section, we evaluate the association between the use of performance commitment and bidding aggressiveness. We construct three variables to measure the aggressiveness of bidding firms. *MASize* is the logarithm of the payment size of the M&A deal. *Premium* is the bidding premiums of the M&A deal. *Goodwill* is defined as newly-formed goodwill scaled by total assets in the year of the acquisition deal.

Table 5 reports the association between the use of performance commitment and bidding aggressiveness. In Columns (1)-(3), the performance commitment clauses indicator *PerfCommit* is used as the main explanatory variable. In Column (1), the coefficient of *PerfCommit* is 1.3332, which is positively significant at the 1% level. The

result indicates that those M&A deals with performance commitment are associated with a large M&A size. Therefore, the use of performance commitment suggests the aggressiveness of M&A activities in deal volume. In Column (2), the estimated coefficient of *PerfCommit* is 0.2404 (*t*-statistic=3.93), which is significant at the 1% level. The result indicates that M&A deals with performance commitment clauses associated with higher bidding premium, suggesting that bidding firms have large M&A size and pay an excessive premium to the sellers of target firms. It is possibly driven by the desire of bidding firms to facilitate the completion of the M&A deals. When we turn to the overall M&A consequences in Column (3), the positive coefficient of *PerfCommit* tells that the use of performance commitment clauses will significantly increase the total goodwill of bidding firms.

Therefore, we find that the use of performance commitment in M&A deals is associated with large M&A deal size, premium, and large goodwill. It suggests that M&A deals with performance commitment are usually aggressive and will probably trigger high risk.

[Insert Table 5 about here]

**4.4.2 Goodwill Impairment**

We have discovered that performance commitment is positively associated with corporate risk-taking and bidding aggressiveness. Therefore, we expect that the premium that is paid by the bidding firms and the goodwill accumulated by the bidding firms will fail to transfer into real assets and experience possible severe impairment. We construct six measures of bidding firms' goodwill performance. *ImpaiDum1Y*, *ImpaiDum2Y*, and *ImpaiDum3Y* are dummy variables that equal one if the goodwill impairment exceeds 1% of total assets and zero otherwise in the next first, second, and third year of M&A activities, respectively. *Impai1Y*, *Impai2Y*, and *Impai3Y* are the goodwill impairment scaled by total assets in the next first, second, and third year of M&A, respectively.

Table 6 shows the relevant regression results. The coefficient of *PerfCommit* in Column (1) is 0.0399, which is significant at the 1% level. The result indicates that if

bidding firms choose to use performance commitment clauses, they will have a 3.99% probability of tremendous value impairment of goodwill. The positive significant coefficient of *PerfCommit* in Column (2) also suggests that M&A deals with performance commitment have larger goodwill impairment in the next one year after the M&A. When we consider the goodwill impairment in the next two years after the M&A deals, we get similar and consistent results as the coefficients of *PerfCommit* in Columns (3)-(6) are all positive and significant.

Therefore, the above results demonstrate the association between performance commitment and goodwill impairment after the M&A deal. Bidding firms have to tolerate the impaired goodwill and gain less from the bidding premium and accumulated goodwill.

[Insert Table 6 about here]

### 4.4.3 Real Earning Management

We do not use accrual earning management because we care more about the real channel of earning management and especially the cash flow management after M&A. Following Roychowdhury (2006), we construct the measure of real earning management of M&A deals in sales, production, and expenses. Firms that conduct real earning management tend to have lower abnormal operating cash flow through sales promotion, high abnormal production costs through overproduction, and lower abnormal discretionary expenses through cutting expenses (Roychowdhury, 2006; Cohen and Zarowin, 2010). We estimate the abnormal operating cash flow ($AbnCFO_{i,t}$), abnormal production costs ($AbnProd_{i,t}$), and abnormal discretionary expenses ($AbnDisExp_{i,t}$), respectively. Therefore, we compute the aggregate earning management of real activities as follows:

$$REM = -AbnCFO_{i,t} + AbnProd_{i,t} - AbnDisExp_{i,t} \qquad (2)$$

We construct three variables to measure the real earning management in M&A activities. *REM1Y*, *REM2Y*, and *REM3Y* are the real earning management indexes in the first, second, and third year following the M&A deal announcement. We are particularly interested in the management of cash flow. Therefore, based on *AbnCFO,*

one of the decomposed indexes of real earning management, we construct three variables. *CFO1Y*, *CFO2Y*, and *CFO3Y* are the earning management in operating cash flow in the first, second, and third year after the M&A deal announcement.

Table 7 reports the results of real earning management and cash flow manipulation. Results in Columns (1)-(3) suggest that, although bidding firms do not need to manipulate earnings in the first year after M&A, they have a high real earning management in the long run, specifically in the next second and third year. When we focus on manipulating cash flow, the coefficients of *PerfCommit* in Columns (4)-(6) are all negative and significant. It indicates that bidding firms have strong incentives for managing the operating cash flow after the M&A. This is consistent with our hypothesis that after aggressive payment of M&A, bidding firms have to maintain performance through real earning management in the long run. Therefore, the result suggests that bidding firms have to manipulate earnings in the long run for M&A deals with performance commitment clauses.

[Insert Table 7 about here]

### 4.4.4 Firm Valuation

If M&A is rationally valued, the negative impacts of performance commitment will be released and reflected in the stock price when bidding firms plan to use performance commitment clauses. However, investors neglect the influences of performance commitment. It is likely to cause unexpected damage to the value of the bidding firms themselves. Therefore, we conjecture that the underperformance and damage to firm value will occur and be magnified after years of the M&A. We construct four variables to measure the firm value based on Tobin's Q, which is the market value over total assets. We examine the firm value in the following three years after the M&A deals. *TobinQ1Y*, *TobinQ2Y*, and *TobinQ3Y* are Tobin's Q values in the first, second, and third year after the M&A deal announcement.

Table 8 presents the results of the association between the use of performance commitment and firm value. Although the coefficient of *PerfCommit* is insignificant in Column (1), the estimated coefficients of *PerfCommit* are both negatively significant,

with *t*-statistics of -1.76 and -1.97 in Columns (2)-(3), respectively. The result suggests that the damage of M&A deals with performance commitment to firm value will occur in the second year after the announcement of deals and last for at least two years. The delayed harm to firm value indicates that M&A deals with performance commitment in the short term seem to matter little to bidding firms because there is no decrease in firm value. But the persistent damage to firm value for many years after M&A indicates that M&A activities with performance commitment are harmful. The maturity of performance commitment is about 3 to 4 years.

Therefore, with the commitment period's maturity, the target assets' negative attributes gradually show up. The long-term value of the bidding firms is damaged because of the aggressive bidding activities. We find that the negative impact of performance commitment in M&A deals will eventually occur and cause continuing damage to firm value.

[Insert Table 8 about here]

## 5. Why do Firms Engage in Performance Commitment?

The empirical findings arise our interest in why bidding firms and target-asset sellers compromise on the performance commitment clauses and why participated directors acquiesce in or encourage these results. Therefore, we examine the mutual benefits of performance commitment and target-asset sellers' career concerns to explain the motivation of firms' engagement.

### 5.1 Backdoor Listing and Market Reaction

M&A deals with performance commitment clauses result from the negotiation between target-asset sellers and bidding firms. Therefore, we expect that target assets and bidding firms gain mutual benefits from the deals. In the Chinese stock market, listed firms have huge shell value, especially for those small market value stocks (Liu et al., 2019). Many listed firms with low quality are not delisting. Thus, their shell values are traded through M&A activities. If the bidding firms want to make M&A successful and move on deal progress, they need to confirm that their M&A choices are

beneficial to shareholders and target assets are promising. Therefore, if they agree to use performance commitment to convince the market temporarily, we should see positive stock return feedback.

We construct three variables to measure the mutual benefits for target assets and bidding firms. *Shell* is a dummy variable for the target assets that equals one if the M&A deal is a backdoor listing. For the bidding firms, *CAR[0,1]* and *CAR[0,5]* are the cumulative abnormal return estimated from the Fama-French 3-factor model during the announcement period of days [0,1] and [0,5] of the M&A deal.

Table 9 presents the mutual benefits of performance commitment. In Column (1), the estimated coefficient of *PerfCommit* is 0.0151, which is positive and significant at the 1% level. The result indicates that M&A deals with performance commitment are more associated with the backdoor listing. Performance commitment clauses help target firms list through shell firms and fulfill the securitization in the open market. As for the bidding firms, they also gain benefits from the stock market. The coefficients of *PerfCommit* in Column (2) and (3) are both positive and significant at the 1% level. It suggests that the stock market responds positively to the performance commitment clauses in the M&A deals. Therefore, the choice of performance commitment by bidding fires may cater to investors' positive attitude.

Therefore, the target firm will succeed in listing through shell firms, and M&A deals with performance commitment. Meanwhile, bidding firms will gain a short-term positive response from the stock market. Hence, target firms and bidding firms both gain benefits from the M&A deals with performance commitment clauses.

[Insert Table 9 about here]

## 5.2 Careers of Target-Asset Sellers

The wide adoption of performance commitment clauses in China signifies that they may be beneficial for participants in M&A deals, at least upon the signing of the contract. We contend that performance commitment clauses will bring short-term benefits to all parties involved in M&A deals.

Chinese listed firms have huge shell value (Liu et al., 2019). Meanwhile, M&A

has become an important approach for listed firms to realize their shell value. Listed firms inject capital into target firms through M&A provisions to help target firms achieve a non-IPO listing. Once the successful M&A deal is reached, target firms will achieve private equity's listing goal and fulfill large liquidity and obtain more financing channels through the capital market. For target assets, they will list through shell firms, and this is also known as backdoor listing.

For the bidding firms, lengthy M&A deal negotiations can be accelerated with the introduction of performance commitment clauses and bidding premium, resulting in a higher probability of deal success. Newly-formed goodwill also signals the tremendous potential value of target firms. It conveys positive information (Chauvin and Hirschey, 1994). The general takeover market is partially driven by investors' misevaluation (Dong et al., 2006). Thus investors will fail to recognize the negative signal of the use of performance commitment. Therefore, stock market investors tend to respond favorably to the announcement of the acquisition deals with performance commitment clauses.

Moreover, the use of performance commitment is favorable to both parties in M&A deals. Thus, in the short run, directors face better future development after M&A activities that increase acquiring firms' value (Harford and Schonlau, 2013). Meanwhile, the performance commitment clauses set 2-3 years of the performance commitment period, and thus the long-term negative effects of performance commitment clauses are not easily observed when signing. As a result, target-asset sellers can get an occupational promotion by agreeing to the performance commitment clauses, especially under both firms' benefits. So, in the short run, performance commitment is a beneficial triple-win for bidding firms, target firms, and target-assets sellers. Therefore, we conjecture that the use of performance commitment helps the target firms in the backdoor listing, obtains a short-term abnormal return for bidding firms, and promotes target-asset sellers' career.

Using public data, we quantify the career concern of target-asset sellers who participate in performance commitment clauses in this section. We estimate the following fixed-effect regression model at the deal level:

$$Career_i = \alpha_i + \beta_1 PerfCommit_i + \gamma X_i + \theta_i + \eta_t + \varepsilon_i, \qquad (3)$$

where *Career* denotes three variables measuring the promotion of target-asset sellers. *Retention* is a dummy variable that equals one if any target-asset sellers become directors of the bidding firm in the M&A year and zero otherwise. *Board* is a dummy variable that equals one if any of the target-asset sellers is promoted to the board of bidding firm in M&A year and zero otherwise. *Management Team* is a dummy variable that equals one if any of the target-asset sellers is promoted to the management team of bidding firm in M&A year and zero otherwise. *X* is a vector of control variables. This section introduces new variables to control other director characteristics that may affect directors' occupational promotion, such as degree level, overseas experience (Wise and Bush, 1999; Myers and Pringle, 2005). *Hdegree* is a dummy variable that equals one if any seller of target assets has a master or doctoral degree and zero otherwise. *Overseas* is a dummy variable that equals one if any seller of target assets has ever studied aboard or been employed overseas and zero otherwise. We include industry and year fixed effects.

Table 10 reports how the use of performance commitment clauses affects the careers of target-asset sellers. Column (1) reports the result for the probability of being appointed or promoted. The estimated coefficient of performance commitment indicator *PerfCommit* is positive and significant at the 1% level, suggesting that performance commitment clauses positively affect target-asset sellers' probability of joining the bidding firms in the M&A year. Hence, the sellers of target assets can get an occupational promotion by agreeing to the performance commitment clauses. Thus, performance commitment clauses provide entry opportunities for target-asset sellers to join bidding firms and fulfill occupational promotion.

Columns (2) and (3) consider the additional career bonus of using performance commitment clauses more than joining the bidding firms. Column (2) shows that the use of performance commitment clauses has a positive association with the probability of target-asset sellers getting promoted and joining the board of bidding firms, as the estimated coefficients of *Perfcommit* is positive and significant at the 5% level. The estimated coefficient of *PerfCommit* in Column (3) is also positive and significant at

the 5% level, indicating that the use of performance commitment clauses has a positive association with the probability of target-asset sellers getting promoted and join the management team of bidding firms. The results are consistent with the notion that performance commitment clauses benefit target-asset sellers from joining the board and management team of bidding firms by creating temperately benefits before the completion of M&A deals and the use of performance commitment clauses.

In sum, the results in Table 10 support the notion that performance commitment increases the likelihood of target-asset sellers being appointed to the bidding firm and joining the board or management team of bidding firms during the commitment period. The findings indicate that performance commitment clauses positively impact target-asset sellers' career with the cost of long-term damage in M&A performance and firm value.

[Insert Table 10 about here]

## 6. Robustness Checks

### 6.1 Identification Concerns

### 6.1.1 Endogenous Treatment Effect Model

The results of economic consequences in our study might suffer from potential endogeneity issues arising from the use of performance commitment clauses. It may suffer from other unobserved influences, such as firms' professionalism in M&A activities and regional preference of risk. Deal characteristics, such as deal size and takeover premium, are negotiated decisions between bidding firms and target sellers, but detailed information of target firms is also not publicly available. This endogeneity of omitted variables needs to be incorporated into the study. Although we have included the industry and year fixed effects to control for the time-invariant industry characteristics and general business cycles, we further estimate a specific linear regression model with endogenous treatment effect (Vella and Verbeek, 1999; Florens et al., 2008; Zhang et al., 2020) to address the endogeneity issues since the choice of performance commitment clauses is binary.

Table 11 presents the relevant results. In the first step, we estimate a Probit model

to get the average treatment effect of performance commitment. All deal variables are highly correlated with the selection of performance commitment clauses. We calculate the average treatment effect IMR according to Vella and Verbeek (1999) and add it in the second step.

Columns (2)-(4) report the second-step regressions where the fitted value of *PerfCommit* is used as the main explanatory variable. The results show a positive association between fitted *PerfCommit* and the increase in corporate risk-taking for bidding firms. Specifically, Column (2) shows that performance commitment clauses result in larger volatility for bidding firms. The significantly positive estimated coefficients of *PerfCommit* in Columns (3) and (4) present similar results.

Therefore, Table 11 demonstrates that our primary results about the risk consequences of performance commitment clauses are robust to the endogeneity issues using estimation with endogenous treatment effect.

[Insert Table 11 about here]

### 6.1.2 Propensity Score Matching

The choice of performance commitment may not be random. There may be certain differences between firms that use and do not use performance commitment. Therefore, our results may include endogeneity bias. To address this concern, we apply the propensity score matching (PSM) technique. Although matching needs to be conducted on observable characteristics, and PSM cannot address bias caused by unobservable omitted variables, we still try to minimize the systematic difference between deals with and without performance commitment clauses based on observable dimensions. The treatment group is defined as M&A deals with performance commitment clauses, and the rest of the deals are defined as the control group.

We estimate a Logit model. The dependent variable *PerfCommit* is a dummy variable that equals one if any performance commitment clause is used and zero otherwise. The same set of control variables are included as matching covariates. Then, we employ a one-to-three nearest neighborhood matching to obtain the matched sample.

Table 12 reports the relevant results with the matched sample. Results in Columns

(1)-(3) present the effect of performance commitment clauses on risk-taking. The estimated coefficient of *PerfCommit* in Column (1) is positive and significant at the 1% level, suggesting that the use of performance commitment clauses is positively associated with the future risk-taking of bidding firms. Similar coefficient results in Columns (2) and (3) are both significant and positive with *t*-statistics of 2.11 and 2.21. Therefore, the use of performance commitment clauses is demonstrated to have similar results of noxious effects. Bidding firms will experience severe risk-taking.

[Insert Table 12 about here]

## 6.2 Alternative Specifications

We alter two main specifications of the main result to ensure the robustness of our finding. First, we change the classification of industries using alternative codes. This section uses the previous edition of the industry code in 2001 rather than the latest code in 2012. This edition includes a more detailed classification of industries. Second, the initial sample includes asset-, equity-, and hybrid M&As as presented in Table A2. However, most M&As with performance commitment clauses are equity M&As. They account for over 90% of all M&A deals with performance commitment. Therefore, we drop all deals belonging to asset M&A and leave only equity- and hybrid M&As. We expect a similar result after restricting our sample.

Table 13 reports the results for the alternative industry code and sample. Column (1) shows a positive estimated coefficient of *PerfCommit*, which is significant at the 1% level. We find quantitatively similar results that the estimated coefficients of *PerfCommit* are positive and significant at 5% level in Columns (4) and (6). After dropping asset M&A deals, we obtain consistent results as all coefficients of *PerfCommit* are positively significant in Columns (4)-(6).

Therefore, Table 13 demonstrates that our primary findings of the association between performance commitment and corporate risk-taking are not sensitive to the alternative industry code and sample.

[Insert Table 13 about here]

## 6.3 Alternative Measure of Performance Commitment

In this section, we apply an alternative measure of performance commitment. We alter the commitment size to replace the dummy variable *PerfCommit* of whether M&A deals include performance commitment clauses. The explanatory variable *CommitSize* is the commitment value over one thousand times the underlying value of the M&A deal. For those M&A deals without performance commitment clauses, their commitment sizes all equal zero. A large value of *CommitSize* means a large portion of commitment in underlying value, and bidding firms require more compensation to assets with the same value. Therefore, we expect that these deals may facilitate targets to achieve the goal in a more risky way, and the risk will eventually be transferred to bidding firms' equity.

Table 14 reports the result of the alternative measure of performance commitment. The estimated coefficient of *CommitSize* in Column (1) is 0.0062, significant at the 5% level. It suggests that large commitment size in M&A deals is associated with large corporate risk-taking of bidding firms in the first year after M&A. Results in Columns (2) and (3) are consistent with our primary discovery as the coefficients of *CommitSize* are significant at the 5% level. It indicates the continuous damage of performance commitment clauses on corporate risk-taking.

Therefore, Table 14 demonstrates that our primary findings are robust to the alternative measure of performance commitment.

[Insert Table 14 about here]

## 7. Conclusion

The pervasive financial risk following booming M&A waves in China over the past decade calls for investigation on the economic consequences of aggressive M&A activities. In this study, we focus on the increasingly popular performance commitment clauses in deal arrangements. We contribute to the literature by examining how they are related to corporate risk-taking and the economic consequences of introducing performance commitment clauses. We discovery that performance commitment is a short-term benefit but long-term damage. Our findings also point out potential adverse

effects of earnouts since earnouts have quite similar performance commitment features ([Barbopoulos and Adra, 2016](#); [Elnahas et al., 2017](#)). Meanwhile, we figure out the crucial motivations of all parties' involvement in M&A deals with performance commitment, including bidding firms, targets, and target-asset sellers, which reveals deep reasons why the design of performance commitment fails to protect bidding firms.

After excluding M&A deal observations with the same target firms and commitment parties, we find that the use of performance commitment is positively associated with corporate risk-tsking in the following years. When considering the deal characteristics of acquisition activities, related-party transactions lessen the detrimental effect due to the information advantage of bidding firms. Moreover, performance commitment clauses are associated with large bidding aggressiveness. We find that the use of performance commitment clauses is beneficial for bidding firms, target-asset sellers, and target firms in the short run but cause negative long-term consequences to firm value.

Although performance commitment clauses bring higher announcement returns and goodwill temporarily, they lead to a higher likelihood of goodwill impairment and waning firm value for bidding firms. Bidding firms have to manipulate earnings to maintain corporate performance. However, target-asset sellers benefit from an increased likelihood of being appointed to the bidding firms or realizing professional promotion. Target firms also have a large probability of listing through a shell firm. Our findings of the economic effects of performance commitment clauses are robust to endogeneity concerns, model specifications, and variable definitions.

Our findings provide several implications for regulatory agencies and firms. First, the prudential supervision procedure should consider performance commitment an important indicator for maintaining the stock market's financial stability. Also, for firms adopting performance commitment clauses in deal arrangements, proper supervision on the clauses' specific terms should be proposed. Bidding firms should understand that the introduction of performance commitment cannot alleviate the aggressive M&A activities. Similarly, firms that aim to avoid long-term underperformance following aggressive M&A activities should strengthen the internal control mechanism to

improve information transparency and risk management.

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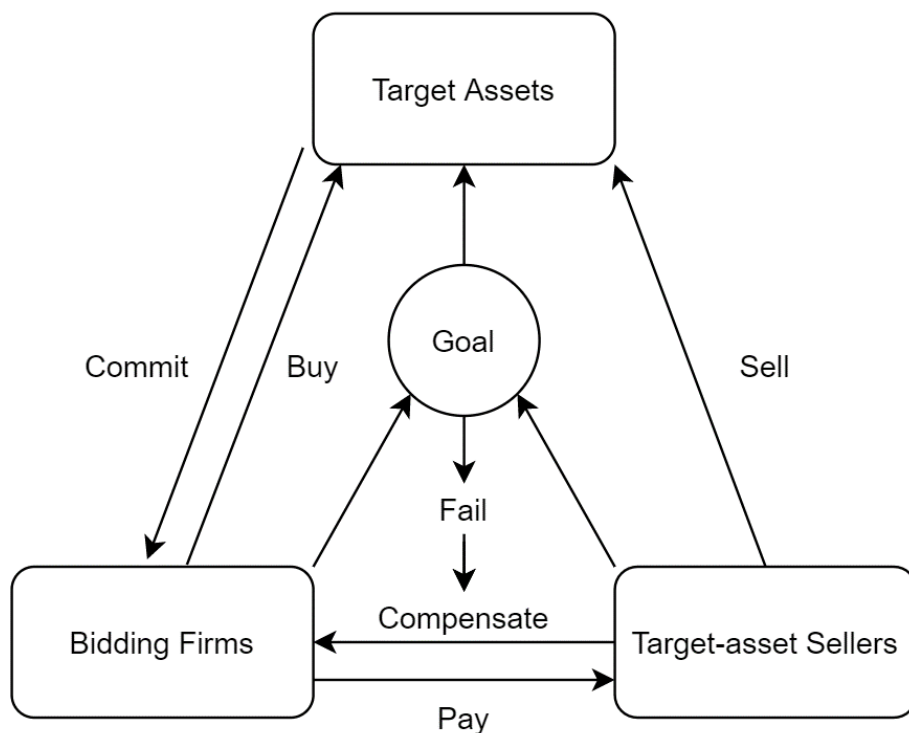
(a) Performance Commitment Clauses in M&A
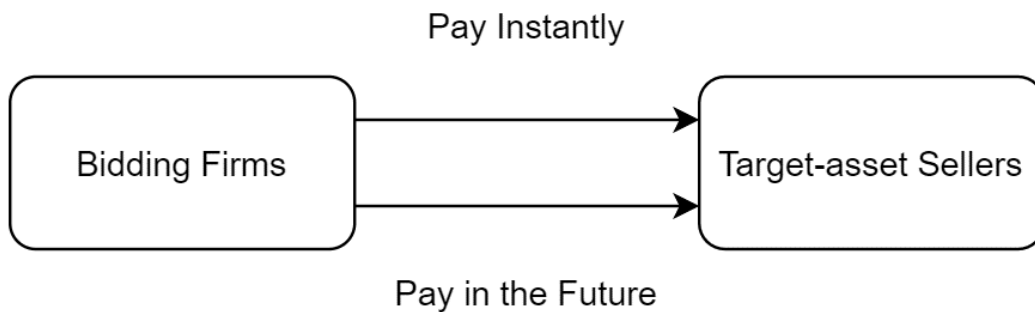


(b) Earnouts in M&A

## Figure 1. Performance Commitment and Earnouts

This figure depicts the similarity and difference between performance commitment clauses and earnouts. Subfigure (a) is the mechanism about performance commitment clauses. Subfigure (b) is the mechanism about earnouts.

# Table 1. Summary Statistics

This table presents the summary statistics of the main variables for a sample of listed firms in China from 2007 to 2019. The detailed variable definitions are presented in Table A1.

|  | Mean | S.D. | Min | Q25 | Median | Q75 | Max | N |
|---|---|---|---|---|---|---|---|---|
| VolM1Y | 0.238 | 0.101 | 0.080 | 0.167 | 0.220 | 0.289 | 0.623 | 27,426 |
| VolM2Y | 0.236 | 0.090 | 0.021 | 0.179 | 0.222 | 0.277 | 4.365 | 27,426 |
| VolM3Y | 0.233 | 0.075 | 0.021 | 0.187 | 0.225 | 0.268 | 2.981 | 27,426 |
| VolW1Y | 0.172 | 0.064 | 0.069 | 0.126 | 0.159 | 0.202 | 0.381 | 27,426 |
| VolW2Y | 0.169 | 0.069 | 0.028 | 0.133 | 0.161 | 0.197 | 5.699 | 27,426 |
| VolW3Y | 0.167 | 0.059 | 0.028 | 0.138 | 0.164 | 0.193 | 3.849 | 27,426 |
| VolD1Y | 0.114 | 0.035 | 0.051 | 0.089 | 0.108 | 0.131 | 0.215 | 27,426 |
| VolD2Y | 0.112 | 0.039 | 0.032 | 0.092 | 0.108 | 0.129 | 3.255 | 27,426 |
| VolD3Y | 0.111 | 0.034 | 0.032 | 0.095 | 0.110 | 0.125 | 2.209 | 27,426 |
| Stock | 0.052 | 0.222 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 27,426 |
| Cash | 0.893 | 0.309 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 | 27,426 |
| Related | 0.281 | 0.449 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 27,426 |
| Major | 0.060 | 0.238 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 27,426 |
| Size | 21.512 | 61.870 | 0.234 | 2.014 | 4.614 | 13.589 | 696.452 | 27,426 |
| Age | 15.525 | 5.674 | 3.000 | 11.000 | 15.000 | 19.000 | 31.000 | 27,426 |
| ROA | 0.040 | 0.052 | -0.258 | 0.017 | 0.036 | 0.063 | 0.212 | 27,426 |
| Lev | 0.513 | 0.222 | 0.066 | 0.340 | 0.525 | 0.686 | 1.145 | 27,426 |
| BM | 0.414 | 0.297 | 0.004 | 0.206 | 0.343 | 0.536 | 1.929 | 27,426 |
| SOE | 0.409 | 0.492 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 27,426 |
| Duality | 1.735 | 0.474 | 0.000 | 2.000 | 2.000 | 2.000 | 2.000 | 27,426 |
| Mgrshare | 0.050 | 0.117 | 0.000 | 0.000 | 0.000 | 0.016 | 0.553 | 27,426 |
| Mgrpay | 0.406 | 0.128 | 0.184 | 0.314 | 0.385 | 0.477 | 0.812 | 27,426 |
| Boardsize | 2.159 | 0.202 | 1.609 | 2.079 | 2.197 | 2.197 | 2.708 | 27,426 |
| Indepct | 0.372 | 0.053 | 0.333 | 0.333 | 0.333 | 0.400 | 0.571 | 27,426 |
| Top3HHI | 0.169 | 0.123 | 0.011 | 0.072 | 0.142 | 0.236 | 0.562 | 27,426 |
| Separate | 0.050 | 0.078 | 0.000 | 0.000 | 0.000 | 0.091 | 0.284 | 27,426 |

## Table 2. Determinants of Use of Performance Commitment Clauses

This table presents the determinants of performance commitment for a deal-level sample of listed firms in China from 2007 to 2019. The dependent variable *Perfcommit* is a dummy variable that equals one if any performance commitment clause is used and zero otherwise. The detailed variable definitions are presented in Table A1. All regressions include industry and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | PerfCommit | | | |
| --- | --- | --- | --- | --- |
| | (1) | (2) | (3) | (4) |
| Stock | -0.0966*** | -0.1129*** | -0.1105*** | -0.1103*** |
| | (-4.53) | (-5.06) | (-4.96) | (-4.95) |
| Cash | -0.2986*** | -0.3119*** | -0.3106*** | -0.3102*** |
| | (-16.35) | (-15.51) | (-15.58) | (-15.62) |
| Related | -0.0119** | -0.0123** | -0.0106** | -0.0088* |
| | (-2.51) | (-2.36) | (-2.06) | (-1.73) |
| Major | 0.3300*** | 0.3149*** | 0.3148*** | 0.3155*** |
| | (19.61) | (17.12) | (17.16) | (17.20) |
| Size | | -0.0056** | -0.0058** | -0.0029 |
| | | (-1.97) | (-2.08) | (-1.01) |
| Age | | -0.0018*** | -0.0015** | -0.0018*** |
| | | (-2.83) | (-2.27) | (-2.70) |
| ROA | | 0.0581 | 0.0508 | 0.0612 |
| | | (1.09) | (0.96) | (1.14) |
| Lev | | -0.0847*** | -0.0794*** | -0.0815*** |
| | | (-4.83) | (-4.58) | (-4.65) |
| BM | | -0.0266** | -0.0257** | -0.0322*** |
| | | (-2.49) | (-2.42) | (-3.02) |
| SOE | | -0.0238*** | -0.0211*** | -0.0195*** |
| | | (-3.77) | (-3.30) | (-2.94) |
| Duality | | | 0.0018 | 0.0009 |
| | | | (0.31) | (0.15) |
| Mgrshare | | | 0.0788** | 0.0766** |
| | | | (2.29) | (2.21) |
| Mgrpay | | | -0.0240 | -0.0174 |
| | | | (-1.07) | (-0.76) |
| Boardsize | | | | -0.0154 |
| | | | | (-1.06) |
| Indepct | | | | -0.0867 |
| | | | | (-1.34) |
| Top3HHI | | | | -0.0765*** |
| | | | | (-3.10) |
| Separate | | | | -0.0177 |
| | | | | (-0.56) |
| Industry FE | Y | Y | Y | Y |
| Year FE | Y | Y | Y | Y |
| Observations | 33,967 | 27,663 | 27,630 | 27,543 |
| Number of Firms | 3,244 | 2,819 | 2,818 | 2,818 |
| Adjusted $R^2$ | 0.29 | 0.32 | 0.33 | 0.33 |

## Table 3. Performance Commitment and Corporate Risk-Taking

This table presents the association between performance commitment and corporate risk-taking for a deal-level sample of listed firms in China from 2007 to 2019. The main explanatory variable *PerfCommit* is a dummy variable that equals one if the performance commitment clauses are used and zero otherwise. Dependent variables are three measures of risk-taking behavior. *VolD1Y* is the annualized standard deviations of daily returns in the next one year after M&A. *VolW1Y* is the annualized standard deviations of weekly returns in the next one year after M&A. *VolM1Y* is the annualized standard deviations of monthly returns in the next one year after M&A. *VolD2Y*, *VolW2Y*, and *VolM2Y* are similar measure in a window of two years after M&A. *VolD3Y*, *VolW3Y*, and *VolM3Y* are similar measure in a window of three years after M&A. The detailed variable definitions are presented in Table A1. All regressions include industry and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | 1 Year | | | 2 Years | | | 3 Years | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | VolD1Y | VolW1Y | VolM1Y | VolD2Y | VolW2Y | VolM2Y | VolD3Y | VolW3Y | VolM3Y |
| PerfCommit | 0.0032*** | 0.0056*** | 0.0128*** | 0.0016** | 0.0031** | 0.0057** | 0.0017** | 0.0028** | 0.0055** |
| | (4.18) | (3.60) | (4.11) | (2.25) | (2.12) | (2.23) | (2.44) | (2.06) | (2.42) |
| Stock | 0.0002 | -0.0007 | 0.0034 | 0.0009 | 0.0013 | 0.0016 | 0.0002 | 0.0001 | 0.0003 |
| | (0.15) | (-0.32) | (0.73) | (0.78) | (0.56) | (0.42) | (0.17) | (0.04) | (0.09) |
| Cash | 0.0008 | -0.0009 | -0.0010 | 0.0026** | 0.0018 | -0.0010 | 0.0024* | 0.0022 | 0.0018 |
| | (0.88) | (-0.53) | (-0.31) | (2.12) | (0.84) | (-0.30) | (1.75) | (0.99) | (0.57) |
| Related | -0.0014*** | -0.0020** | -0.0049*** | -0.0022*** | -0.0040*** | -0.0065*** | -0.0017*** | -0.0032*** | -0.0058*** |
| | (-3.26) | (-2.31) | (-3.23) | (-3.92) | (-4.19) | (-4.62) | (-3.71) | (-3.95) | (-4.60) |
| Major | 0.0032*** | 0.0045** | 0.0043 | 0.0027*** | 0.0030 | 0.0015 | 0.0016* | 0.0008 | -0.0008 |
| | (3.28) | (2.23) | (1.11) | (2.74) | (1.52) | (0.44) | (1.80) | (0.52) | (-0.32) |
| Size | -0.0042*** | -0.0082*** | -0.0115*** | -0.0055*** | -0.0098*** | -0.0126*** | -0.0062*** | -0.0106*** | -0.0138*** |
| | (-9.79) | (-9.83) | (-9.33) | (-9.50) | (-10.65) | (-10.31) | (-5.19) | (-7.17) | (-7.25) |
| Age | -0.0001 | -0.0001 | 0.0000 | -0.0001 | -0.0001 | -0.0000 | -0.0001 | -0.0001 | 0.0001 |
| | (-1.51) | (-0.45) | (0.11) | (-1.19) | (-0.66) | (-0.15) | (-1.34) | (-0.52) | (0.27) |
| ROA | -0.0144* | -0.0503*** | -0.0709*** | -0.0520 | -0.1227** | -0.1213*** | -0.0343 | -0.1032* | -0.1039* |
| | (-1.84) | (-3.53) | (-3.07) | (-1.63) | (-2.33) | (-2.96) | (-0.81) | (-1.67) | (-1.89) |
| Lev | 0.0055** | 0.0185*** | 0.0295*** | 0.0131*** | 0.0261*** | 0.0296*** | 0.0191*** | 0.0334*** | 0.0383*** |
| | (2.50) | (4.42) | (4.55) | (3.35) | (4.27) | (4.30) | (2.63) | (3.79) | (3.50) |
| BM | -0.0051*** | -0.0064** | -0.0013 | -0.0072** | -0.0112** | -0.0094 | -0.0075** | -0.0110* | -0.0091 |
| | (-3.56) | (-2.20) | (-0.22) | (-2.14) | (-1.99) | (-1.57) | (-2.07) | (-1.91) | (-1.63) |
| SOE | 0.0001 | -0.0020 | -0.0071*** | -0.0003 | -0.0030 | -0.0080*** | 0.0003 | -0.0028 | -0.0084*** |
| | (0.19) | (-1.35) | (-2.62) | (-0.24) | (-1.40) | (-2.77) | (0.19) | (-1.25) | (-2.76) |
| Duality | -0.0008 | -0.0005 | -0.0038 | -0.0009 | -0.0003 | -0.0022 | 0.0000 | 0.0010 | -0.0007 |
| | (-1.12) | (-0.40) | (-1.35) | (-0.87) | (-0.18) | (-0.85) | (0.03) | (0.54) | (-0.27) |
| Mgrshare | 0.0119*** | 0.0196*** | 0.0102 | 0.0091*** | 0.0154*** | 0.0122 | 0.0132*** | 0.0210*** | 0.0182* |
| | (4.52) | (3.81) | (1.07) | (3.46) | (2.98) | (1.29) | (4.06) | (3.43) | (1.90) |
| Mgrpay | -0.0027 | -0.0032 | -0.0188* | -0.0054 | -0.0091 | -0.0164* | -0.0042 | -0.0067 | -0.0095 |
| | (-1.08) | (-0.68) | (-1.93) | (-1.54) | (-1.55) | (-1.94) | (-1.29) | (-1.26) | (-1.22) |
| Boardsize | -0.0007 | -0.0025 | -0.0049 | -0.0001 | -0.0018 | 0.0013 | -0.0002 | -0.0027 | 0.0022 |
| | (-0.37) | (-0.74) | (-0.84) | (-0.04) | (-0.54) | (0.23) | (-0.09) | (-0.81) | (0.40) |
| Indepct | -0.0053 | 0.0065 | 0.0157 | -0.0101 | -0.0044 | 0.0162 | -0.0123 | -0.0103 | 0.0123 |
| | (-0.82) | (0.50) | (0.66) | (-1.30) | (-0.30) | (0.65) | (-1.55) | (-0.68) | (0.50) |
| Top3HHI | 0.0056** | 0.0120** | 0.0212** | 0.0078** | 0.0147** | 0.0221** | 0.0031 | 0.0087 | 0.0184* |
| | (2.12) | (2.26) | (2.45) | (2.57) | (2.56) | (2.51) | (0.86) | (1.48) | (1.95) |
| Separate | 0.0013 | -0.0054 | -0.0163 | 0.0003 | -0.0024 | -0.0089 | 0.0007 | -0.0009 | -0.0084 |
| | (0.33) | (-0.64) | (-1.14) | (0.07) | (-0.25) | (-0.59) | (0.15) | (-0.11) | (-0.56) |
| Industry FE | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Year FE | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Observations | 27,441 | 27,441 | 27,426 | 27,464 | 27,464 | 27,463 | 27,481 | 27,481 | 27,481 |
| Number of Firms | 2,813 | 2,813 | 2,813 | 2,813 | 2,813 | 2,813 | 2,813 | 2,813 | 2,813 |
| Adjusted $R^2$ | 0.71 | 0.62 | 0.43 | 0.24 | 0.25 | 0.34 | 0.23 | 0.23 | 0.29 |

## Table 4. Related-Party Transaction

This table presents the association between performance commitment and corporate risk-taking to deal characteristics for a deal-level sample of listed firms with performance commitment clauses in China from 2007 to 2019. The dependent variables *VolM1Y*, *VolM2Y*, and *VolM3Y* are the annualized standard deviations of monthly returns in the next one, two, and three years after M&A, respectively. The main explanatory variable *PerfCommit* is a dummy variable that equals one if the performance commitment clauses are used and zero otherwise. *Related* is a dummy variable that equals one if the M&A deal is mainly involved with related-party transactions and zero otherwise. The detailed variable definitions are presented in Table A1. All regressions include industry and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

|  | (1) VolM1Y | (2) VolM2Y | (3) VolM3Y |
|---|---|---|---|
| PerfCommit | 0.0167*** | 0.0098*** | 0.0080*** |
|  | (4.60) | (3.46) | (3.12) |
| PerfCommit*Related | -0.0140*** | -0.0145*** | -0.0091*** |
|  | (-2.79) | (-2.97) | (-2.59) |
| Stock | 0.0043 | 0.0026 | 0.0009 |
|  | (0.93) | (0.68) | (0.28) |
| Cash | -0.0012 | -0.0011 | 0.0017 |
|  | (-0.35) | (-0.34) | (0.54) |
| Related | -0.0035** | -0.0050*** | -0.0049*** |
|  | (-2.21) | (-3.55) | (-3.71) |
| Major | 0.0064* | 0.0037 | 0.0005 |
|  | (1.71) | (1.06) | (0.20) |
| Size | -0.0114*** | -0.0126*** | -0.0138*** |
|  | (-9.31) | (-10.30) | (-7.25) |
| Age | 0.0000 | -0.0000 | 0.0001 |
|  | (0.09) | (-0.17) | (0.26) |
| ROA | -0.0709*** | -0.1214*** | -0.1039* |
|  | (-3.07) | (-2.96) | (-1.89) |
| Lev | 0.0295*** | 0.0297*** | 0.0383*** |
|  | (4.55) | (4.31) | (3.50) |
| BM | -0.0013 | -0.0094 | -0.0091 |
|  | (-0.21) | (-1.56) | (-1.63) |
| SOE | -0.0071*** | -0.0080*** | -0.0083*** |
|  | (-2.60) | (-2.76) | (-2.75) |
| Duality | -0.0038 | -0.0022 | -0.0007 |
|  | (-1.37) | (-0.87) | (-0.28) |
| Mgrshare | 0.0095 | 0.0115 | 0.0178* |
|  | (1.00) | (1.23) | (1.86) |
| Mgrpay | -0.0188* | -0.0164* | -0.0095 |
|  | (-1.93) | (-1.94) | (-1.22) |
| Boardsize | -0.0050 | 0.0011 | 0.0021 |
|  | (-0.86) | (0.21) | (0.39) |
| Indepct | 0.0152 | 0.0159 | 0.0120 |
|  | (0.64) | (0.64) | (0.49) |
| Top3HHI | 0.0207** | 0.0217** | 0.0181* |
|  | (2.40) | (2.46) | (1.92) |
| Separate | -0.0166 | -0.0092 | -0.0086 |
|  | (-1.16) | (-0.61) | (-0.57) |
| Controls | Y | Y | Y |
| Industry FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Observations | 27,426 | 27,463 | 27,481 |
| Number of Firms | 2,813 | 2,813 | 2,813 |
| Adjusted $R^2$ | 0.43 | 0.34 | 0.29 |

# Table 5. Bidding Aggressiveness

This table presents the association between performance commitment clauses and bidding aggressiveness for a deal-level sample of listed firms in China from 2007 to 2019. The dependent variable *Perfcommit* is a dummy variable that equals one if any performance commitment clause is used and zero otherwise. The dependent variable *MASize* is the logarithm of payment size of the M&A deal; *Premium* is the bidding premium rate of M&A deal; *Goodwill* is defined as newly-formed goodwill scaled by total assets of announcement year of M&A deal. The detailed variable definitions are presented in Table A1. All regressions include firm and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

|  | (1) MASize | (2) Premium | (3) Goodwill |
|---|---|---|---|
| PerfCommit | 1.3332*** | 0.2404*** | 0.1552*** |
|  | (15.33) | (3.93) | (4.89) |
| Stock | 0.4197*** | 0.0721 | -0.1435*** |
|  | (3.45) | (1.59) | (-3.29) |
| Cash | -1.3129*** | 0.1586*** | -0.0297 |
|  | (-12.04) | (2.66) | (-1.10) |
| Related | -0.4376*** | -0.1339*** | -0.0124 |
|  | (-5.79) | (-7.09) | (-1.30) |
| Major | 1.9573*** | -0.2005*** | 0.2159*** |
|  | (18.75) | (-3.82) | (4.79) |
| Size | 0.5885*** | 0.0201 | 0.0385*** |
|  | (14.49) | (1.53) | (4.95) |
| Age | 0.0075 | 0.0009 | 0.0002 |
|  | (1.11) | (0.36) | (0.11) |
| ROA | 1.6453* | 0.1862 | -0.4427*** |
|  | (1.72) | (0.89) | (-3.53) |
| Lev | -0.4540** | -0.1572** | -0.1873*** |
|  | (-2.07) | (-2.45) | (-3.56) |
| BM | 0.5111*** | -0.0605 | -0.0729*** |
|  | (2.82) | (-1.32) | (-3.49) |
| SOE | -0.0165 | -0.0885*** | -0.0326* |
|  | (-0.19) | (-3.12) | (-1.83) |
| Duality | 0.1096* | 0.0014 | -0.0069 |
|  | (1.66) | (0.05) | (-0.53) |
| Mgrshare | -0.0644 | 0.1499 | 0.0816 |
|  | (-0.22) | (0.94) | (1.27) |
| Mgrpay | 0.7451** | -0.1032 | 0.1275* |
|  | (2.38) | (-1.16) | (1.96) |
| Boardsize | 0.3618** | 0.0463 | 0.0030 |
|  | (2.13) | (0.77) | (0.11) |
| Indepct | 1.6529*** | 0.0637 | -0.2548** |
|  | (2.69) | (0.30) | (-2.55) |
| Top3HHI | 0.2359 | -0.0411 | -0.1091** |
|  | (0.67) | (-0.46) | (-2.17) |
| Separate | -0.3079 | -0.0492 | 0.0161 |
|  | (-0.65) | (-0.28) | (0.20) |
| Industry FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Observations | 24,698 | 27,543 | 27,543 |
| Number of Firms | 2,787 | 2,818 | 2,818 |
| Adjusted $R^2$ | 0.19 | 0.02 | 0.07 |

## Table 6. Goodwill Impairment

This Table presents the association between performance commitment and goodwill impairment for a deal-level sample of listed firms in China from 2007 to 2019. The dependent variable *Perfcommit* is a dummy variable that equals one if any performance commitment clause is used and zero otherwise. The dependent variables *ImpaiDum1Y*, *ImpaiDum2Y*, and *ImpaiDum3Y* are dummy variables that equal one if the goodwill impairment exceeds 1% of total assets and zero otherwise in the next first, second, and third year of M&A, respectively. *Impai1Y*, *Impai2Y*, and *Impai3Y* are the goodwill impairment scaled by total assets during the next first, second, and third year of M&A, respectively. The detailed variable definitions are presented in Table A1. All regressions include firm and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | (1)<br>ImpairDum1Y | (2)<br>Impair1Y | (3)<br>ImpairDum2Y | (4)<br>Impair2Y | (5)<br>ImpairDum3Y | (6)<br>Impair3Y |
|---|---|---|---|---|---|---|
| PerfCommit | 0.0399*** | 0.0349*** | 0.0792*** | 0.0190*** | 0.0739*** | 0.0091* |
| | (4.18) | (3.65) | (7.40) | (3.02) | (7.43) | (1.92) |
| Stock | 0.0066 | -0.0180 | -0.0021 | -0.0126 | -0.0438*** | -0.0063 |
| | (0.77) | (-0.74) | (-0.19) | (-0.98) | (-3.62) | (-0.68) |
| Cash | 0.0174* | -0.0129 | 0.0248** | -0.0135 | -0.0014 | -0.0108 |
| | (1.76) | (-0.85) | (2.28) | (-1.61) | (-0.15) | (-1.63) |
| Related | 0.0025 | 0.0001 | -0.0061* | -0.0015 | -0.0130*** | -0.0025 |
| | (0.88) | (0.03) | (-1.65) | (-0.71) | (-3.73) | (-1.49) |
| Major | -0.0284*** | 0.0922*** | 0.0056 | 0.0436*** | 0.0439*** | 0.0263*** |
| | (-2.97) | (4.56) | (0.45) | (3.93) | (3.48) | (3.35) |
| Size | 0.0043* | -0.0147*** | 0.0079*** | -0.0123*** | 0.0081*** | -0.0114*** |
| | (1.92) | (-3.64) | (2.81) | (-4.48) | (3.10) | (-5.17) |
| Age | -0.0006 | -0.0003 | -0.0001 | -0.0002 | -0.0000 | -0.0003 |
| | (-1.16) | (-0.55) | (-0.07) | (-0.52) | (-0.06) | (-0.94) |
| ROA | -0.1724*** | 0.0360 | -0.0867* | 0.0135 | -0.0212 | 0.0001 |
| | (-4.01) | (0.55) | (-1.92) | (0.33) | (-0.44) | (0.00) |
| Lev | -0.0031 | -0.0076 | -0.0267* | 0.0010 | -0.0402*** | -0.0007 |
| | (-0.24) | (-0.37) | (-1.74) | (0.07) | (-3.02) | (-0.06) |
| BM | -0.0221*** | 0.0038 | -0.0347*** | 0.0019 | -0.0273*** | 0.0047 |
| | (-3.22) | (0.43) | (-4.12) | (0.36) | (-3.35) | (1.10) |
| SOE | -0.0239*** | -0.0042 | -0.0320*** | -0.0037 | -0.0224*** | -0.0046 |
| | (-5.38) | (-1.08) | (-5.91) | (-1.23) | (-4.21) | (-1.59) |
| Duality | 0.0042 | -0.0064 | 0.0018 | -0.0029 | 0.0075 | -0.0018 |
| | (0.83) | (-1.00) | (0.30) | (-0.76) | (1.42) | (-0.63) |
| Mgrshare | -0.0105 | 0.0064 | 0.0083 | 0.0119 | 0.0451 | 0.0103 |
| | (-0.39) | (0.21) | (0.26) | (0.61) | (1.47) | (0.67) |
| Mgrpay | 0.0076 | 0.0163 | 0.0175 | 0.0123 | 0.0055 | 0.0136 |
| | (0.57) | (0.53) | (0.88) | (0.69) | (0.29) | (0.99) |
| Boardsize | -0.0056 | -0.0092 | -0.0100 | -0.0020 | -0.0283** | -0.0005 |
| | (-0.56) | (-0.48) | (-0.72) | (-0.19) | (-1.96) | (-0.07) |
| Indepct | 0.0101 | 0.0083 | -0.0606 | 0.0135 | -0.0917** | 0.0131 |
| | (0.23) | (0.20) | (-1.33) | (0.50) | (-2.08) | (0.60) |
| Top3HHI | -0.0563*** | 0.0233 | -0.0732*** | 0.0166 | -0.0683*** | 0.0190* |
| | (-3.50) | (1.09) | (-3.61) | (1.19) | (-2.89) | (1.73) |
| Separate | -0.0383 | 0.0688* | -0.0387 | 0.0332 | -0.0179 | 0.0264 |
| | (-1.57) | (1.91) | (-1.26) | (1.46) | (-0.59) | (1.54) |
| Industry FE | Y | Y | Y | Y | Y | Y |
| Year FE | Y | Y | Y | Y | Y | Y |
| Observations | 27,543 | 27,543 | 27,543 | 27,543 | 27,543 | 27,543 |
| Number of Firms | 2,818 | 2,818 | 2,818 | 2,818 | 2,818 | 2,818 |
| Adjusted $R^2$ | 0.08 | 0.08 | 0.12 | 0.08 | 0.14 | 0.08 |

## Table 7. Real Earning Management

This table presents the long-term effect of performance commitment clauses for a deal-level sample of listed firms in China from 2007 to 2019. The dependent variable *Perfcommit* is a dummy variable that equals one if the performance commitment clauses are used and zero otherwise. Following Roychowdhury (2006), *REM1Y*, *REM2Y*, and *REM3Y* are real earning management in the first, second, and third year following the M&A deal announcement. *CFO1Y*, *CFO2Y*, and *CFO3Y* are the decomposed real earning management indexes, which are the abnormal cash flow from operating in the first, second, and third year, respectively, after the M&A announcement. The main explanatory variable *Perfcommit* is a dummy variable that equals one if performance commitment clauses are used and zero otherwise. The detailed variable definitions are presented in Appendix 1. All regressions include firm and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | (1) REM1Y | (2) REM2Y | (3) REM3Y | (4) CFO1Y | (5) CFO2Y | (6) CFO3Y |
|---|---|---|---|---|---|---|
| PerfCommit | 0.0023 | 0.0188** | 0.0217*** | -0.0032** | -0.0044*** | -0.0037*** |
| | (0.31) | (2.14) | (3.04) | (-2.06) | (-3.23) | (-2.93) |
| Stock | -0.0227* | -0.0070 | -0.0123 | 0.0013 | -0.0008 | -0.0007 |
| | (-1.70) | (-0.43) | (-1.08) | (0.62) | (-0.29) | (-0.37) |
| Cash | -0.0167 | -0.0122 | -0.0001 | -0.0003 | -0.0010 | 0.0015 |
| | (-1.46) | (-1.02) | (-0.01) | (-0.13) | (-0.36) | (0.83) |
| Related | -0.0143*** | -0.0081* | -0.0081 | 0.0024** | 0.0007 | 0.0007 |
| | (-3.63) | (-1.85) | (-1.44) | (2.43) | (0.90) | (0.88) |
| Major | -0.0459*** | -0.0412** | -0.0033 | 0.0054*** | 0.0023 | 0.0037** |
| | (-4.32) | (-2.37) | (-0.44) | (2.84) | (1.16) | (2.48) |
| Size | -0.0015 | 0.0002 | 0.0068 | 0.0017 | -0.0003 | -0.0006 |
| | (-0.40) | (0.06) | (1.57) | (1.11) | (-0.41) | (-0.73) |
| Age | 0.0007 | 0.0008 | 0.0006 | 0.0000 | 0.0000 | 0.0000 |
| | (1.17) | (1.21) | (1.04) | (0.31) | (0.07) | (0.39) |
| ROA | -0.4119*** | -0.3546*** | -0.2764*** | -0.0291 | -0.0043 | 0.0138 |
| | (-5.32) | (-4.37) | (-3.04) | (-0.88) | (-0.30) | (0.91) |
| Lev | 0.1064*** | 0.1357*** | 0.0754*** | -0.0223** | -0.0067** | -0.0016 |
| | (4.66) | (4.87) | (2.99) | (-2.02) | (-2.31) | (-0.32) |
| MTB | 0.0441*** | 0.0331** | -0.0073 | -0.0053 | 0.0027 | 0.0057** |
| | (3.25) | (2.27) | (-0.53) | (-1.30) | (0.97) | (2.03) |
| SOE | 0.0097 | 0.0120 | 0.0240*** | -0.0026 | -0.0044*** | -0.0071*** |
| | (1.28) | (1.48) | (2.72) | (-1.55) | (-3.03) | (-4.61) |
| Duality | -0.0007 | 0.0027 | 0.0012 | -0.0003 | -0.0012 | 0.0009 |
| | (-0.09) | (0.39) | (0.17) | (-0.27) | (-1.06) | (0.86) |
| Mgrshare | -0.0285 | -0.0567* | -0.0491* | -0.0078 | -0.0020 | 0.0003 |
| | (-1.00) | (-1.77) | (-1.65) | (-1.34) | (-0.41) | (0.06) |
| Mgrpay | 0.0085 | 0.0134 | 0.0163 | 0.0040 | 0.0035 | 0.0032 |
| | (0.30) | (0.48) | (0.68) | (0.81) | (0.81) | (0.74) |
| Boardsize | -0.0185 | -0.0494** | -0.0269* | 0.0018 | 0.0047 | 0.0044* |
| | (-1.16) | (-2.44) | (-1.76) | (0.51) | (1.60) | (1.70) |
| Indepct | -0.0868 | -0.1326** | -0.0941 | -0.0049 | 0.0251** | 0.0298** |
| | (-1.30) | (-1.99) | (-1.56) | (-0.34) | (2.27) | (2.29) |
| Top3HHI | 0.0389 | 0.0500* | 0.0176 | 0.0045 | 0.0075 | 0.0108** |
| | (1.41) | (1.70) | (0.67) | (0.64) | (1.38) | (2.05) |
| Separate | -0.0229 | -0.0450 | -0.0033 | -0.0018 | 0.0007 | 0.0077 |
| | (-0.61) | (-1.24) | (-0.10) | (-0.25) | (0.11) | (1.03) |
| Industry FE | Y | Y | Y | Y | Y | Y |
| Year FE | Y | Y | Y | Y | Y | Y |
| Observations | 27,543 | 27,543 | 27,543 | 27,543 | 27,543 | 27,543 |
| Number of Firms | 2,818 | 2,818 | 2,818 | 2,818 | 2,818 | 2,818 |
| Adjusted $R^2$ | 0.06 | 0.06 | 0.04 | 0.02 | 0.01 | 0.02 |

# Table 8. Firm Valuation

This Table presents the association between performance commitment and firm value for a deal-level sample of listed firms in China from 2007 to 2019. The dependent variable *Perfcommit* is a dummy variable that equals one if any performance commitment clause is used and zero otherwise. The dependent variables *TobinQ1Y*, *TobinQ2Y*, and *TobinQ3Y* are Tobin's Q values in the next first, second, ad third year after the announcement of the M&A deal. The detailed variable definitions are presented in Table A1. All regressions include firm and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | (1)<br>TobinQ1Y | (2)<br>TobinQ2Y | (3)<br>TobinQ3Y |
|---|---|---|---|
| PerfCommit | -5.4538 | -0.6542* | -0.6196** |
| | (-0.96) | (-1.76) | (-1.97) |
| Stock | 2.3255 | 0.2811 | 0.1466 |
| | (0.91) | (0.87) | (0.52) |
| Cash | 4.7611 | -0.0323 | -0.0589 |
| | (0.88) | (-0.10) | (-0.29) |
| Related | 9.1216 | 0.5151 | 0.3333 |
| | (1.02) | (0.99) | (0.96) |
| Major | -1.2879 | -0.3428 | -0.3822* |
| | (-0.60) | (-1.48) | (-1.86) |
| Size | -8.4248 | -0.8967** | -0.5474*** |
| | (-1.07) | (-2.25) | (-4.60) |
| Age | -0.1385 | -0.0015 | 0.0100 |
| | (-0.69) | (-0.13) | (1.11) |
| ROA | 206.1328 | 8.8439 | 0.3296 |
| | (0.99) | (0.97) | (0.24) |
| Lev | 75.6636 | 3.5109 | 0.5655 |
| | (1.00) | (0.97) | (0.81) |
| BM | 8.4934 | -0.7882* | -0.7086*** |
| | (0.85) | (-1.67) | (-3.56) |
| SOE | -2.9074 | -0.4053** | -0.3386*** |
| | (-1.02) | (-2.07) | (-2.67) |
| Duality | 1.2729 | 0.0367 | 0.1269 |
| | (0.77) | (0.25) | (0.83) |
| Mgrshare | 0.4719 | -0.2472 | -0.1850 |
| | (0.10) | (-0.58) | (-0.43) |
| Mgrpay | -53.0637 | -1.7101 | 1.3132 |
| | (-0.98) | (-0.79) | (1.46) |
| Boardsize | -38.0603 | -2.0970 | -1.1667 |
| | (-1.03) | (-0.97) | (-0.88) |
| Indepct | -22.2485 | 0.1552 | 0.2943 |
| | (-0.89) | (0.09) | (0.23) |
| Top3HHI | -14.9689 | -0.6226 | -0.3736 |
| | (-0.98) | (-0.69) | (-0.61) |
| Separate | -24.0318 | -2.1303 | -1.6201 |
| | (-1.02) | (-1.44) | (-1.49) |
| Industry FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Observations | 27,543 | 27,543 | 27,543 |
| Number of Firms | 2,818 | 2,818 | 2,818 |
| Adjusted $R^2$ | 0.01 | 0.02 | 0.04 |

# Table 9. Mutual Benefits

This Table presents the mutual benefits of performance commitment for a deal-level sample of listed firms in China from 2007 to 2019. The dependent variable *Perfcommit* is a dummy variable that equals one if any performance commitment clause is used and zero otherwise. The dependent variable *Shell* is a dummy variable that equals one if the M&A deal is a backdoor listing. For the bidding firms, *CAR[0,1]* and *CAR[0,5]* are the cumulative abnormal return estimated from the Fama-French 3-factor model during the announcement period of days [0,1] and [0,5] of the M&A deal.. The detailed variable definitions are presented in Table A1. All regressions include firm and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

|  | (1) Shell | (2) CAR[0,1] | (3) CAR[0,5] |
|---|---|---|---|
| PerfCommit | 0.0151*** | 0.0130*** | 0.0171*** |
|  | (6.50) | (4.37) | (3.67) |
| Stock | 0.0035 | 0.0103 | 0.0137 |
|  | (0.51) | (1.61) | (1.20) |
| Cash | -0.0029 | -0.0323*** | -0.0550*** |
|  | (-0.88) | (-7.50) | (-7.24) |
| Related | 0.0054*** | 0.0030** | 0.0048** |
|  | (6.17) | (2.21) | (2.07) |
| Major | 0.0343*** | 0.0417*** | 0.0792*** |
|  | (7.43) | (7.70) | (7.93) |
| Size | -0.0018*** | 0.0019*** | 0.0037*** |
|  | (-3.59) | (3.20) | (3.61) |
| Age | 0.0001* | 0.0001 | -0.0000 |
|  | (1.66) | (0.53) | (-0.27) |
| ROA | 0.0135 | -0.0021 | -0.0110 |
|  | (1.07) | (-0.16) | (-0.38) |
| Lev | 0.0076*** | -0.0053 | -0.0163** |
|  | (2.77) | (-1.55) | (-2.56) |
| MTB | 0.0017 | -0.0069*** | -0.0075* |
|  | (0.86) | (-2.85) | (-1.79) |
| SOE | -0.0010 | -0.0010 | -0.0022 |
|  | (-1.00) | (-0.69) | (-0.94) |
| Duality | -0.0020 | -0.0002 | -0.0006 |
|  | (-1.64) | (-0.14) | (-0.29) |
| Mgrshare | -0.0107*** | 0.0034 | -0.0063 |
|  | (-2.80) | (0.61) | (-0.73) |
| Mgrpay | 0.0059 | 0.0029 | -0.0026 |
|  | (1.36) | (0.48) | (-0.36) |
| Boardsize | 0.0021 | 0.0050 | 0.0039 |
|  | (0.77) | (1.48) | (0.72) |
| Indepct | 0.0186* | 0.0159 | 0.0277 |
|  | (1.88) | (1.47) | (1.47) |
| Top3HHI | -0.0009 | -0.0093 | -0.0321*** |
|  | (-0.16) | (-1.47) | (-3.78) |
| Separate | -0.0005 | 0.0011 | -0.0097 |
|  | (-0.09) | (0.15) | (-0.79) |
| Industry FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Observations | 27,543 | 21,303 | 21,303 |
| Number of Firms | 2,818 | 2,708 | 2,708 |
| Adjusted $R^2$ | 0.07 | 0.11 | 0.13 |

## Table 10. Careers of Target-Asset Sellers

This table presents the association between performance commitment and careers of target-asset sellers for a director-level sample of listed firms in China from 2007 to 2019. The dependent variables include *Retention*, *Board*, and *Management Team*. *Retention* is a dummy variable that equals one if any sellers of target assets become a bidding firm director in the M&A year and zero otherwise. *Board* is a dummy variable that equals one if any seller of target assets is promoted to the board of bidding firm in M&A year and zero otherwise. *Management Team* is a dummy variable that equals one if any seller of target assets is promoted to the management team of bidding firm in M&A year and zero otherwise. The main explanatory variable *PerfCommit* is a dummy variable that equals one if the performance commitment clauses are used and zero otherwise. The detailed variable definitions are presented in Appendix 1. All regressions include firm and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | (1) Retention | (2) Board | (3) Management Team |
|---|---|---|---|
| PerfCommit | 0.0193*** | 0.0071** | 0.0081** |
| | (4.19) | (1.99) | (2.20) |
| Hdegree | -0.0000 | 0.0006 | -0.0009 |
| | (-0.01) | (0.28) | (-0.47) |
| Oversea | 0.0044** | 0.0026 | 0.0027* |
| | (2.25) | (1.63) | (1.91) |
| Stock | 0.0091 | 0.0067 | 0.0035 |
| | (1.07) | (0.89) | (0.59) |
| Cash | 0.0016 | -0.0027 | 0.0021 |
| | (0.31) | (-0.60) | (0.56) |
| Related | 0.0379*** | 0.0313*** | 0.0234*** |
| | (10.62) | (9.94) | (9.29) |
| Major | 0.0165** | 0.0228*** | 0.0070 |
| | (2.54) | (3.74) | (1.48) |
| Size | -0.0015 | -0.0011 | -0.0002 |
| | (-1.45) | (-1.18) | (-0.23) |
| Age | -0.0004* | -0.0002 | -0.0001 |
| | (-1.92) | (-1.52) | (-0.79) |
| ROA | 0.0439** | 0.0409** | 0.0075 |
| | (2.04) | (2.06) | (0.48) |
| Lev | -0.0116* | -0.0080 | -0.0092** |
| | (-1.95) | (-1.56) | (-2.07) |
| BM | -0.0037 | -0.0018 | -0.0049** |
| | (-1.12) | (-0.64) | (-2.15) |
| SOE | -0.0157*** | -0.0130*** | -0.0071*** |
| | (-7.24) | (-7.42) | (-4.37) |
| Duality | -0.0012 | -0.0015 | -0.0019 |
| | (-0.56) | (-0.84) | (-1.21) |
| Mgrshare | 0.0462*** | 0.0388*** | 0.0436*** |
| | (3.01) | (2.85) | (4.20) |
| Mgrpay | -0.0338*** | -0.0128** | -0.0229*** |
| | (-4.47) | (-2.07) | (-3.81) |
| Boardsize | 0.0009 | 0.0049 | -0.0021 |
| | (0.14) | (0.99) | (-0.48) |
| Indepct | 0.0019 | 0.0078 | -0.0023 |
| | (0.10) | (0.49) | (-0.18) |
| Top3HHI | -0.0215*** | -0.0144** | -0.0126** |
| | (-2.67) | (-2.19) | (-2.17) |
| Separate | -0.0100 | -0.0198** | 0.0069 |
| | (-0.83) | (-2.12) | (0.79) |
| Firm FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Observations | 27,543 | 27,543 | 27,543 |
| Number of Firms | 2,818 | 2,818 | 2,818 |
| Adjusted $R^2$ | 0.04 | 0.04 | 0.03 |

## Table 11. Endogenous Treatment Effect Model

This table presents linear regressions with endogenous treatment effects for a deal-level sample of listed firms in China from 2007 to 2019. Column (1) reports the first-step regression where the dependent variable is the endogenous variable *PerfCommit*. Columns (2)-(4) report the second-step regressions where the dependent variables include the same corporate risk-taking measures as in Table 3. The detailed variable definitions are presented in Table A1. All regressions include firm and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | First Step | Second Step | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | PerfCommit | VolM1Y | VolM2Y | VolM3Y |
| PerfCommit | | 0.0438*** | 0.0334*** | 0.0298*** |
| | | (4.45) | (3.98) | (4.07) |
| Stock | -0.0049 | 0.0072 | 0.0049 | 0.0031 |
| | (-0.06) | (1.53) | (1.30) | (0.97) |
| Cash | -1.3197*** | 0.0090** | 0.0077* | 0.0094** |
| | (-19.20) | (2.24) | (1.93) | (2.46) |
| Related | -0.0601 | -0.0046*** | -0.0062*** | -0.0056*** |
| | (-1.26) | (-3.00) | (-4.35) | (-4.33) |
| Major | 0.9200*** | -0.0057 | -0.0075* | -0.0087*** |
| | (14.15) | (-1.12) | (-1.76) | (-2.60) |
| Size | -0.1078*** | -0.0115*** | -0.0127*** | -0.0138*** |
| | (-3.77) | (-9.33) | (-10.31) | (-7.27) |
| Age | -0.0099** | 0.0001 | 0.0000 | 0.0001 |
| | (-2.10) | (0.36) | (0.08) | (0.48) |
| ROA | 0.5267 | -0.0748*** | -0.1255*** | -0.1066* |
| | (1.17) | (-3.28) | (-3.02) | (-1.92) |
| Lev | -0.3388** | 0.0322*** | 0.0316*** | 0.0400*** |
| | (-2.47) | (4.96) | (4.53) | (3.61) |
| BM | -0.2108 | -0.0004 | -0.0087 | -0.0085 |
| | (-1.62) | (-0.07) | (-1.44) | (-1.51) |
| SOE | -0.2915*** | -0.0065** | -0.0075** | -0.0079** |
| | (-4.02) | (-2.38) | (-2.56) | (-2.57) |
| Duality | -0.0248 | -0.0039 | -0.0021 | -0.0006 |
| | (-0.52) | (-1.37) | (-0.84) | (-0.25) |
| Mgrshare | 0.1498 | 0.0081 | 0.0101 | 0.0165* |
| | (0.83) | (0.86) | (1.07) | (1.72) |
| Mgrpay | 0.0112 | -0.0178* | -0.0159* | -0.0088 |
| | (0.05) | (-1.81) | (-1.88) | (-1.13) |
| Boardsize | -0.1432 | -0.0045 | 0.0019 | 0.0028 |
| | (-1.02) | (-0.75) | (0.35) | (0.52) |
| Indepct | -0.9624 | 0.0171 | 0.0180 | 0.0132 |
| | (-1.55) | (0.72) | (0.72) | (0.54) |
| Top3HHI | -0.4711** | 0.0246*** | 0.0256*** | 0.0215** |
| | (-2.00) | (2.80) | (2.88) | (2.27) |
| Separate | 0.0151 | -0.0161 | -0.0089 | -0.0084 |
| | (0.05) | (-1.12) | (-0.59) | (-0.55) |
| IMR | | -0.0187*** | -0.0167*** | -0.0147*** |
| | | (-3.20) | (-3.49) | (-3.46) |
| Industry FE | Y | Y | Y | Y |
| Year FE | Y | Y | Y | Y |
| Observations | 27,393 | 27,276 | 27,313 | 27,331 |
| Number of Firms | 2,802 | 2,797 | 2,797 | 2,797 |

# Table 12. Propensity Score Matching

This table presents the matching results of the association between performance commitment clauses and corporate risk-taking for a deal-level sample of listed firms in China from 2007 to 2019. We apply propensity score matching to control selection bias. The dependent variables in Columns (1)-(3) include the same corporate risk-taking measures as in Table 3. The detailed variable definitions are presented in Table A1. All regressions include industry and year fixed effects. Robust $t$-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | (1) VolM1Y | (2) VolM2Y | (3) VolM3Y |
|---|---|---|---|
| PerfCommit | 0.0091*** | 0.0048** | 0.0044** |
| | (3.08) | (2.11) | (2.21) |
| Stock | 0.0015 | 0.0015 | -0.0001 |
| | (0.29) | (0.34) | (-0.02) |
| Cash | -0.0038 | -0.0038 | -0.0012 |
| | (-0.87) | (-0.99) | (-0.38) |
| Related | -0.0151*** | -0.0147*** | -0.0112*** |
| | (-4.58) | (-4.58) | (-4.62) |
| Major | 0.0060 | 0.0049 | 0.0027 |
| | (1.48) | (1.27) | (0.92) |
| Size | -0.0119*** | -0.0102*** | -0.0087*** |
| | (-5.29) | (-5.20) | (-4.61) |
| Age | 0.0001 | 0.0002 | 0.0004 |
| | (0.18) | (0.94) | (1.57) |
| ROA | -0.1157*** | -0.1295*** | -0.1370*** |
| | (-3.80) | (-5.03) | (-5.67) |
| Lev | 0.0107 | 0.0012 | 0.0012 |
| | (1.02) | (0.14) | (0.16) |
| BM | -0.0159 | -0.0180 | -0.0240*** |
| | (-1.16) | (-1.62) | (-2.59) |
| SOE | -0.0078 | -0.0112** | -0.0155*** |
| | (-1.56) | (-2.58) | (-4.49) |
| Duality | 0.0030 | 0.0044 | 0.0029 |
| | (0.82) | (1.44) | (0.97) |
| Mgrshare | 0.0152 | 0.0187 | 0.0121 |
| | (1.19) | (1.56) | (1.05) |
| Mgrpay | -0.0248* | -0.0133 | -0.0042 |
| | (-1.79) | (-1.21) | (-0.42) |
| Boardsize | -0.0087 | -0.0099 | -0.0055 |
| | (-0.83) | (-1.10) | (-0.67) |
| Indepct | 0.0978** | 0.0685 | 0.0736 |
| | (2.04) | (1.40) | (1.58) |
| Top3HHI | 0.0035 | 0.0072 | 0.0061 |
| | (0.22) | (0.53) | (0.46) |
| Separate | 0.0083 | 0.0141 | 0.0036 |
| | (0.31) | (0.52) | (0.13) |
| Industry FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Observations | 6,689 | 6,700 | 6,700 |
| Number of Firms | 1,999 | 2,000 | 2,000 |
| Adjusted $R^2$ | 0.51 | 0.46 | 0.37 |

## Table 13. Alternative Specifications

This table presents the results of performance commitment and corporate risk-taking for a deal-level sample of listed firms in China from 2007 to 2019 under alternative specifications. In Columns (1)-(3), we alternative industry code of edition in 2001. The initial sample includes three types of M&A, as presented in Table A2. Most M&A with performance commitment clauses are equity M&A. We drop asset M&A in Columns (4)-(6). The detailed variable definitions are presented in Table A1. All regressions include industry and year fixed effects. Robust $t$-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Alternative Industry Code | | | Drop Asset M&A | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | VolM1Y | VolM2Y | VolM3Y | VolM1Y | VolM2Y | VolM3Y |
| PerfCommit | 0.0127*** | 0.0057** | 0.0055** | 0.0125*** | 0.0053** | 0.0049** |
| | (4.09) | (2.25) | (2.43) | (3.93) | (2.10) | (2.19) |
| Stock | 0.0035 | 0.0016 | 0.0004 | 0.0001 | 0.0011 | 0.0007 |
| | (0.75) | (0.43) | (0.13) | (0.01) | (0.28) | (0.21) |
| Cash | -0.0011 | -0.0010 | 0.0018 | -0.0053 | -0.0024 | 0.0007 |
| | (-0.33) | (-0.28) | (0.57) | (-1.29) | (-0.60) | (0.24) |
| Related | -0.0049*** | -0.0065*** | -0.0058*** | -0.0053*** | -0.0061*** | -0.0050*** |
| | (-3.18) | (-4.59) | (-4.56) | (-2.74) | (-3.50) | (-3.30) |
| Major | 0.0043 | 0.0016 | -0.0008 | 0.0011 | -0.0004 | -0.0025 |
| | (1.13) | (0.46) | (-0.30) | (0.26) | (-0.12) | (-0.95) |
| Size | -0.0114*** | -0.0126*** | -0.0137*** | -0.0121*** | -0.0125*** | -0.0113*** |
| | (-9.30) | (-10.25) | (-7.24) | (-8.33) | (-9.30) | (-8.38) |
| Age | 0.0000 | -0.0000 | 0.0001 | 0.0002 | 0.0001 | 0.0003 |
| | (0.09) | (-0.16) | (0.26) | (0.64) | (0.23) | (1.44) |
| ROA | -0.0734*** | -0.1221*** | -0.1050* | -0.0960*** | -0.1533*** | -0.1769*** |
| | (-3.18) | (-2.98) | (-1.92) | (-3.73) | (-4.35) | (-4.21) |
| Lev | 0.0289*** | 0.0293*** | 0.0379*** | 0.0308*** | 0.0246*** | 0.0207*** |
| | (4.50) | (4.27) | (3.48) | (4.16) | (3.63) | (3.30) |
| MTB | -0.0020 | -0.0096 | -0.0095* | -0.0039 | -0.0108* | -0.0127** |
| | (-0.34) | (-1.59) | (-1.71) | (-0.63) | (-1.79) | (-2.12) |
| SOE | -0.0067** | -0.0079*** | -0.0082*** | -0.0068** | -0.0099*** | -0.0108*** |
| | (-2.46) | (-2.75) | (-2.71) | (-2.12) | (-3.07) | (-3.61) |
| Duality | -0.0039 | -0.0023 | -0.0008 | -0.0025 | -0.0007 | 0.0001 |
| | (-1.39) | (-0.91) | (-0.29) | (-0.85) | (-0.24) | (0.04) |
| Mgrshare | 0.0099 | 0.0120 | 0.0180* | 0.0140 | 0.0144 | 0.0227* |
| | (1.04) | (1.27) | (1.89) | (1.29) | (1.32) | (1.94) |
| Mgrpay | -0.0181* | -0.0156* | -0.0092 | -0.0214* | -0.0205** | -0.0139* |
| | (-1.85) | (-1.85) | (-1.17) | (-1.93) | (-2.27) | (-1.66) |
| Boardsize | -0.0043 | 0.0014 | 0.0025 | -0.0100 | -0.0037 | -0.0054 |
| | (-0.74) | (0.26) | (0.46) | (-1.42) | (-0.59) | (-0.93) |
| Indepct | 0.0172 | 0.0159 | 0.0130 | 0.0253 | 0.0301 | 0.0196 |
| | (0.73) | (0.64) | (0.53) | (0.89) | (1.00) | (0.66) |
| Top3HHI | 0.0210** | 0.0223** | 0.0184* | 0.0144 | 0.0193* | 0.0180* |
| | (2.44) | (2.54) | (1.95) | (1.44) | (1.96) | (1.80) |
| Separate | -0.0166 | -0.0092 | -0.0085 | -0.0146 | -0.0125 | -0.0103 |
| | (-1.16) | (-0.61) | (-0.56) | (-0.94) | (-0.79) | (-0.64) |
| Industry FE | Y | Y | Y | Y | Y | Y |
| Year FE | Y | Y | Y | Y | Y | Y |
| Observations | 27,427 | 27,464 | 27,482 | 18,337 | 18,357 | 18,358 |
| Number of Firms | 2,814 | 2,814 | 2,814 | 2,599 | 2,599 | 2,599 |
| Adjusted $R^2$ | 0.42 | 0.34 | 0.29 | 0.45 | 0.36 | 0.31 |

## Table 14. Alternative Measure of Performance Commitment

This table presents the results of an alternative measure of performance commitment and corporate risk-taking for a deal-level sample of listed firms in China from 2007 to 2019. The main explanatory variable *CommitSize* is the commitment value over one thousand times the underlying value of the M&A deal. The detailed variable definitions are presented in Table A1. All regressions include industry and year fixed effects. Robust *t*-statistics clustered by the firm are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

|  | (1) VolM1Y | (2) VolM2Y | (3) VolM3Y |
|---|---|---|---|
| CommitSize | 0.0062** | 0.0026** | 0.0038** |
|  | (2.07) | (2.53) | (2.46) |
| Stock | 0.0020 | 0.0010 | -0.0003 |
|  | (0.43) | (0.27) | (-0.08) |
| Cash | -0.0050 | -0.0028 | 0.0001 |
|  | (-1.50) | (-0.78) | (0.02) |
| Related | -0.0050*** | -0.0066*** | -0.0059*** |
|  | (-3.29) | (-4.66) | (-4.62) |
| Major | 0.0083** | 0.0033 | 0.0009 |
|  | (2.29) | (1.06) | (0.37) |
| Size | -0.0115*** | -0.0127*** | -0.0138*** |
|  | (-9.37) | (-10.33) | (-7.26) |
| Age | 0.0000 | -0.0000 | 0.0001 |
|  | (0.00) | (-0.20) | (0.23) |
| ROA | -0.0698*** | -0.1208*** | -0.1034* |
|  | (-3.02) | (-2.95) | (-1.88) |
| Lev | 0.0285*** | 0.0293*** | 0.0380*** |
|  | (4.38) | (4.24) | (3.47) |
| MTB | -0.0017 | -0.0096 | -0.0093* |
|  | (-0.29) | (-1.60) | (-1.66) |
| SOE | -0.0074*** | -0.0081*** | -0.0085*** |
|  | (-2.70) | (-2.81) | (-2.80) |
| Duality | -0.0038 | -0.0022 | -0.0007 |
|  | (-1.35) | (-0.85) | (-0.27) |
| Mgrshare | 0.0111 | 0.0126 | 0.0186* |
|  | (1.15) | (1.33) | (1.93) |
| Mgrpay | -0.0191* | -0.0164* | -0.0095 |
|  | (-1.95) | (-1.95) | (-1.22) |
| Boardsize | -0.0052 | 0.0012 | 0.0021 |
|  | (-0.87) | (0.21) | (0.38) |
| Indepct | 0.0147 | 0.0158 | 0.0118 |
|  | (0.61) | (0.63) | (0.48) |
| Top3HHI | 0.0202** | 0.0217** | 0.0180* |
|  | (2.32) | (2.46) | (1.91) |
| Separate | -0.0165 | -0.0090 | -0.0085 |
|  | (-1.15) | (-0.60) | (-0.56) |
| Industry FE | Y | Y | Y |
| Year FE | Y | Y | Y |
| Observations | 27,425 | 27,462 | 27,480 |
| Number of Firms | 2,813 | 2,813 | 2,813 |
| Adjusted $R^2$ | 0.42 | 0.34 | 0.29 |

## Appendix

### Table A1. Variable Definitions

| Variable | Definition |
|---|---|
| *VolM1Y* | The annualized standard deviations of monthly returns in the next year after M&A |
| *VolM2Y* | The annualized standard deviations of monthly returns in the next two years after M&A |
| *VolM3Y* | The annualized standard deviations of monthly returns in the next three years after M&A |
| *VolW1Y* | The annualized standard deviations of weekly returns in the next year after M&A |
| *VolW2Y* | The annualized standard deviations of weekly returns in the next two years after M&A |
| *VolW3Y* | The annualized standard deviations of weekly returns in the next three years after M&A |
| *VolD1Y* | The annualized standard deviations of daily returns in the next year after M&A |
| *VolD2Y* | The annualized standard deviations of daily returns in the next two years after M&A |
| *VolD3Y* | The annualized standard deviations of daily returns in the next three years after M&A |
| *PerfCommit* | A dummy variable that equals one if performance commitment clause is used and zero otherwise |
| *Stock* | A dummy variable that equals one if the share is the dominant form of payment for the acquisition deal and zero otherwise |
| *Cash* | A dummy variable that equals one if the cash is the dominant form of payment for the acquisition deal and zero otherwise |
| *Related* | A dummy variable that equals one if the acquisition deal is mainly involved with related-party transactions and zero otherwise |
| *Major* | A dummy variable that equals one if the acquisition constitute a major asset restructuring |
| *Size* | The natural logarithm of a firm's total assets |
| *Age* | The number of years since the firm's establishment |
| *ROA* | The return on total assets |
| *Lev* | The leverage ratio calculated as total liabilities over total assets |
| *BM* | Book-to-market ratio |
| *Duality* | A dummy variable that equals one if the CEO is the chairman of the board at the same time and zeroes otherwise |
| *Mgrshare* | The ratio of managers' shares to total shares |
| *Mgrpay* | The total salary of the top three managers divided by the total annual salary of directors, supervisors, and executives |
| *Boardsize* | The number of board members |
| *Boardshare* | The ratio of shares held by the board members to total shares |
| *Indepct* | The proportion of independent directors |
| *SOE* | A dummy variable that equals one if the firm is an SOE and zero otherwise |
| *Separate* | The difference between the actual controller's control and ownership of the firm |
| *Top3HHI* | The Herfindahl-Hirschman Index of the top three shareholders of a firm |
| *MASize* | The logarithm of the payment size of the M&A deal |
| *Premium* | The premium rate of the M&A deal |
| *Goodwill* | Newly-formed goodwill scaled by total assets of announcement year of M&A deal |
| *ImpairDum1Y* | A dummy variable that equals one if the goodwill impairment exceeds 1% of total assets and zero otherwise during the next one year of M&A deal |
| *Impair1Y* | The goodwill impairment scaled by total assets during the next one year of the M&A deal |
| *ImpairDum2Y* | A dummy variable that equals one if the goodwill impairment exceeds 1% of total assets and |

| | |
|---|---|
| | zero otherwise during the next two years of M&A deal |
| Impair2Y | The goodwill impairment scaled by total assets during the next two years of the M&A deal |
| ImpairDum3Y | A dummy variable that equals one if the goodwill impairment exceeds 1% of total assets and zero otherwise during the next three years of M&A deal |
| Impair3Y | The goodwill impairment scaled by total assets during the next three years of the M&A deal |
| BHAR1Y | The buy-and-hold abnormal return in the next one year after the M&A deal |
| BHAR2Y | The buy-and-hold abnormal return in the next two years after the M&A deal |
| BHAR3Y | The buy-and-hold abnormal return in the next three years after the M&A deal |
| TobinQ1Y | The market value over total assets in the first year after the M&A deal |
| TobinQ2Y | The market value over total assets in the second year after the M&A deal |
| TobinQ3Y | The market value over total assets in the third year after the M&A deal |
| Retention | A dummy variable that equals one if any seller of target assets become a director of bidding firm in M&A year and zero otherwise |
| Shell | A dummy variable that equals one if the M&A deal is a backdoor listing |
| CAR[0,1] | The cumulative abnormal return estimated from the Fama-French 3-factor model during the announcement period of days [0,1] of the M&A deal |
| CAR[0,5] | The cumulative abnormal return estimated from the Fama-French 3-factor model during the announcement period of days [0,5] of the M&A deal |
| Board | A dummy variable that equals one if any seller of target assets is promoted to the board of bidding firm in M&A year and zero otherwise |
| Management Team | A dummy variable that equals one if any seller of target assets is promoted to the management team of bidding firm in M&A year and zero otherwise |
| Hdegree | A dummy variable that equals one if any seller of target assets has a master or doctoral degree and zero otherwise |
| Overseas | A dummy variable that equals one if any seller of target assets has ever studied aboard or been employed overseas and zero otherwise |
| CommitSize | The commitment value over one thousand times the underlying value of the M&A deal |

## Table A2. Sample Selection and Distribution

This table presents the details of the selection process and sample distribution after sample selection. Panel A decomposes the exclusion process and displays the excluded number of observations in every step. Panel B and C are about the sample distributions by year from 2007 to 2019.

| Panel A: Sample Construction | |
| --- | --- |
| | N |
| Initial sample | 35,018 |
| (-) Firms in the financial industry | 687 |
| (-) B-share stocks | 233 |
| (-) Same target firm and commitment party | 129 |
| Final Sample | 33,969 |

| Panel B: Distribution of M&A sample | | | | |
| --- | --- | --- | --- | --- |
| | Full Sample | Asset M&A | Equity M&A | Mixed M&A |
| 2007 | 1,653 | 650 | 964 | 39 |
| 2008 | 2,035 | 767 | 1,234 | 34 |
| 2009 | 1,911 | 751 | 1,134 | 26 |
| 2010 | 2,378 | 937 | 1,416 | 25 |
| 2011 | 2,491 | 942 | 1,536 | 13 |
| 2012 | 2,533 | 911 | 1,601 | 21 |
| 2013 | 2,701 | 973 | 1,713 | 15 |
| 2014 | 2,406 | 688 | 1,702 | 16 |
| 2015 | 3,170 | 841 | 2,288 | 41 |
| 2016 | 3,204 | 903 | 2,260 | 41 |
| 2017 | 3,367 | 949 | 2,369 | 49 |
| 2018 | 3,205 | 984 | 2,178 | 43 |
| 2019 | 2,913 | 1,099 | 1,779 | 35 |
| Total | 33,967 | 11,395 | 22,174 | 398 |

| Panel C: Distribution of Performance Commitment | | | | |
| --- | --- | --- | --- | --- |
| | Full Sample | Asset M&A | Equity M&A | Mixed M&A |
| 2007 | 1 | 0 | 0 | 1 |
| 2008 | 5 | 1 | 2 | 2 |
| 2009 | 29 | 1 | 28 | 0 |
| 2010 | 30 | 2 | 26 | 2 |
| 2011 | 83 | 1 | 81 | 1 |
| 2012 | 191 | 3 | 183 | 5 |
| 2013 | 434 | 3 | 429 | 2 |
| 2014 | 472 | 6 | 466 | 0 |
| 2015 | 758 | 9 | 745 | 4 |
| 2016 | 564 | 6 | 555 | 3 |
| 2017 | 529 | 1 | 524 | 4 |
| 2018 | 441 | 4 | 437 | 0 |
| 2019 | 263 | 14 | 246 | 3 |
| Total | 3,800 | 51 | 3,722 | 27 |