

The impact of firm ownership, board monitoring on operating performance of Chinese mergers and acquisitions

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Abstract In this paper, we employ board monitoring mechanisms and within-firm governance variables to investigate the operating performance of 340 mergers and acquisitions in China over the 2004–2011 period. Our results document a significant deterioration in post-acquisition operating performance of acquiring firms over 12–36 months. We find independent directors, managerial shareholding, ownership concentration have a positive and significant impact on operating performance of acquiring firms. However, the related party transactions exert a negative and significant effect on matched control adjusted ROA. Further analysis of our sub-sample indicates that privately owned enterprises are better monitors compared to the state owned enterprises.

Keywords Firm ownership · Monitoring · Mergers and acquisitions · Performance

JEL Classification G34

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1 Introduction

Over the past decade, the performance of mergers and acquisitions (M&A) in emerging countries such as Brazil, Russia, India and China (BRIC) has received a considerable attention in the academic milieu (see Du and Boateng 2015; Bertrand and Betschinger 2012; Gubbi et al. 2010; Zhou et al. 2015; Bhabra and Huang 2013; Stahl and Voigt 2008; Boateng et al. 2008). A review article published by Du and Boateng (2012) found that the past empirical efforts have focused on the most commonly studied antecedents of post-acquisition performance such as firm- and industry-specific variables and more recently on the effects of institutional factors. Relatively, few studies have examined the effects of within-firm governance and board monitoring mechanisms on M&A performance in emerging market context. Yet, prior research indicates that poor returns to acquirers arise from governance problems resulting from managers being insufficiently accountable to shareholders (Chira et al. 2016; Goranova et al. 2010; Yung 2001).

In this paper, we employ two board monitoring mechanisms (independent directors and CEO duality) and within-firm governance (managerial ownership, ownership concentration and related party transactions) to investigate the operating performance of M&A in an emerging country context. Three reasons motivate this paper. First, M&A are discrete events that can substantially change the value of the firm (Sirower 1997). Masulis et al. (2007) argue that M&A are among the largest and most readily observable forms of corporate investment thereby making acquisitions ideal for testing the role and effectiveness of corporate governance systems on M&A outcomes.

Second, Jensen (1986) and Jensen and Meckling (1976) argue that acquisitions exacerbate the conflict of interest between senior managers and shareholders in public companies. Thus the agency theory explanation of M&A emphasizes that the market for corporate control may yield sizable personal gains for managers at the expense of shareholders because managers who initiated the transaction may have goals different from shareholders (Masulis et al. 2007; Morck et al. 1990). Moreover, M&A, as an important managerial initiative, are subject to a board's scrutiny of which independent directors play a critical role (Hagendorff et al. 2010). The monitoring role of the board is therefore crucial given that the agency theory suggests that CEOs are self-serving and if not monitored may engage in actions which are detrimental to shareholder wealth maximization (Jensen and Meckling 1976). The above is against the backdrop that owners and/or managers in emerging economy firms, particularly in China and India, often view board independence as a mere statutory requirement and attempt to fulfill it by appointing people who consider their role as ceremonial (Singh and Gaur 2009; Dahya et al. 2003; Wang 2007). According to Singh and Gaur (2009), the principle of board independence is thus followed only in letters and not in spirit. Emerging countries lack control mechanisms, as mergers and acquisition laws and the firm's internal governance mechanisms remain weak (Peng 2004; Khanna and Palepu 2000).

Lastly, another important driving force behind this study is the concentrated nature of the ownership structures of emerging country firms unlike firms in the United States which are widely dispersed (see La Porta et al. 1999; Dharwadkar et al. 2000; Morck et al. 2005). Many firms in emerging countries, predominantly, have single large shareholders (mostly state owned enterprises) who exercise ultimate control (Claessens et al. 2000; Young et al. 2008). The concentrated ownership creates agency problems, affects the behaviour of shareholders with implications for a firm's long-term performance (Shleifer and Vishny 1986, 1997). Conceptually, concentrated ownership may improve performance by

increasing monitoring and alleviating free-rider problem in takeovers (Shleifer and Vishny 1986). In similar vein, the corporate governance literature raises the possibility that large shareholders may also exercise their control rights to create private benefits for themselves (Young et al. 2008; Shleifer and Vishny 1997). The above suggests that the effects of ownership concentration on firm performance are theoretically complex and empirically ambiguous. Moreover, the unique context of corporate governance in emerging countries raises important empirical questions on how the governance arrangements found in emerging countries affect M&A performance. According to Judge et al. (2008), the corporate governance systems in emerging countries do not only make it more difficult to govern organizations, but also make standard corporate governance practices less legitimate. It is therefore a timely endeavor to shed lights on how corporate governance systems in emerging countries impact on M&A performance.

China appears suitable for this research for the following reasons. China, as the largest emerging country, shares all the governance characteristics identified above, i.e., concentrated ownership; weak corporate governance system and corporate board just like other emerging countries (Firth et al. 2006; Singh and Gaur 2009; Dahya et al. 2003). Moreover, over the past decade, M&A activities by Chinese firms have paralleled China's economic reforms including corporate governance reforms and its integration into the world economy. According to Hong Kong based GTA (2012), approximately 23,750 M&A transactions occurred over the period of 1998–2011 in mainland China. The data availability therefore makes the investigation of the effects of corporate governance mechanisms on M&A performance in China, which has been ignored due to paucity of data, a viable one. We do so by utilizing the accounting based performance metric in line with the recommendation by Healy et al. (1992) who suggested that the use of accounting based measures, such as return on asset (ROA), as opposed to market based measures such as cumulative abnormal returns (CAR) to examine the acquisition performance. ROA reflects the synergies and operational efficiency obtained from M&A in the long-run (Ramaswamy and Waagelein, 2003; Hitt et al. 1998; Healy et al. 1992). This paper contributes to the M&A performance discourse by applying agency theory, especially within-firm governance and monitoring mechanisms in the largest emerging country. From a theoretical standpoint, we extend the effects of within-firm governance and board structure on M&A highlighting the monitoring function of the board in an environment where corporate governance is weak yet has seen massive economic and enterprise reforms over the last two and a half decades.

The remainder of this paper is structured in the following way. The next section reviews briefly literature on corporate governance and M&A performance and develops the hypotheses of the study. Section three describes the data and methodology used in this study. Section four comprises of the results and discussions followed by section five containing the conclusion of the study.

2 Firm governance and M&A performance

Prior literature suggests that most M&A fail to add value or contribute to the financial well-being of the firm (Ghosh 2001; Ravenscraft and Scherer 1989). According to Shleifer and Vishny (1988), one dominant explanation of the inability of M&A to improve post event performance may be due to agency problem, i.e. divergence of interests between managers and shareholders. The studies by DeLong and DeYoung (2007) and Pilloff (1996) report that, while bidding shareholders tend to destroy value in M&A, managers of the bidding

firms benefit from higher prestige and increased remuneration packages in the post-merger period (Anderson et al. 2004; Bliss and Rosen 2001). The above is consistent with the managerialism hypothesis which states that managers of bidding firms pursue personal objectives other than maximization of shareholder value (Jensen 1986). Several authors, such as Amihud and Lev (1981); Morck et al. (1990) have rendered support suggesting that some M&A are primarily motivated by managerial self-interest. In this paper, we hypothesize that managerial ownership, ownership concentration and appointment of independent directors will ameliorate agency conflict in two ways: first, by aligning managerial interests to that of shareholders; and second the presence of independent directors and ownership concentration increases the monitoring mechanism in the firm thereby enhancing post acquisition performance. We also argue that CEO duality may lead to positive post acquisition performance in that duality leads to swift and decisive takeover decisions to avoid the acquisition becoming hostile and costly exercise. We discuss below the hypotheses of the study in the next section.

3 Hypotheses development

3.1 Independent directors and performance

The board of directors in public companies has a responsibility for ratifying and monitoring managerial initiatives on behalf of shareholders (Hillman and Dalziel 2003). Agency theory suggests that the above task is facilitated by a board whose composition reflects a greater proportion of outside independent directors since such composition could represent a more effective way in monitoring and controlling managerial actions (Byrd and Hickman 1992). M&A are major investment that may change the strategic direction of a firm and the presence of independent directors may be particularly important in influencing and monitoring the proposed acquisition, resolving the conflicts of interests among decision makers and shareholders. However, prior studies on the effects of independent director on firm's performance have produced mixed results. For example, Pearce and Zahra (1992); Millstein and MacAvoy (1998) document a positive correlation between the proportion of independent directors and a firm financial performance. On the other hand, Duchin et al. (2010) point out that the effectiveness of independent directors is limited by the inferior information they have about company activities, its resources and capabilities, and the complexities associated with the functioning of the firm.

In context of emerging countries such as China, Chung et al. (2015) point out that a board of directors tends to play effective advisory role and may not adequately monitor the behavior of top managers. This is because owners and managers in emerging country firms often view board independence as a mere statutory requirement and attempt to fulfill it by appointing people who consider their role as ceremonial (Dharwadkar et al. 2000). Moreover, Lin et al. (1998) suggest that the board members in China are insiders and are more effective as advisors. It is important to note that, the studies of Dharwadkar et al. (2000), Khanna and Palepu (2000) were carried out before the reforms in role of independent directors in 2001 and 2003. Given the extensive nature of the reforms regarding the role of independent directors in Chinese firms (Rajagopalan and Zhang 2008), we expect that independent directors have a positive and significant effect on operating performance. Accordingly, we hypothesize that:

Hypothesis 1 The appointment of independent directors will be positively associated with M&A performance in China

3.2 CEO duality and performance

The relationship between CEO duality and firm performance has been widely researched but the empirical results have been mixed and inconclusive (Rhoades et al. 2001; Kang and Zardkoochi 2005; Pi and Timme 1993). At one end of the spectrum, it is argued that CEO duality leads to the concentration of power in the hands of one person, restricts board independence and curtails the board's monitoring effectiveness (Malette and Fowler 1992). Fama and Jensen (1983) reinforce this point and assert that duality is an indication of the absence of separation of decision management and control, thus making it difficult for insecure directors to be honest when evaluating firm performance which, in turn, leads to long term organisational drift (Carver 1990).

On the other hand, researchers such as Anderson and Anthony (1986) argue that duality leads to superior firm performance as it allows precise leadership for purposes of strategy formulation and implementation which should result in better organisational performance. Finkelstein and D'Aveni (1994) point out that duality removes any internal and external ambiguity regarding responsibility for firm processes and outcomes. This may be important in M&A decisions where quick and decisive action are important to avoid delays which may result in hostile and costly takeover with a potential of destroying firm value. We therefore hypothesize that:

Hypothesis 2 CEO duality is positively related to the operating performance of Chinese M&A.

3.3 Managerial ownership and performance

The agency theory contends that the delegation of managerial responsibilities by shareholders to managers requires the presence of mechanisms that align the interest of shareholders and managers (Jensen and Meckling 1976). One key mechanism advocated by the agency perspective is the incentive alignment through managerial ownership and stock options (Hall and Liebman 1998; Murphy 1999). Morck et al. (1988); McConnell and Servaes (1990); Hermalin and Weisbach (1991) document a significant effect of insider ownership on corporate performance. In the context of China, the 2001 Code of Corporate Governance for Listed Companies recognizes the use of cash incentive-based bonus pay and more recently share option as means of incentivizing managers to align the interests of managers and shareholders (Firth et al. 2006). Consistent to the agency theory logic, we expect the owner-managers to give off their best to improve performance and consequently get a higher return. Therefore, in taking M&A decisions, Chinese owner-managers are more likely to consider the long-term performance as an overriding factor rather than managerial self-interest as suggested by the empire building theory of M&A. In the light of the above, it is hypothesized that:

Hypothesis 3 Managerial ownership in China will lead to positive M&A operating performance.

3.4 Ownership concentration

Grossman and Hart (1986) argue that shareholders with a large stake in the company show more willingness to play an active role in corporate decisions because they partially internalize the benefits of their monitoring effort. Shleifer and Vishny (1997) echo similar view and indicate that the presence of large shareholders, i.e., blockholders helps in disciplining the erring managers and improves performance, even when there may not be enough legal protection. The positive effect of ownership concentration on firm performance can be explained by efficient monitoring, which assumes that higher concentration gives large shareholders stronger incentives and greater power to monitor management at lower cost.

In the context of emerging countries, state is often the dominant owner (Liu and Sun 2005). It may be argued that state may have different goals such as increase employment to reduce social instability rather than profitability (Xu and Wang 1999). However, empirical evidence in emerging countries such as China (Qi et al. 2000; Xu and Wang 1999); India (Ramaswamy et al. 2002); Singapore (Ang and Ding 2006) and Russia (Buck et al., 1999) have rendered support to the positive relationship between concentrated ownership and firm performance. Moreover, with substantial improvements in the governance environment and enterprise reforms in China in recent years, it seems plausible that large shareholders are effective monitors. We hypothesize that:

Hypothesis 4 Ownership concentration will be positively associated with M&A performance in China.

3.5 Related party transaction

In addition to the above hypotheses, we formulate a hypothesis in respect of related-party transactions and operating performance. Previous research shows that controlling shareholders use related party transactions to extract resources for private benefits (tunneling) at the expense of other shareholders (see Jian and Wong 2010; Jiang et al. 2010). The prevalence of tunneling activities using related party transactions in China are well documented (Cheung et al. 2006; Peng et al. 2010). Jiang et al. (2010) suggest that the severity of tunneling is due to the inadequacy of the existing laws on legal protection for minority shareholders in China and other emerging countries. Based on prior research, we use related party transaction as a proxy for the extent of agency conflicts. We hypothesize that firms with larger values of related-party transactions have more agency conflicts and would result in poor performance in that severe agency leads higher cost and lower profitability. This leads to last hypothesis:

Hypothesis 5 Related party transactions will be negatively associated with M&A performance.

3.6 Control variables

Regarding the control variables, prior studies (e.g. Du et al. 2016; Boateng and Bi 2014; Core et al. 2006; Ramaswamy and Waeglein 2003; Core et al. 1999) suggest that acquirer size, acquirer over- or under- valuation, relatedness; leverage, cash holding/reserves, method of payment, transaction value, and acquirer price run-up (pre-event 12 month buy

and hold abnormal returns) are important variables that may affect performance of M&A. Therefore, we incorporate these factors as control variables.

4 Data and research method

4.1 Source of data and sample selection

The data for this study was obtained from the Chinese Stock Market Research (CSMAR) databases jointly produced by the University of Hong-Kong and GTA. The database covers governance and finance structure of listed Chinese mainland firms and Chinese firms engaged in M&As. The following restrictions were imposed in order to arrive at the final sample: (1) acquisition should be initiated and completed acquisitions over the period 2004–2011; (2) the transaction type includes mergers, tender offers, and acquisitions of major assets; (3) both acquirer and target are Chinese domestic firms, and acquirers are listed firms in Chinese mainland stock market; (3) the deal value has to be larger than 10 million RMB in order to eliminate the effect of very small deals. Moreover, the acquirers should have a controlling interest of the acquired firm; (4) the financial and utility sectors are excluded due to different financial reporting methods; (5) and lastly, we require firm-level accounting data to be available for up to 3 years prior and three after acquisition for each firm to allow a time sufficient for any potential economic gain to be realized. The above restrictions led to the final sample of 340.

To measure the changes in operating performance, we compare the realized performance of the sample firms with the benchmark performance of non-acquisition control firms. The use of matched control firm comparisons is consistent with Barber and Lyon (1996) who argue that research designs evaluating operating performance are well specified and powerful only when performance is compared to control firms that are matched to performance measures such as asset size, book to market value (BTMV), and adjusted to industry median. Following Barber and Lyon (1996); Sharma and Ho (2002) we employ a match of sample firms involved in M&A by asset size, book to market value and industry and compare with non-acquisition firms using the matched control firm adjusted ROA. Prior studies suggest that comparison of operating performance of sample firms with matched control firms can be affected not only by the takeover but also by a host of other factors (see Sharma and Ho 2002). To mitigate the problem and isolate the takeover event, this study adopts a selection process of non-M&A firms suggested by Barber and Lyon (1996); Loughran and Ritter (1997). First, we identify all non-M&A firms whose market capitalizations are within 0.7–1.3 of the acquiring firms' market capitalization, and within this range, we select a firm whose BTMV ratio is the closest to the acquirer's BTMV ratio. We also examine the performance differences between the sample firms and their non-merging peers prior and subsequent to the bid. A pair *t* test to assess the goodness of the match was conducted and no significant difference was observed hence there was no need to search and replace any of the control firms.

4.2 Sample characteristics

Table 1 reports the M&A event sample by year over the period of 2004–2011. The largest share of the acquisitions (19.71%) occurred in 2007, followed by 17.06% in 2011 and 15.29% each in 2009 and 2006. The lowest number of events occurred in 2008. Regarding

Table 1 Event sample summary (by event year and ownership type)

Year	All		SOE		POE	
	N	%	N	%	N	%
2004	26	7.65	18	11.32	8	4.42
2005	26	7.65	17	10.69	9	4.97
2006	52	15.29	28	17.61	24	13.26
2007	67	19.71	33	20.75	34	18.78
2008	25	7.35	13	8.18	12	6.63
2009	52	15.29	23	14.47	29	16.02
2010	34	10.00	11	6.92	23	12.71
2011	58	17.06	16	10.06	42	23.20
Total	340	100.00	159	100.00	181	100.00

the ownership type, SOEs account for 159 transactions (46.76%) with POEs being 181 (53.23%).

4.3 Variable measurement

4.3.1 Dependent variable: calculation

Following Barber and Lyon (1996), the operating performance are estimated as difference between sample firms' performance and control firms' performance; where control is based on size and BTMV. The indicator of operating performance used in this study is ROA. ROA is defined as the $EBT_{i,t}$ divided by the book value of assets of company i at time t , or $ROA_{i,t} = EBT_{i,t}/BV_{i,t}$. The operating performance have been calculated for time period $t = 12, 24$ and 36 months following M&A. The estimation of statistical significance of the operating performance difference between sample M&A and control firm is verified by calculating Wilcoxon signed-rank sum test.

The excess or abnormal operating performance is defined as the difference in the level of annual performance for sample M&A firms and the performance of a control firm benchmark.

$$AOP_{i,t}^L = P_{i,t} - CP_{i,t}^j \quad (1)$$

In this equation $P_{i,t}$ is the mean level of performance of the sample M&A company i at time period t ; $CP_{i,t}^j$ is the mean level of performance of the control firm for firm i at time t and j refers to different comparison groups used in this study, $j = 1, 2$ ($1 =$ size, $2 =$ market to book ratio).¹ $AOP_{i,t}^L$ represents the abnormal operating performance of firm i at time t .

¹ Under comparison group 1 (that is, size), we estimate the operating performance by compare the difference between sample firm and control firm matched by size.

$$AOP_{i,t}^L = P_{i,t} - CP_{i,t}^2$$

Under comparison group 2 (that is, book to market ratio), we estimate the operating performance by compare the difference between sample firm and control firm matched by book-to market ratio.

$$AOP_{i,t}^L = P_{i,t} - CP_{i,t}^3$$

The manner in which the independent variables are measured is provided in “Appendix”.

4.4 Summary statistics

Table 2 provides the summary statistics of acquirer characteristics. Panel A of the table shows that the leverage ratio for our sampled firms is 51.92%, comparing the above

Table 2 Summary statistics

Variable	N	Mean	SD	Min	Med	Max
<i>Panel A: variable summary statistics</i>						
Corporate governance variables						
Independent directors	340	0.3593	0.0527	0.2000	0.3333	0.6667
Related party transactions	340	18.7983	23.7100	0.0000	11.0000	191.0000
Managerial ownership	340	0.0390	0.1264	0.0000	0.0000	0.7365
CEO duality	340	0.1930	0.3951	0.0000	0.0000	1.0000
Ownership concentration	340	53.8753	16.1298	21.4600	54.8700	99.7300
Operating performance variables						
Adjusted ROA12 months	340	-0.0134	0.1865	-0.2938	-0.0397	0.7842
Adjusted ROA24 months	340	-0.0281	0.1612	-0.3028	-0.0394	0.4648
Deal and firm characteristics						
Cash payment	340	0.9106	0.2856	0.0000	1.0000	1.0000
Transaction value	340	0.1015	0.4364	0.0103	0.0314	1.7217
Acquirer size	340	14.6838	0.9722	12.7957	14.6327	17.2865
Acquirer Tobin Q	340	1.6732	1.4629	0.7003	1.2835	6.2348
Acquirer price run-up	340	0.0831	0.6885	-1.3536	-0.0051	2.9710
Acquirer leverage	340	0.5192	0.3618	0.0363	0.5089	1.8788
Acquirer cash holding	340	0.2062	0.1545	0.0022	0.1683	0.7755
Relatedness	340	0.0187	0.1356	0.0000	0.0000	1.0000
Variable		SOE	POE	Difference	<i>p</i> value	
<i>Panel B: variables by ownership type</i>						
Adjusted ROA 12 months		-0.0437	0.0132	-0.0569	0.0049	
Adjusted ROA 24 months		-0.0383	-0.019	-0.0193	0.2671	
Cash payment		0.9400	0.8794	0.0606	0.0277	
Transaction value		0.1024	0.1023	0.0001	0.9980	
Acquirer size (log)		14.7505	14.6287	0.1218	0.1923	
Acquirer Tobin Q		1.4112	1.896	-0.4848	0.0005	
Acquirer price run-up		0.0513	0.0975	-0.0462	0.4871	
Acquirer leverage		0.5339	0.5181	0.0158	0.6475	
Acquirer cash holding		0.1706	0.2132	-0.0426	0.0017	

This table reports the number, mean, standard deviations, min, median and max of corporate governance variables, operating performance variables and acquirer and deal characteristics. See “Appendix” for the detailed definition of variables

numbers to statistics reported in other studies (such as Demircug-Kunt and Maksimovic (1999) and Booth et al. (2001), it is clear that Chinese firms have similar levels of leverage. The acquirers' Tobin Q is about 1.67. Independent directors constitute about 36% of the board of directors. The mean scores for the number of related party transactions is from 18.7983.

Compared to the study by Wei et al. (2005), the sampled firms in this study has managerial ownership of about 3.9%, significantly higher than 0.015 reported in the study carried out by Wei et al. (2005) based on a sample of 5284 firms for the 1991–2001 period. The managerial ownership in our sample suggests that insider stock ownership in China is relatively large as a measure of ownership structure which can be used to align the conflicting interests between insiders and outside shareholders. Ownership concentration of top 5 shareholders is about 54%. Panel B of Table 2 also shows significant differences between SOEs and POEs in respect of method of payment, acquirer Tobin's Q, and cash reserves.

4.5 Correlation matrix

The correlations among the variables used in the analyses are reported in Table 3. All the correlations are well below the threshold of 0.7 suggested by Hair et al. (2010). We further check multicollinearity and our variable inflation factor (VIF) estimation suggests that multicollinearity is not a problem in this study.

5 Results and discussions

Table 4 reports significant changes in post acquisition of operating performance of sample firms relative to the benchmark control firms over 12, 24 and 36 months. The results indicate a significant deterioration in post-acquisition operating performance of acquiring firms over 12–36 months. The Wilcoxon signed rank test indicates that decrease in median adjusted annual control-adjusted returns is significant at the 1% level. The results are in line with the studies of Dickerson et al. (1997) in the UK; and that of Clark and Ofek (1994) and Ravenscraft and Scherer (1987) in the U.S. who find a negative and significant operating returns for acquiring firms in the context of developed countries. In the context of emerging countries, the negative returns documented in this study appear consistent with the results of Du et al. (2016) who employed buy and hold abnormal returns and calendar time abnormal returns (BHAR/CTAR) approaches and found a negative long-term returns for Chinese acquirers. However, it is important to point out that the results of the current study are at variance with the results of the studies of Rahman and Limmack (2004); Edamura et al. (2014) who found that acquisitions lead to improvement in the long-term operating performance in Malaysia and China respectively.

We report the results of six regression models for post acquisition operating performance of matched control firm for the whole sample in Table 5. We enter the primary variables namely, independent director, related party transactions, managerial shareholding, CEO duality and ownership concentration successively with control variables in columns 1–5 respectively. Column 6 of Table 5 reports both the primary and control variables. The regression models in columns 1, 3 and 5 suggest that independent directors, managerial shareholding and ownership concentration appear to influence the operating performance of Chinese M&A. The findings support hypotheses 1, 3 and 5. Column 2

Table 3 Correlation matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M
A Adjusted ROA 12 months	1												
B Independent directors	0.1665**	1											
C Related party transactions	-0.0653	-0.0182	1										
D Managerial ownership	-0.0114	0.0281	-0.0845	1									
E CEO duality	-0.0277	0.0046	-0.0330	0.1694**	1								
F Ownership concentration	0.0518	-0.0800	0.0160	0.1384*	0.0456	1							
G Cash payment	-0.0888	-0.1585**	0.1300*	0.0308	-0.0374	0.1005	1						
H Transaction value	0.1833***	0.0910	-0.0836	-0.0405	0.0230	-0.0651	-0.4076***	1					
I Acquirer size	-0.1408*	-0.0151	0.3702***	0.1448**	0.0261	0.1461**	0.1113*	-0.2195***	1				
J Acquirer Tobin Q ratio	0.1645**	0.1723**	-0.0759	0.0892	0.2062***	-0.1838***	-0.1437**	0.0460	0.2391***	1			
K Acquirer price run-up	-0.1153*	-0.0980	-0.0077	-0.0231	0.0842	-0.0142	0.1994***	-0.1420**	0.0537	0.1023	1		
L Acquirer leverage	0.5601***	-0.0008	0.1056	-0.2181***	-0.1589**	-0.1128*	-0.0634	0.1197*	-0.1446**	-0.0980	0.0625	1	
M Acquirer cash holding	-0.1729**	0.0071	-0.0713	0.2741***	0.0227	0.1360*	0.0113	-0.0795	0.1489**	0.0285	-0.0582	-0.4524***	1
N Relatedness	-0.0186	-0.0196	-0.0841	-0.0381	-0.0099	0.0501	0.0444	-0.0247	-0.0658	-0.0127	-0.0530	-0.0634	0.0242

This table reports the correlation matrix of variables

The symbols ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively

Table 4 Results on operating performance (return on asset)

	Size-matched	B/M matched industry matched	
12 months	-7.3% (9.46***)	-2.8% (78.78***)	-3.1% (69.18***)
24 months	-8.7% (10.7***)	-3.6% (84.49***)	-3.6% (51.36***)
36 months	-7.8% (9.7***)	-2.3% (5.7***)	-7.4% (6.18***)

This table shows the average difference in operating performance of the sample firms and control firms (controlled by size and B/M ratio). The post-merger operating performance has been calculated for the time period of 12, 24 and 36 months following M&A completion. The statistical significance is measured by Wilcoxon signed rank test. The z score are shown in the parentheses

***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively

indicates that related party transaction has a coefficient which is negative and significant suggesting that related party transaction exerts negative influence on operating performance and renders some support for hypothesis 5. However, column 4 documents that CEO duality has insignificant influence on operating performance and hence hypothesis 2 is unsupported. Column 6 confirms the results that the independent directors, related party transaction and ownership concentration have a significant bearing on operating performance. The test statistics suggest the models are valid and explain the variations in the post acquisition performance. The adjusted R² for the matched control sample of adjusted ROA ranges from 44.41 to 49.09%.

The finding that concentrated ownership (mostly in the hands of SOEs) exerts positive and significant impact on M&A performance supports the assertion that ownership concentration provides an efficient way of resolving agency problems and consequently increases M&A performance (Claessens and Djankov 1999; Shleifer and Vishny 1986; Xu and Wang 1999). This is particularly relevant to countries with lower levels of investor protection (Shleifer and Vishny 1997; La Porta et al. 1998; Denis and McConnell 2003). As investor protection is relatively weak in China and other emerging countries, a higher ownership concentration may substitute for the absence of strong external governance (Dharwadkar et al. 2000). Moreover, in the context of M&A, large shareholders tend to have voting control which can be used to put some pressure on the firm by threatening takeover which may lead to the displacement of senior management. Such pressures are important for resolving agency problems and increasing firm value as costs associated with agency are reduced.² The results appear consistent with the findings of Khanna and Palepu (2000) in the Indian context where ownership concentration which is in the hands of business groups have a positive and significant impact on performance. It is important to point out that, the ownership in both China and other emerging countries is dominated by SOEs and Business groups respectively suggesting that such ownership is positively related to performance. For example, SOEs and business groups can facilitate access to capital, labour and political power structure less expensively and draw from richer pool of opportunities than non-group peers thereby impacting positively on firm profitability in emerging countries (see Khanna and Rivkin 2001; Khanna and Palepu 2000). Our results therefore support the contention that, notwithstanding the differences between SOE and

² Failure of internal governance of firms may activate an external control device – called market for corporate control first conceptualized by Manne (1965). This market involves takeovers of firms that have failed to make most efficient use of their resources and/or engaged in agency problem.

Table 5 Corporate governance and abnormal operating performance

All samples	DV: Adj. ROA12M					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Primary variables</i>						
Independent directors	0.3007*** (0.0095)					0.3278*** (0.0091)
Related party transactions		-0.0011** (0.0158)				-0.0009** (0.0364)
Managerial ownership			0.1216** (0.0291)			0.0606 (0.3063)
CEO-duality				0.0104 (0.5913)		0.0032 (0.8638)
Shareholder concentration					0.0022*** (0.0082)	0.0022*** (0.0120)
<i>Control variables</i>						
Cash payment	0.0551 (0.1236)	0.0534 (0.1257)	0.0442 (0.1901)	0.0464 (0.1686)	0.0519 (0.1306)	0.0628* (0.0830)
Transaction value	0.0344** (0.0242)	0.0362** (0.0192)	0.0336** (0.0362)	0.0335** (0.0365)	0.0328** (0.0177)	0.0350*** (0.0088)
Acquirer size (log)	-0.0135* (0.0861)	-0.0034 (0.6816)	-0.0154** (0.0460)	-0.0154** (0.0466)	-0.0238*** (0.0025)	-0.0114 (0.1540)
Acquirer Tobin Q ratio	0.0511** (0.0125)	0.0484** (0.0160)	0.0548*** (0.0082)	0.0527** (0.0133)	0.0623*** (0.0053)	0.0556** (0.0114)
Acquirer price run-up	-0.0383*** (0.0014)	-0.0396*** (0.0008)	-0.0410*** (0.0007)	-0.0407*** (0.0008)	-0.0432*** (0.0006)	-0.0409*** (0.0008)
Acquirer leverage	0.4540*** (0.0000)	0.4603*** (0.0000)	0.4525*** (0.0000)	0.4522*** (0.0000)	0.4578*** (0.0000)	0.4718*** (0.0000)

Table 5 continued

	DV: Adj. ROA12M					
	(1)	(2)	(3)	(4)	(5)	(6)
Acquirer cash holding	0.1454** (0.0458)	0.1373** (0.0424)	0.1374** (0.0477)	0.1537** (0.0354)	0.1392** (0.0451)	0.1152* (0.0802)
Relatedness	0.0465 (0.1303)	0.0426 (0.1958)	0.0472 (0.1366)	0.0480 (0.1362)	0.0331 (0.2627)	0.0304 (0.3080)
_cons	-0.3226* (0.0609)	-0.3241* (0.0758)	-0.1748 (0.2466)	-0.1765 (0.2451)	-0.1646 (0.2585)	-0.4545** (0.0128)
N	334	339	339	338	339	333
Adj. R-sq	0.4567	0.4559	0.4477	0.4435	0.4718	0.4897
Ind dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes

This table presents the relation between the operating performance and firm corporate governance. The dep. Variable is match firms adjusted ROA. Variable definitions are reported in "Appendix"; Standard errors are adjusted for heteroskedasticity; *p* values in parentheses

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

business groups, the concentration of ownership in the hands SOEs and business groups has a benefit of reducing transaction costs in emerging countries thereby leading to shareholder wealth maximization.

Regarding the independent directors, our findings suggest that the corporate governance reforms in China have a positive impact on M&A performance. The findings indicate that the extensive reforms which started in 1993, followed by a formal and comprehensive guidelines specifying the role of independent directors in 2001 have gone a long way to improve the monitoring function of independent directors. The results support the findings of Choi et al. (2007) who found the proportion of outside directors to exert a positive and significant influence on the performance of Korean firms. The findings, however, are contrary to the conclusions drawn in previously studies such as Dharwadkar et al. (2000); Knowledge@Wharton (2007) which indicate that independent directors in emerging economies are ineffective, lack resources and are likely to perform advisory role than the oversight role. The findings are also at variance with the findings of the previous studies in developed countries where the presence of independent directors have been found to have an insignificant effect on performance (see Choi et al. 2007). Perhaps, the difference between our results and that of developed country firm performance may be explained by the level of institutional quality and the extent of corporate governance development in developed countries compared with emerging countries. We therefore support the conclusion drawn by Choi et al. (2007) that the effect of independent directors on firm performance depends on the nature of market conditions in which they operate.

We also find that the related party transactions have a negative coefficient and significant effect on the operating performance. Perhaps, this finding may be explained by the concentrated nature of ownership and weak minority protection rights in China which make agency problem between the controlling and minority shareholders more severe among Chinese firms (see Jiang et al. 2010; Qian and Yeung 2015). Thus it is argued that ownership concentration and weak protection for minority shareholders allow controlling shareholders to transfer assets or profits out of the firm for private benefits through related party transactions thereby exerting a negative effect on operating performance. The results that managerial ownership has positive and significant impact on M&A performance suggest that managerial ownership helps align the interests of managers to that of the shareholder and lead to better operating performance for Chinese firms. CEO duality appears to be statistically insignificant and therefore hypothesis 2 is unsupported.

Now we turn our attention to the control variables, our results suggest that, cash as a method of payment, transaction value, cash holding, leverage and acquirer Tobin's Q (growth opportunities) have positive and significant impact on the operating performance of Chinese M&A. However, the acquiring firm size and acquirer run-up have negative and significant influence on operating performance. The finding that cash holding has significant impact on operating performance is interesting suggesting that managers of cash-rich firms often benefit from having cash reserve which cost less than external financing to fund large projects thereby leading to better M&A performance (Sun and Tong 2003). However, this finding is at variance with the widely held concerns that large cash holdings reduce disciplinary pressure on managers and tempt them to spend cash on value destroying acquisitions (Hartford 1999). Leverage appears to have a positive and significant influence on operating performance and this finding is consistent with the standard capital structure theory, which predicts a higher default risk and thus higher ROA for firms of higher leverage. The findings also suggest that acquirer's growth opportunities, cash as a method of payment and transaction value impact on operating performance are consistent to most of previous studies. The finding that firm size has a negative and significant impact appears

consistent with the findings of Sun and Tong (2003) who find that large Chinese firms tend to suffer from more agency problems resulting in agency costs with negative effect on operating performance.

5.1 Further analysis: SOEs versus POEs

As state ownership is an important feature in China, we conduct further analysis by dividing the sample into state owned enterprises (SOEs) and privately owned enterprises (POEs). It is argued that SOEs tend to be politically rather than commercially motivated, which may lead to poor operating performance. Moreover, the government socio-economic and political objectives might lead to soft budget constraints and provide some support for state controlled firms (Chow and Fung 1998; Poncet et al. 2010). Soft budget constraints may provide easier access to external finance for these firms (Allen et al. 2005), hence ownership type of firms affects the M&A performance (Zhou et al. 2015). We therefore investigate the ownership type-performance relationship of the sample firms. Tables 6 and 7 report the results of the sub samples in respect of SOEs and POEs. For SOEs, columns 3 and 6 of Table 6 show that managerial ownership appears to have significant bearing on M&A operating performance. However, columns 1, 2, 4 and 5 indicate that independent director, related party transaction, CEO duality and ownership concentration have insignificant influence on operating performance.

In contrast, independent director and ownership concentration reported in columns 1, 5 and 6 of Table 7 respectively appear to influence the operating performance of the POEs.

The results indicate that ownership concentration appears to influence the performance of POEs. The results suggest that ownership concentration in the hands of the private firms lead to better performance than SOEs confirming the predominant notion in the literature that state ownership leads to poor performance. The results may be attributed to the fact that POEs are efficient and strong monitors due to the high quality and calibre of people appointed to the role of independent directors.

Another interesting findings from our analysis document that independent directors exert significant influence on the performance of POEs compared to that of SOEs. The results may be explained by the nature and differences of resources and capabilities available to the POEs relative to SOEs. For example, unlike SOEs whose directors may owe their positions through political connections, independent directors in POEs may be appointed on the basis of their qualifications, competence, experience and capacity to perform the monitoring role associated with the position thereby influencing operating performance. The above explanation therefore is in line with the view of Duchin et al. (2010) who argue that the effectiveness of independent directors may be limited by their lack of capacity and the unavailability of resources to carry out their mandate.

5.2 Robustness tests

To check the robustness of our models, we employed additional measures to rule out alternative explanations. As a further check of our results, we explore an alternative measure of operating performance using adjusted ROA for 24 and 36 months using book-to-market ratios. Similarly, we use matched size and industry measure of operating performance for further check. The results of all the additional measures are similar and confirm our results obtained in Tables 4, 5 and 6. To conserve a space, we report the results of operating performance using book-to-market ratio for 24 months in Table 8.

Table 6 Corporate governance and abnormal operating performance (SOE samples)

SOE samples	DV: Adj. ROA12M					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Corporate governance variables</i>						
Independent director	0.1927 (0.3350)					0.2416 (0.2424)
Related party transaction		0.0004 (0.3436)				0.0005 (0.2332)
Managerial ownership			1.0467* (0.0606)			1.2533** (0.0240)
CEO-duality				0.0022 (0.9219)		-0.0038 (0.8898)
Shareholder concentration					0.0007 (0.3804)	0.0007 (0.3510)
<i>Control variables</i>						
Cash payment	0.0024 (0.9256)	0.0062 (0.7802)	0.0090 (0.6917)	0.0100 (0.6630)	0.0179 (0.4984)	-0.0015 (0.9533)
Transaction value	0.0540** (0.0214)	0.0569** (0.0153)	0.0573*** (0.0057)	0.0573*** (0.0093)	0.0544** (0.0105)	0.0489** (0.0360)
Acquirer size (log)	0.0045 (0.5766)	0.0002 (0.9723)	0.0046 (0.5512)	0.0041 (0.6007)	0.0004 (0.9514)	-0.0034 (0.6306)
Acquirer Tobin Q ratio	0.0148 (0.2334)	0.0169 (0.2158)	0.0182 (0.1597)	0.0153 (0.2393)	0.0179 (0.2048)	0.0220 (0.1226)
Acquirer price run-up	-0.0244** (0.0279)	-0.0247** (0.0400)	-0.0279** (0.0205)	-0.0244** (0.0306)	-0.0251** (0.0369)	-0.0290** (0.0163)
Acquirer leverage	0.1795*** (0.0007)	0.1593*** (0.0016)	0.1757*** (0.0003)	0.1708*** (0.0010)	0.1682*** (0.0011)	0.1698*** (0.0006)
Acquirer cash holding	-0.0047 (0.9482)	0.0125 (0.8682)	-0.0332 (0.6524)	0.0192 (0.7995)	0.0198 (0.7909)	-0.0777 (0.2659)
Relatedness	0.0299 (0.4541)	0.0259 (0.4979)	0.0288 (0.4741)	0.0289 (0.4711)	0.0222 (0.5533)	0.0196 (0.6020)
Intercept	-0.2342 (0.2144)	-0.1248 (0.2411)	-0.1889 (0.1105)	-0.1629 (0.2373)	-0.1433 (0.2704)	-0.2362 (0.1139)
Ind dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	154	159	159	158	159	153
Adj. R-sq	0.3020	0.2793	0.3062	0.2736	0.2841	0.3375

This table presents the relation between the operating performance and firm corporate governance (SOE Sample). The dep. Variable is match firms adjusted ROA. Variable definitions are reported in "Appendix"; Standard errors are adjusted for heteroskedasticity; *p* values in parentheses

* *p* < 0.1; ** *p* < 0.05;*** *p* < 0.01

Table 7 Corporate governance and abnormal operating performance (POE samples)

Private firms	DV: Adj. ROA12M					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Corporate governance variables</i>						
Independent directors	0.5042** (0.0114)					0.4767** (0.0166)
Related party transactions		-0.0013* (0.0820)				-0.0009 (0.2008)
Managerial ownership			0.0602 (0.3832)			0.0125 (0.8618)
CEO-duality				0.0335 (0.2790)		0.0279 (0.3388)
Shareholder concentration					0.0034** (0.0208)	0.0030** (0.0408)
<i>Control variables</i>						
Cash payment	0.0976** (0.0409)	0.0760* (0.0973)	0.0720 (0.1205)	0.0751 (0.1031)	0.0634 (0.1275)	0.0863** (0.0399)
Transaction value	0.0143 (0.5648)	0.0053 (0.8294)	0.0048 (0.8464)	0.0029 (0.9053)	0.0078 (0.7269)	0.0123 (0.6016)
Acquirer size (log)	-0.0041 (0.8194)	-0.0038 (0.8197)	-0.0144 (0.4153)	-0.0155 (0.3777)	-0.0288* (0.0762)	-0.0135 (0.4166)
Acquirer Tobin Q ratio	0.0602** (0.0262)	0.0605** (0.0271)	0.0677** (0.0126)	0.0645** (0.0207)	0.0811*** (0.0072)	0.0685** (0.0281)
Acquirer price run-up	-0.0418** (0.0204)	-0.0416** (0.0207)	-0.0441** (0.0138)	-0.0448** (0.0149)	-0.0455** (0.0154)	-0.0419** (0.0307)
Acquirer leverage	0.5320*** (0.0000)	0.5309*** (0.0000)	0.5316*** (0.0000)	0.5440*** (0.0000)	0.5331*** (0.0000)	0.5432*** (0.0000)
Acquirer cash holding	0.2364** (0.0274)	0.1965* (0.0538)	0.2183** (0.0373)	0.2365** (0.0275)	0.1794* (0.0825)	0.1792* (0.0820)
Relatedness	0.0134 (0.8196)	-0.0088 (0.8812)	0.0026 (0.9673)	-0.0012 (0.9856)	-0.0066 (0.9064)	-0.0048 (0.9250)
Intercept	-0.6874** (0.0265)	-0.4484 (0.1000)	-0.3771 (0.1698)	-0.3763 (0.1587)	-0.3681 (0.1796)	-0.6790** (0.0271)
Ind dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	180	180	180	180	180	180
Adj. R-sq	0.5328	0.5323	0.5221	0.5244	0.5587	0.5655

This table presents the relation between the operating performance and firm corporate governance (N-SOE sample). The dep. Variable is match firms adjusted ROA. Variable definitions are reported in “[Appendix](#)”; Standard errors are adjusted for heteroskedasticity; p values in parentheses

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 8 Robustness test

	DV: Adj. ROA24 M		
	All	SOE	Non-SOE
<i>Corporate governance variables</i>			
Independent directors	0.2751** (0.0391)	0.2472 (0.2390)	0.3615* (0.0765)
Related party transactions	-0.0011** (0.0237)	-0.0004 (0.3032)	-0.0013* (0.0877)
Managerial ownership	-0.0125 (0.7537)	0.6199*** (0.0028)	-0.0371 (0.4962)
CEO-duality (0/1)	-0.0027 (0.8472)	0.0132 (0.5797)	0.0248 (0.3614)
Shareholder concentration	0.0011* (0.0764)	-0.0006 (0.2230)	0.0018* (0.0853)
<i>Control variables</i>			
Cash payment	0.0088 (0.7840)	0.0168 (0.6711)	0.0134 (0.7519)
Transaction value	0.0240 (0.2018)	0.0696*** (0.0005)	-0.0152 (0.6377)
Acquirer size (log)	0.0177** (0.0332)	0.0173* (0.0733)	0.0175 (0.3072)
Acquirer Tobin Q ratio	0.0089 (0.3941)	0.0145 (0.2391)	0.0103 (0.5126)
Acquirer price run-up	-0.0157 (0.1431)	-0.0135 (0.1958)	-0.0124 (0.4410)
Acquirer leverage	0.3399*** (0.0069)	0.1950*** (0.0007)	0.3969*** (0.0047)
Acquirer cash holding	0.1049* (0.0724)	-0.0107 (0.8800)	0.1360 (0.1538)
Relatedness	0.0435 (0.1851)	0.0501* (0.0543)	-0.0179 (0.6713)
Intercept	-0.7075*** (0.0008)	-0.5004** (0.0132)	-0.8593*** (0.0100)
N	339	156	183
Adj. R-sq	0.3517	0.3092	0.4008
Ind dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes

This table presents the robustness test on relation between the operating performance and firm corporate governance. The dep. Variable is match firms adjusted ROA 24 months following events. Variable definitions are reported in “Appendix”; Standard errors are adjusted for heteroskedasticity; *p* values in parentheses

* *p* < 0.1; ** *p* < 0.05; *** *p* < 0.01

6 Conclusions

This paper employs board monitoring mechanisms and within-firm governance to investigate the operating performance of 340 M&As in China. This paper reports some interesting and significant results. First, we find that ownership concentration has a positive and significant impact on operating performance of Chinese acquiring firms. The results therefore provide support for hypothesis 4. The results suggest that a higher ownership

concentration provides incentive and greater power to monitor the actions of the managers efficiently and improve the operating performance of Chinese M&A. Moreover, ownership concentration may be used as a substitute for the absence of strong external governance in countries where investor protection is relatively weak such as China as pointed out by Dharwadkar et al. (2000). Second, we find that independent directors exert a positive and significant influence on operating performance suggesting that the extensive reforms carried out in respect of independent directors in 1993 and reinforced in 2001 with comprehensive guidelines specifying the role of independent directors has improved the monitoring function of independent directors and performance of Chinese firms. The findings that related party transactions are negatively related to operating performance suggest tunneling via related party transactions by controlling shareholders thus rendering support for the findings of Jiang et al. (2010); Qian and Yeung (2015). We therefore conclude that in an environment where the protection for minority shareholders is weak, agency problem between the controlling and minority shareholders appears more severe resulting in the expropriation of firm's assets for private benefits and poor performance. The study also finds CEO duality not to have statistically significant while managerial shareholding appears to have a mixed impact on operating performance.

We carried out further analysis by dividing the sample into SOEs and POEs. Our results indicate that the ownership concentration and independent directors appear to influence the performance of POEs while managerial shareholding has a positive and significant bearing on SOEs. The results appear interesting and indicate that ownership concentration in the hands of the POEs plays a stronger monitoring role in the performance of Chinese M&As. We conclude that the positive effect may be due to the appointment of independent directors with requisite skills and capabilities as independent directors in POEs compared to those of SOEs whose appointments are more likely to be based on political connections or membership of communist party, particularly in China. The implication is that POEs appear to be effective monitors compared to SOEs (who tends to have more cash resources due to soft budget constraints) in China and hence better performance. The results appear consistent with prior research studies (e.g., Sun and Tong 2003; Wei et al. 2005) which conclude that state ownership is harmful to firm performance. Another important implication is that effective monitoring does not depend only on the availability of financial resources to the firm but critically depend on the skills and capabilities of the independent directors. The nature of resources such as experience and human resource capabilities of directors play a critical role on board effectiveness.

Despite the contribution of this study to M&A performance discourse by applying agency theory, the study has a limitation. Almost all targets in our sample are "private" targets, thus, we do not have a complete data to measure and control overpayment (if any) made by the acquiring firms. We suggest that future studies should investigate the effects of board monitoring and within-firm governance mechanisms on long-term performance of BRIC countries using both stock market- and accounting-based approaches. Such studies should also consider controlling for the effects of acquirer overpayment by using targets listed in the stock exchange.

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Appendix: Variable definitions

Variable	Definition/measurement
Acquirer cash holding	Acquirer's cash and cash equivalent scaled by total assets
Acquirer leverage	Ratio of total liabilities to total noncash assets
Acquirer price run-up	Acquirer price run-up (pre-event 12 month BHAR)
Acquirer size	Acquire market capitalization (in billions) at year end prior to acquisition announcements
Acquirer Tobin Q	Acquirer Tobin's Q at year end prior to acquisition announcements
Cash payment	A dummy variable that equals one when payment is 100% cash and zero otherwise
CEO duality	A dummy variable that equals one if CEO and chairman are the same person and zero otherwise
Independent director	Percentage of independent directors on the board of directors
Managerial ownership	Percentage shares of firm held by managerial team of acquirers prior to acquisition announcements
Relatedness	Acquirer and target are in same CSRC industry
Related party transaction	Number of related party transaction over previous 12 month, See (Chen et al. 2012)
Shareholder concentration	Percentage shares held by top 5 shareholders
Transaction value	Deal transaction value scaled by acquirer total assets prior to acquisition announcements

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