

Behind M&As in China and the United States: Networks, learning, and institutions

Haibin Yang · Sunny Li Sun · Zhiang (John) Lin ·
Mike W. Peng

Published online: 21 January 2010
© Springer Science+Business Media, LLC 2010

Abstract Few scholars would dispute the argument that mergers and acquisitions (M&As) are different in China and the United States, but we know little about how they differ. This article reports one of the first studies that systematically compares and contrasts how M&As differ in these two countries. While prior research on M&As tends to emphasize economic and financial explanations while treating firms as atomistic actors severed from their institutional and network relations, we develop a new theoretical framework based on relational, behavioral, and institutional perspectives. We not only consider firms as learning actors embedded in network relations, but also compare and contrast their M&A patterns between China and the United States, two distinctive institutional contexts. We find that both a firm's structural hole position and its learning orientation (exploration/exploitation) in alliances have direct and joint impacts on subsequent M&As. Further, such impacts differ across the two countries, due to their institutional disparities.

All authors contributed equally to this paper. This research was supported by a research grant at the City University of Hong Kong (7002348), the National Science Foundation (CAREER SES 0552089), and the UTD Provost's Distinguished Professorship. The views expressed are those of the authors and not those of the sponsors. We thank Rae Pinkham for editorial assistance.

H. Yang (✉)

Department of Management, City University of Hong Kong, Kowloon, Hong Kong
e-mail: haibin@cityu.edu.hk

S. L. Sun · Z. (J.) Lin · M. W. Peng

School of Management, University of Texas at Dallas, Box 830688, SM 43, Richardson,
TX 75083, USA

S. L. Sun

e-mail: lxs055000@utdallas.edu

Z. (J.) Lin

e-mail: zlin@utdallas.edu

M. W. Peng

e-mail: apjimpeng@gmail.com

Keywords Mergers and acquisitions · Alliance network · Network and learning factors · China · United States

Mergers and acquisitions (M&As) have been studied extensively in the United States, and have now begun to receive attention by researchers interested in China (Chen & Young, 2010; Cooke, 2006; Peng, 2006; Peng, Luo, & Sun, 1999; Xia, Tan, & Tan, 2008). Few scholars will dispute the argument first advocated by Peng and Heath (1996) that M&As are different in China and the United States. But *how* do M&As in China and the United States differ? There is very little research to shed light on this important question. To partially fill this gap, in this article we develop a new theoretical framework grounded in relational, behavioral, and institutional perspectives. Specifically, we consider the direct and joint effects of networks and learning across two different institutional contexts, which have distinctive levels of market development. In doing so, we identify networks, learning, and institutions as three underlying building blocks behind M&As (Lin, Peng, Yang, & Sun, 2009).

M&As are important means for firms to access external resources, with different strategic implications than alliances (Xia et al., 2008; Yin & Shanley, 2008). While insightful, existing research on M&As, primarily stemming from a Western (specifically American) perspective, has been criticized for its overemphasis on economic and financial explanations (Cartwright & Schoenberg, 2006). It tends to treat firms as rational players that can reach optimal decisions through calculations of various costs and benefits. Another limitation may be related to an almost exclusive focus on individual organizations. This atomistic view of M&As severs firms from their contacts embedded in the social relations and overlooks the difficulties they may face in finding the right partners.

We argue that these limitations can be particularly critical to institutional settings such as China, where M&As may be driven more by relational embeddedness, behavioral learning, and institutional development, which can be different when examined in the US setting (Cooke, 2006; Peng, 2006; Robins & Lin, 2000). It is the objective of this study to not only examine M&As by incorporating network and learning drivers, but to also contrast their effects across the Chinese and US settings.

We believe that existing M&A research can be extended in the following three aspects. First, it is important to consider the behavioral learning aspect that drives M&As. Such a learning perspective regards organizations as players that may not always be rational, but search adaptively for satisficing objectives under ambiguity and uncertainty (Cyert & March, 1963). From this perspective, organizations are only boundedly rational and have difficulties obtaining complete information about the competencies and needs of potential partners. To cope with the uncertainty of the environment, firms often resort to strategic alliances as their adaptive learning processes (Baum, Li, & Usher, 2000). We argue that firms learn from their previous relations with other alliance partners and that their M&As are likely influenced by their previous interaction with alliance partners (Lin et al., 2009). In particular, we contend that the ways firms learn from their previous

alliances through exploration or exploitation affect their decisions towards future acquisitions.

Second, we believe that firms' relational embeddedness in an exchange system produces opportunities and constraints associated with M&As, which can result in outcomes not predicted by standard economic explanations (Uzzi, 1996). Such social embeddedness is likely to affect major activities such as acquisitions (Granovetter, 1985). Unfortunately, insufficient attention has been paid to the role of social context and organizational embeddedness leading to M&As, an area which may also be influenced by the embeddedness in previous firm interactions (Gulati & Gargiulo, 1999). In this article, we explore relational embeddedness (e.g., firms' structural hole positions) in their alliance network—one of the most common interorganizational relations—to predict its influence on M&As.

Finally, scholars have suggested that firms' strategic choices such as M&As are affected by the institutional environment, which can have distinctive emphasis on the roles of rules, contracts, and personal relations (Peng & Heath, 1996; Peng, Sun, Pinkham, & Chen, 2009; Peng, Wang, & Jiang, 2008). Given the complexity and uniqueness of each institutional environment, it may be risky to simply generalize Western theories to emerging economies—or vice versa—without a systematic and comparative understanding of the conditions that may drive M&As in these settings (Robins & Lin, 2000). While Western M&A research has a long tradition based on rich theories and quantitative methods, empirical research on M&As in China has only started in the late 1990s with case studies (Peng et al., 1999). To the best of our knowledge, only a total of six previous papers deal with M&As in China (Chen & Young, 2010; Cooke, 2006; Lin et al., 2009; Peng, 2006; Peng et al., 1999; Xia et al., 2008), three of which use rigorous quantitative methods (Chen & Young, 2010; Lin et al., 2009; Xia et al., 2008). Such disparities between the voluminous Western research and scant Chinese research have thus called for comparative studies in order to test or generalize Western findings or develop Chinese theories (Li & Peng, 2008; Peng & Heath, 1996).

Overall, this article departs from previous work in two significant ways. First, we develop the argument that the drivers of M&As can be revealed by a focus on networks and learning approaches. Second, we extend the institution-based view (Peng et al., 2008, 2009) by exploring how institutional conditions shape the way networks and learning affects M&As. Of the six previous papers on M&As in China, Peng and his colleagues (1999) and Cooke (2006) use case studies to describe M&As' dynamics inside China. Peng (2006) and Xia and colleagues (2008) focus on M&As of Chinese firms by foreign entrants, and Chen and Young (2010) deal with M&As of foreign firms by Chinese firms. We focus on M&As inside China. The only previous paper that adopts an explicit cross-country comparative framework such as ours is Lin and colleagues' (2009), which focuses on the impact of institutions as moderating variables. Breaking new ground, ours is the first paper that uses a comparative framework to test the *direct* and *joint* impacts of networks and learning on M&As in both China and the United States. Overall, our comparative study highlights the key roles played by networks, learning, and institutions behind M&As. Figure 1 illustrates our theoretical framework.

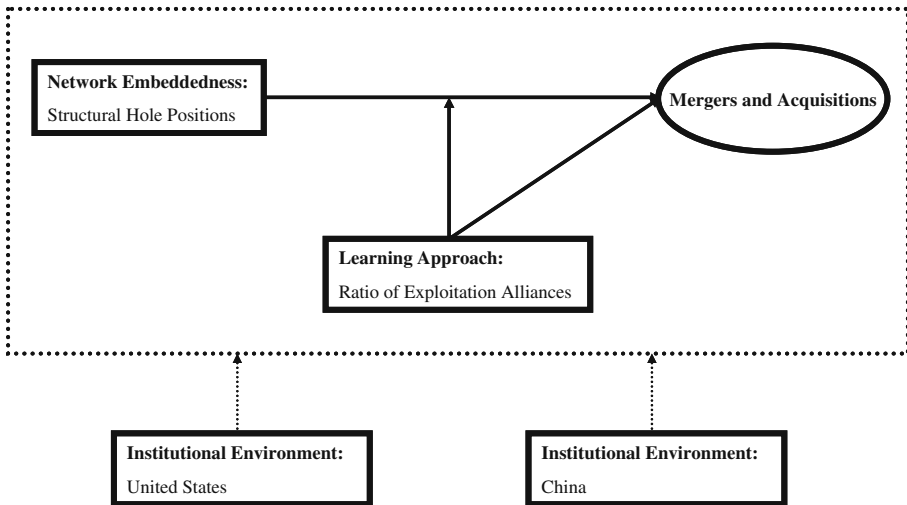


Figure 1 Our theoretical framework

Relational, behavioral, and institutional explanations

What drives M&As? This question has intrigued academia for decades. In general, there are several major theories in this area, such as industrial organization, transaction cost economics, resource dependence theory, and agency theory. Although these insightful theories have revealed different and sometimes contrasting drivers of M&As, there is one commonality among them: firms are treated as atomistic entities. The overall picture of interconnected firms and the mechanisms involved in regulating M&A behaviors have, unfortunately, not been given their due attention. This gap has become especially critical as firms are increasingly adopting network forms of organizing and becoming more global (Provan, Fish, & Sydow, 2007).

Alliances and acquisitions

Alliances and acquisitions are two important and distinctive avenues for firms to grow, although with different financial and strategic implications (Xia et al., 2008; Yin & Shanley, 2008). At least three differences exist. First, they are alternative governance modes, serving different, and often competing, strategic needs. Second, they entail different strategic flexibilities and risks for participating firms. Third, they represent different ways to build competitive advantage.

Although alliances and acquisitions are unique in their own ways, they also share some important commonalities. First, both are used to access external resources. Second, they share some common motivations, though at different degrees or with different goals. Third, alliances can provide relationship foundations in which firms' future acquisitions behaviors are embedded.

Network relations and alliance learning under institutional environments

Economic actions are embedded in networks of social relations (Granovetter, 1985). Firm behavior, as a result, depends on these relations with shareholders, customers, partners, suppliers, and competitors, which serve not only as opportunities but also as constraints. The structure and history of social ties among firms shape economic actions. They do so by creating the foundations for both relational embeddedness and behavioral learning, which in turn provide accesses to various unique opportunities as well as experiential paths for future actions (Gulati & Gargiulo, 1999; Uzzi, 1996).

We further argue that such relational embeddedness and behavioral learning are not isolated but to function within an institutional environment, which can further affect firms' alliance behaviors. Studies have shown significant differences in institutional environments between the United States and China, with the former setting emphasizing contractual factors more while the latter setting stressing personal relationships more (Li, Xie, Teo, & Peng, 2010; Ren, Au, & Birtch, 2009; Robins & Lin, 2000).

While scholars have repeatedly argued for the importance of the institutional environment (Peng et al., 2009), studies on how such institutions may affect interfirm governance choices in different countries or different cultural settings have been scarce (see Meyer, Estrin, Bhaumik, & Peng, 2009 for an exception). This is a gap that this study can partially fill.

Relational embeddedness: Structural holes

Firms can derive benefits in an “open” network by arbitraging resource and information flow between two other disconnected actors in the network (Burt, 1992). Such firms, which occupy structural hole positions, act as brokers that may enjoy both the information benefits and the control benefits. The information benefits come from timing, access, and referrals, while the control benefits originate from being the broker—the “*tertius gaudens*” (literally, “the third who benefits”). Structural holes, therefore, capture the essence of a firm's relational embeddedness (Gulati & Gargiulo, 1999).

In the United States, the advantageous structural position may give the broker firms opportunities to strategically manipulate the network resources for the maximization of their interest (Gargiulo & Benassi, 2000; Reagans & Zuckerman, 2001). Firms occupying structural holes are in a better position to capture private information about other firms (Zaheer & Bell, 2005), thereby enabling them to find under-priced targets in the market. However, such advantage may be mitigated or even turn into negative effects due to stronger nonmarket mechanisms such as social and personal relationships in China, which make it more risky and costly for a firm to manipulate its brokerage positions frequently (Wright, Filatotchev, Hoskisson, & Peng, 2005). In addition, the benefits of the brokering role may differ in societies that vary in cohesion, trust, reciprocity,

and communal sharing, all of which are strong characteristics of the Chinese society (Li et al., 2010; Ren et al., 2009). Xiao and Tsui (2007), for example, find that the effect of structural holes is limited in China where mutual trust and high commitment are highly valued. Therefore, in China a structural hole position may actually be distrusted and confer disadvantages to firms for acquisitions.

Hypothesis 1a In the United States, a firm's structural hole positions in its alliance network will be *positively* associated with its subsequent acquisition activities.

Hypothesis 1b In China, a firm's structural hole positions in its alliance network will be *negatively* associated with its subsequent acquisition activities.

Behavioral learning: Exploitation/exploration

Firms are adaptive players with bounded rationality and limited resources. As a result, firms are constantly challenged by the needs to simultaneously exploit existing resources and explore future opportunities. According to March (1991), behavioral learning is fundamentally about such exploration and exploitation. Exploitation enables firms to engage in refinement, implementation, efficiency, production, and selection, while exploration attaches importance to adaptive mechanisms that call for experimentation, variation, search, and innovation (March, 1991). Although the two are important elements for firms to succeed over the long term, resource constraints often force firms to emphasize one direction over the other at any particular time. In other words, if considered along the continuum of exploration-exploitation (Gupta, Smith, & Shalley, 2006; March, 1991), some firms may be more positioned toward exploitation, while others towards exploration.

Firms' exploration and exploitation tendencies may also be reflected through their alliance formation behaviors (Koza & Lewin, 1998). Compared with exploration alliances, exploitation alliances are more focused on short-term benefits because the returns of exploitation, in general, are more positive, proximate, and predictable (March, 1991), especially in a more mature institutional environment. In the United States, firms with predominantly exploitation alliances may have more strategic incentives to stay with such alliances instead of seeking more acquisitions, which also tend to bear higher uncertainty and risks (Tong, Reuer, & Peng, 2008). In contrast, in China, firms with predominantly exploitation alliances may feel the need for better control and trust, which may lead to more future acquisitions (Lin et al., 2009). In addition, acquisition through exploitation alliances provides an efficient and reliable vehicle for firms to quickly expand market share, which is critical for success in an economy going through transitions (Peng, 2003; Peng et al., 1999). Institutional transitions also increase the variance of risks for exploration alliances and make it difficult for firms to predict the future value of those exploration alliances, thereby decreasing the inclination of those

firms with a predominant exploration alliance portfolio for acquisition (Tong et al., 2008). Thus,

Hypothesis 2a In the United States, a firm's high ratio of exploitation (as opposed to exploration) alliances will be *negatively* associated with its subsequent acquisition activities.

Hypothesis 2b In China, a firm's high ratio of exploitation (as opposed to exploration) alliances will be *positively* associated with its subsequent acquisition activities.

Interactions between relational embeddedness and behavioral learning

A firm's learning approaches manifested through its alliances can have their boundary conditions. We argue that different learning tasks may require different network structures to be effective. Specifically, we will examine interactions between learning and structural holes.

In the United States, firms with an exploitation (as opposed to exploration) learning tendency in the industry alliance network may have more incentive to extract maximum short-term gains intended by exploitation alliances (Levinthal & March, 1993; March, 1991). Such a tendency is further enhanced when the firm occupies a large number of structural hole positions, which allows the firm to access a wide range of private information, be in control of other disconnected firms, and effectively manage its exploitation relations (Gargiulo & Benassi, 2000; Reagans & Zuckerman, 2001). As a result, a US firm with an exploitation learning tendency may further its incentive to forgo acquisitions, if it also occupies an abundance of structural holes (Lin et al., 2009).

In contrast, in China, where nonmarket mechanisms can still strongly influence firm behavior and market actions are not fully protected, a firm with exploration (as opposed to exploitation) learning tendency, reflected through its predominant exploration relations in the industry alliance network, may value such long-term oriented relationships as a form of control and stability, diminishing their desire to manipulate their partners through structural hole positions (Peng & Heath, 1996). Further, occupying structure holes in a less mature institutional environment like China may not be supported by the firm's absorptive capacity as it may be unable to accumulate and assimilate the knowledge gained from all alliance partners in an efficient manner (Cohen & Levinthal, 1990). As a result, firms with a predominance of exploration (as opposed to exploitation) alliance relations may find it difficult or even disadvantageous to leverage their structural hole positions to create alliance values as the effect of structural hole positions can be negative in an institutional setting like China (Xiao & Tsui, 2007).

Hypothesis 3a In the United States, a firm's high ratio of exploitation (as opposed to exploration) alliances will *discourage* a firm with more structural hole positions to engage in more subsequent acquisition activities.

Hypothesis 3b In China, a firm's high ratio of exploitation (as opposed to exploration) alliances will *encourage* a firm with more structural hole positions to engage in more subsequent acquisition activities.

Methodology

Sample

For the US sample, we focus on the electronics industry (SIC 36) from 2001 to 2005. Alliances and M&A data are collected from the SDC Platinum database and verified using Lexis-Nexis and the Dow Jones News Retrieval Service. Financial data are retrieved from Compustat database. Information on board directors is retrieved from the Standard & Poor's register of corporations, directors, and executives. The industry shipment data from Economic Census of the US Census Bureau are used to calculate the industry sector growth rate. Complementary data are obtained from Moody's.

Following Rowley, Behrens, and Krackhardt (2000), we first construct the industry alliance network by two criteria: membership in the electronics industry and at least one strategic alliance with another member of this industry. Altogether 346 unique firms are identified from the electronics industry from 2001 to 2005 (inclusive). Among them, we identify 57 focal firms that have relatively complete financial information from Compustat, involving a total of 81 M&As and 256 alliances in that five-year period. A focal firm's relational embeddedness, therefore, is based on its position in the *overall* industry alliance network (manifested as yearly matrices of 346×346). Since SDC does not show the termination date for each alliance, we use a five-year moving window to capture the cumulative nature of a firm's alliance portfolio. Similarly, we use a five-year moving window to capture a firm's relational embeddedness (e.g., a five-year moving window of the industry alliance network for 2001 is based on the cumulative industry alliance networks from 1997 to 2001). Consequently, we further collect alliance data from 1997 to 2000, involving additional 184 alliances.

For the China sample, we also focus on the electronics industry, identified by the Industry Classification Guide of Listed Companies of the China Securities Regulatory Commission (CSRC) issued in April 2001. This is an industry where alliance and M&A activities began to flourish since the late 1990s and where professional data collection started in the early 2000s. Alliances and M&A data are collected from WIND Data Services, a leading provider in China for financial databases. Similar to the approach used in the US sample, we construct the industry alliance network of 92 firms, while identifying 52 of them as focal firms that have relatively complete information from WIND, involving 126 alliances and 74 M&As between 2001 and 2005. We further collect alliance data from 1997 to 2000 (involving an additional 69 alliances) and construct five-year moving windows to capture the cumulative nature of a firm's alliance portfolio as well as a firm's relational embeddedness in the industry alliance network.

Overall, to facilitate comparison, we have striven to rely on similar measures across the two samples. Following Lin et al. (2009), we have created same dependent and independent variables, and matched their control variables across the two samples.

Dependent variables

M&A activities We use the number of M&As, which may include alliance partners or non-alliance partners, by a focal firm in each year to represent its M&A activities.

Independent variables

Structural holes We use Burt's (1992) measure of constraint that captures the extent to which a firm's network is directly or indirectly concentrated via a single contact. If a firm's alliance partners all have one another as partners, this firm is highly constrained, and thus occupies few structural holes. Following Soda, Usai, and Zaheer (2004), we multiply the value of constraint by -1 in order to capture structural holes (the "opposite" of constraint). Again, a five-year moving window is used to construct the yearly industry alliance network.

Exploitation learning tendency Following Koza and Lewin (1998) and Rothaermel (2001), we analyze the nature of alliances based on the paradigm of exploration and exploitation. Specifically, alliances that focus on discovery and development of new technology (such as R&D alliances) are coded as exploration alliances (Anand, Mesquita, & Vassolo, 2009), and other alliances that focus on marketing and resource utilization (such as licensing, marketing, and other supplying alliances) are treated as exploitation alliances. In some special cases where an alliance was created for both exploration and exploitation, we assign a weight of 0.5 to the coding.

To capture a firm's overall tendency for either exploration or exploitation while recognizing the simultaneous existence of exploratory and exploitative alliances in a firm's portfolio, we have created the following index.

$$\text{Exploitation learning tendency (exploitation alliance ratio)} = \frac{\text{Total \# of exploitation alliances formed by a firm in year } t}{\text{Total \# of alliances formed by the same firm in year } t} \quad (1)$$

It is a continuous measure of firms' learning approach manifested through its alliance compositions. Based on the equation, a value closer to 1 means that the focal firm has a larger composition of exploitation alliances or adopts a more generally exploitative learning approach. Likewise, a value closer to 0 means that the focal firm has a larger composition of exploration alliances or favors a more exploratory learning approach.

Control variables

Cash flow M&As are constrained by firms' financial capabilities. Although firms can undertake M&As through an exchange of stock or a combination of cash and stock, cash has been a popular financing medium for acquisitions. A lack of free cash flow will constrain firms' capability to acquire other firms. Thus, we track operating cash flow in the cash flow sheet at the end of each year.

Firm performance Past firm performance is likely to affect the number of acquisitions. On the one hand, increasing good performance may create managerial hubris (Chen & Young, 2010). Managers with hubris may overestimate their abilities to make risky acquisitions. On the other hand, poor performance tends to stimulate risky investment. Firms with performance below industry norms may aspire to meeting industry norms. Risk taking may increase as firms move further and further below industry average performance. Past performance thus is measured by the averaged return on asset during the previous two years.

Slack resources Organization slack may help managers pursue acquisitions by allowing greater financial discretion (Tan & Peng, 2003). Following Peng, Li, Xie, and Su (2010), we operationalize slack resources as *available slack* (current assets/current liabilities) and *recoverable slack* (management fee/sales in profit sheet).

Information strength It refers to the degree of information exchange through various types of alliances. Following Lin et al. (2009), we capture the information strength in different alliances. In this scheme, the degree of information exchange created by different types of linkages is rated from 4 (strong) to 1 (weak): technical or R&D alliances are rated as 4, marketing or manufacturing alliances as 3, licensing or supply alliances as 2, and other alliances as 1. A firm-level measure of information strength from alliances is the aggregation of the ordinal scale for each alliance in a certain year.

Outside director ratio Agency theory proposes that firms with a high proportion of outside directors may be less likely to undertake diversifying acquisitions, because outside directors serve to monitor and control the top manager's opportunism. However, in China, the impact of outside directors is not clear (Peng, 2004). We thus include the proportion of outside directors in a firm's board.

Other control variables include *firm size* (number of employees of the firm in a log form), *firm age* (difference between the selected year and the year the firm was incorporated), *firm's alliances number* (number of alliances formed by the firm in a year), *firm's prior M&A number* (number of acquisitions by the firm before the selected year), *number of intraindustry M&As* (number of acquisitions in the industry in a given year), *debt on total assets*, and *year dummies*.

Model estimation

Since the dependent variable is a count number (the number of M&As by the focal firm), it ranges from zero to a certain positive number, which is nonnegative and makes it inappropriate to use standard multiple regression. At first sight, Poisson regression seems to be a good choice since it is explicitly designed for count dependent variables. However, Poisson regression assumes that the mean and variance of the counts are equal. For most social-science data, the variance is likely to exceed the mean, thereby resulting in the problem of over-dispersion, which tends to bias downward the estimated standard errors. The negative binomial model overcomes the over-dispersion problem and also accounts for omitted variable bias.

It has been used in many previous studies (Haunschild & Beckman, 1998), and is thus used here.

We have multiple observations for a firm over years, which may raise the concern of potential interdependence. To address this, we use a negative binomial model with Huber/White robust standard errors. Robust standard errors, combined with the clustering option, relax the assumption of interdependence within the cluster. We also suggest that firms' network positions and learning alliances should have a lag effect on their strategic behavior. Thus, we lag all the independent variables and control variables by one year in the regression analysis. We conduct our analysis using negative binomial regression in Stata V.9.

Results

Tables 1 and 2 present descriptive statistics. To save space, year dummies are used but not reported. Table 3 displays the results of the negative binomial regressions for the US and China samples, with Models 1 and 3 using control variables only. To assess the potential threat of colinearity, we have estimated the variance inflation factors (VIFs) and found that no VIF is greater than 4.19, which is below the recommended ceiling of 10. We have mean-centered the predictor variables before generating interaction terms.

In Hypotheses 1a and 1b, we have respectively argued that in the United States a firm's occupancy of structural holes in an alliance network will be positively associated with the number of its subsequent acquisitions, but in China the relationship will be negative. Structural holes under the US Model 2 are positively significant ($p < .05$), supporting Hypothesis 1a. The coefficient for structural hole positions under the China Model 4 is negatively significant ($p < .05$), supporting Hypothesis 1b.

Hypotheses 2a and 2b examine the impact of a firm's learning approaches represented through exploitation alliance ratio. In Hypothesis 2a, it is argued that such a ratio will be negatively related to a firm's subsequent acquisitions in the United States, while in Hypothesis 2b the relationship is suggested to be the opposite in China. Based on the significant and negative coefficient of exploitation learning tendency under the US Model 2, Hypothesis 2a is supported. The marginally significant coefficient for the same variable under the China Model 4 provides some support for Hypothesis 2b.

Hypotheses 3a and 3b propose, respectively, that in the United States a firm's high ratio of exploitation alliances will discourage a firm with more structural hole positions to engage in more subsequent acquisitions; but in China a firm's high ratio of exploitation alliances will encourage a firm with more structural hole positions to engage in more subsequent acquisitions. The interactions between structural holes and exploitation learning tendency show significant ($p < .05$) and negative relation under the US Model 2, and marginally significant ($p < .10$) and positive relation under the China Model 4, supporting both Hypotheses 3a and 3b. Overall, Hypotheses 3a and 3b also support our belief (1) that a joint consideration of both relational and learning approaches helps understand the drivers behind M&As, and (2) that such drivers differ significantly between the two countries.

Table 1 Descriptive statistics and correlation for the US sample.

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. M&A activities	0.31	0.79														
2. Firm age	24.84	22.05	-0.03													
3. Firm size	11.11	21.75	0.11	0.34												
4. Debt on total asset	0.23	0.29	-0.04	0.18	0.16											
5. Information strength	0.71	1.62	0.14	0.07	0.20	-0.04										
6. Cash flow	5.15	13.15	0.07	0.18	0.54	-0.04	0.18									
7. Available slack	3.78	3.34	0.05	-0.21	-0.40	-0.15	-0.08	-0.12								
8. Recoverable slack	0.86	3.45	0.01	-0.15	-0.28	0.01	0.02	-0.06	0.06							
9. Firm performance	-0.12	0.34	0.06	0.31	0.20	-0.01	0.06	0.10	-0.05	-0.35						
10. Outside director ratio	0.30	0.34	0.20	0.23	0.31	0.09	0.14	0.37	-0.13	-0.14	0.11					
11. Firm alliance number	0.24	0.54	0.14	0.06	0.18	-0.05	0.51	0.17	-0.08	0.00	0.05	0.12				
12. Firm's prior M&A number	2.03	3.96	0.31	0.15	0.35	-0.09	0.15	0.49	-0.07	-0.07	0.03	0.39	0.14			
13. Number of intraindustry M&As	98.50	26.54	0.08	-0.11	0.03	-0.03	-0.08	-0.05	0.10	-0.04	0.14	-0.04	-0.09	-0.09		
14. Structural hole positions	-0.48	0.45	-0.01	-0.08	0.11	0.06	-0.26	0.06	0.04	-0.02	0.07	0.06	-0.27	-0.04	0.24	
15. Exploitation learning tendency	0.68	0.36	-0.06	-0.07	-0.22	-0.04	-0.19	-0.11	0.17	-0.14	-0.02	-0.19	-0.06	-0.15	0.03	-0.03

N ranges from 219 to 399. Correlations above $|0.11|$ are significant at the 0.05 level.

Table 2 Descriptive statistics and correlation for the China sample.

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. M&A activities	1.02	1.60														
2. Firm age	8.24	4.87	-0.07													
3. Debt on total asset	0.48	19.6	0.06	0.10												
4. Information strength	1.88	1.77	0.10	-0.05	0.04											
5. Cash flow	7.56	10.72	0.24	-0.04	0.13	0.01										
6. Available slack	0.02	0.01	-0.04	-0.15	-0.85	0.13	-0.11									
7. Recoverable slack	0.18	0.14	-0.08	0.18	-0.02	-0.06	-0.13	-0.08								
8. Firm performance	0.01	0.07	-0.04	-0.23	-0.28	0.01	0.02	0.22	-0.49							
9. Firm alliance number	0.98	1.28	0.17	-0.16	0.07	0.61	0.02	0.02	-0.10	0.01						
10. Outside director ratio	0.24	0.12	0.18	0.03	0.08	-0.03	0.10	-0.12	-0.20	0.02	-0.01					
11. Firm size	6.46	11.18	0.25	-0.09	0.13	0.15	0.48	-0.17	-0.08	0.04	0.38	-0.02				
12. Firm's prior M&A number	0.84	1.44	0.19	0.06	0.03	-0.02	0.16	0.02	-0.07	-0.05	-0.00	0.12	0.14			
13. Number of intraindustry M&As	43.65	31.98	-0.07	-0.19	0.16	0.03	0.04	-0.07	-0.04	-0.20	0.20	0.32	0.16	0.19		
14. Structural hole positions	-0.39	0.43	-0.23	-0.12	0.02	-0.01	0.07	-0.03	-0.25	-0.03	0.03	-0.09	0.09	-0.11	0.27	
15. Exploitation learning tendency	0.41	0.38	0.18	0.10	0.23	0.16	0.03	-0.19	-0.16	0.05	0.26	0.23	0.18	0.09	0.19	0.06

N ranges from 121 to 125. Correlations above $|0.15|$ are significant at the 0.05 level.

Table 3 Negative binomial regressions on M&A activities.

Variables	US sample		China sample	
Control variables	Model 1	Model 2	Model 3	Model 4
Firm age	-0.34 (-2.19)*	-0.18 (-0.72)	-0.20 (-0.81)	-0.11 (-0.42)
Firm size	0.00 (0.05)	-0.01 (-1.29)	-0.01 (-0.03)	-0.06 (-0.37)
Debt on asset	0.19 (0.42)	1.08 (2.16)*	0.00 (0.48)	-0.00 (-0.01)
Information strength	0.16 (0.72)	0.47 (1.23)	-0.01 (-0.05)	0.01 (0.13)
Cash flow	-0.04 (-2.27)*	-0.02 (-1.23)	0.01 (0.49)	0.01 (0.77)
Available slack	0.09 (1.75) [#]	0.20 (2.63)**	7.08 (0.43)	8.58 (0.54)
Recoverable slack	0.08 (2.68)**	0.07 (2.01)*	-0.09 (-0.08)	-1.21 (-0.98)
Firm performance	0.05 (0.21)	-0.15 (-0.56)	-0.04 (-1.41)	-0.05 (-1.66) [†]
Outside director ratio	1.41 (3.16)**	2.09 (3.15)**	3.32 (2.45)*	2.07 (1.49)
Firm's alliance number	-0.15 (-0.24)	-1.57 (-1.16)	0.18 (1.07)	0.11 (0.71)
Firm's prior M&A number	0.16 (4.89)***	0.13 (2.88)**	0.10 (1.11)	0.06 (0.62)
Number of intraindustry M&As	0.01 (2.39)*	0.02 (3.05)**	-0.01 (-2.09)*	-0.01 (-1.10)
Predictor variables				
Structural hole positions		5.04 (2.28)*		-1.30 (-2.50)*
Exploitation learning tendency		-5.34 (-2.51)*		0.96 (1.78) [†]
Structural hole positions × Exploitation learning tendency		-4.75 (-1.97)*		1.32 (1.67) [†]
N	262	154	121	121
Log likelihood	-173.24	-88.46	-162.21	-158.74
χ^2	56.16	52.74	16.96	23.90
Pseudo R ²	0.14	0.23	0.05	0.07

DV = overall M&As. Year dummy variables are included, but not reported here. Unstandardized coefficients are reported with z-values in parentheses.

[†] $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Discussion

Contributions

In our view, three contributions emerge. First, we contribute to the international and comparative management literature by systematically comparing and contrasting M&A patterns across Chinese and American settings. We have not only shown the existence of differences in their institutional contexts but also demonstrated how such differences may affect our fundamental understanding of M&As. Since Peng and Heath (1996), it has long been argued that firm growth strategies such as M&As differ significantly between China and the United States. Except the study by Lin and colleagues (2009) that focuses on the impact of institutions as moderating variables, no previous study has used a single framework, informed by the same theoretical literatures (networks and learning

in this case), to hypothesize and find differences in the drivers behind M&As in China and the United States due to institutional differences. This study thus contributes to and extends the institution-based view (Peng, 2003; Peng et al., 2008, 2009), by articulating an *institution-based view of M&As*.

Second, this article develops a new theoretical framework and offers a unique perspective to understand acquisition activities by focusing on important relational and behavioral factors, which have been largely underappreciated in the acquisition literature. The explanatory and predictive power of our framework has been effectively demonstrated by our findings.

Third, this study has taken one step forward in expanding the influence of social network research by using real, firm-level data to shed light on how social networks and learning approaches affect acquisitions. This represents significant progress above and beyond the limited number of previous studies on the link between social networks and acquisitions, which have almost exclusively focused on the impact of interlocking directorates (Haunschild & Beckman, 1998).

Limitations and future research directions

This study has its limitations that offer opportunities for future improvement. First, for accuracy and simplicity we have only studied one industry. Due to this focus, cross-industry network relations are not examined. Second, while we have endeavored to obtain comparable measures across Chinese and US settings, there can also be disparities due to discrepancies between their accounting systems, which may affect some control variables such as cash flow. Third, although the index for exploitation alliance ratio has recognized the simultaneous existence of exploratory and exploitative alliances, it has been compiled into a single dimension measure for the purposes of simplicity. Future studies may examine exploration and exploitation as two independent constructs. Finally, drivers of M&As are not limited to the relational, behavioral, and institutional factors that we study. M&As are also likely to be a manifestation of principal-principal conflicts between controlling shareholders and minority shareholders (Chen & Young, 2010; Jiang & Peng, 2010), which is a dimension not captured here.

Conclusions

This article not only contributes to the small but expanding literature on M&As in China, but is also among the first to systematically compare and contrast M&As between China and the United States. It departs from the previous literature on M&As by examining the roles of firms' alliance relational embeddedness and their alliance learning approaches and contrasting their effects across two important institutional contexts. By taking an initial step, we not only find that relational, behavioral, and institutional factors are drivers behind M&As in China and the United States, but also identify how these drivers differ systematically due to institutional differences.

References

- Anand, J., Mesquita, L. F., & Vassolo, R. S. 2009. The dynamics of multimarket competition in exploration and exploitation activities. *Academy of Management Journal*, 52(4): 802-821.
- Baum, J. A. C., Li, S. X., & Usher, J. M. 2000. Making the next move: How experiential and vicarious learning shape the locations of chains' acquisitions. *Administration Science Quarterly*, 45(4): 766-801.
- Burt, R. S. 1992. *Structural holes*. Cambridge: Harvard University Press.
- Cartwright, S., & Schoenberg, R. 2006. Thirty years of mergers and acquisitions research: Recent advances and future opportunities. *British Journal of Management*, 17: S1-S5.
- Chen, Y. Y., & Young, M. N. 2010. Cross-border mergers and acquisitions by Chinese listed companies: A principal-principal perspective. *Asia Pacific Journal of Management*. doi:10.1007/s10490-009-9150-7.
- Cohen, W. M., & Levinthal, D. A. 1990. Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1): 128-152.
- Cooke, F. L. 2006. Acquisitions of Chinese state-owned enterprises by multinational corporations: Driving forces, barriers and implications for HRM. *British Journal of Management*, 17: S105-S121.
- Cyert, R. M., & March, J. G. 1963. *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Gargiulo, M., & Benassi, M. 2000. Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, 11(2): 183-196.
- Granovetter, M. 1985. Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91(3): 481-510.
- Gulati, R., & Gargiulo, M. 1999. Where do interorganizational networks come from?. *American Journal of Sociology*, 104(5): 1439-1493.
- Gupta, A. K., Smith, K. G., & Shalley, C. E. 2006. The interplay between exploration and exploitation. *Academy of Management Journal*, 49(4): 693-706.
- Haunschild, P. R., & Beckman, C. M. 1998. When do interlocks matter? Alternate sources of information and interlock influence. *Administrative Science Quarterly*, 43(4): 815-844.
- Jiang, Y., & Peng, M. W. 2010. Principal-principal conflicts during crisis. *Asia Pacific Journal of Management*. doi:10.1007/s10490-009-9186-8.
- Koza, M. P., & Lewin, A. Y. 1998. The co-evolution of strategic alliances. *Organization Science*, 9(3): 255-264.
- Levinthal, D. A., & March, J. G. 1993. The myopia of learning. *Strategic Management Journal*, 14(S2): 95-112.
- Li, Y., & Peng, M. W. 2008. Developing theory from strategic management research in China. *Asia Pacific Journal of Management*, 25: 563-572.
- Li, Y., Xie, E., Teo, H.-H., & Peng, M. W. 2010. Formal control and social control in domestic and international buyer-supplier relationships. *Journal of Operations Management* (in press).
- Lin, Z., Peng, M. W., Yang, H., & Sun, S. L. 2009. How do networks and learning drive M&As? An institutional comparison of China and the United States. *Strategic Management Journal*, 30(10): 1113-1132.
- March, J. G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2(1): 71-87.
- Meyer, K. E., Estrin, S., Bhaumik, S. K., & Peng, M. W. 2009. Institutions, resources, and entry strategies in emerging economies. *Strategic Management Journal*, 30(1): 61-80.
- Peng, M. W. 2003. Institutional transitions and strategic choices. *Academy of Management Review*, 28(2): 275-296.
- Peng, M. W. 2004. Outside directors and firm performance during institutional transitions. *Strategic Management Journal*, 25: 453-471.
- Peng, M. W. 2006. Making M&A fly in China. *Harvard Business Review*, 84(3): 26-27.
- Peng, M. W., & Heath, P. S. 1996. The growth of the firm in planned economies in transition: Institutions, organizations, and strategic choice. *Academy of Management Review*, 21(2): 492-528.
- Peng, M. W., Li, Y., Xie, E., & Su, Z. 2010. CEO duality, organizational slack, and firm performance in China. *Asia Pacific Journal of Management*. doi:10.1007/s10490-009-9161-4.
- Peng, M. W., Luo, Y., & Sun, S. L. 1999. Firm growth via mergers and acquisitions in China. In L. Kelley & Y. D. Luo (Eds.). *China 2000: Emerging business issues*: 73-100. Thousand Oaks, CA: Sage.
- Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. 2009. The institution-based view as a third leg for a strategy tripod. *Academy of Management Perspectives*, 23(4): 63-81.

- Peng, M. W., Wang, D., & Jiang, Y. 2008. An institution-based view of international business strategy: A focus on emerging economies. *Journal of International Business Studies*, 39(5): 920-936.
- Provan, K. G., Fish, A., & Sydow, J. 2007. Interorganizational networks at the network level: A review of the empirical literature on whole networks. *Journal of Management*, 33(3): 479-516.
- Reagans, R., & Zuckerman, E. W. 2001. Networks, diversity, and productivity: The social capital of corporate R&D teams. *Organization Science*, 12(4): 502-517.
- Ren, B., Au, K., & Birtch, T. A. 2009. China business network structure during institutional transitions. *Asia Pacific Journal of Management*, 26: 219-240.
- Robins, J. A., & Lin, Z. 2000. Institutional influences on organizational control: A comparative examination of agency theory in Sino-Japanese and Sino-American joint ventures. *Advances in International Comparative Management*, 13: 119-148.
- Rothaermel, F. T. 2001. Incumbent's advantage through exploiting complementary assets via interfirm cooperation. *Strategic Management Journal*, 22(6): 687-699.
- Rowley, T., Behrens, D., & Krackhardt, D. 2000. Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal*, 21(3): 369-386.
- Soda, G., Usai, A., & Zaheer, A. 2004. Network memory: The influence of past and current networks on performance. *Academy of Management Journal*, 47(6): 893-906.
- Tan, J., & Peng, M. W. 2003. Organizational slack and firm performance during economic transitions: Two studies from an emerging economy. *Strategic Management Journal*, 24(13): 1249-1263.
- Tong, T. W., Reuer, J., & Peng, M. W. 2008. International joint ventures and the value of growth options. *Academy of Management Journal*, 51(5): 1014-1029.
- Uzzi, B. 1996. The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review*, 61(4): 674-698.
- Wright, M., Filatotchev, I., Hoskisson, R. E., & Peng, M. W. 2005. Strategy research in emerging economies: Challenging the conventional wisdom. *Journal of Management Studies*, 42(1): 1-33.
- Xia, J., Tan, J., & Tan, D. 2008. Mimetic entry and bandwagon effect: The rise and decline of international equity venture in China. *Strategic Management Journal*, 29: 195-217.
- Xiao, Z. X., & Tsui, A. S. 2007. When brokers may not work: The cultural contingency of social capital in Chinese high-tech firms. *Administrative Science Quarterly*, 52(1): 1-31.
- Yin, X., & Shanley, M. 2008. Industry determinants of the "merger versus alliance" decision. *Academy of Management Review*, 33: 473-491.
- Zaheer, A., & Bell, G. G. 2005. Benefiting from network position: Firm capabilities, structural holes, and performance. *Strategic Management Journal*, 26(9): 809-825.

Haibin Yang (PhD, University of Texas at Dallas) is an assistant professor of management at the City University of Hong Kong. His research interests are strategic networks, acquisitions, and entrepreneurship.

Sunny Li Sun (MPhil, Chinese University of Hong Kong) is a doctoral candidate at the University of Texas at Dallas. His research interests are internationalization of firms from emerging economies, corporate governance, and entrepreneurial firm growth.

Zhiang (John) Lin (PhD, Carnegie Mellon University) is an associate professor of organization theory and strategic management at the University of Texas at Dallas. His research interests are social networks and organizational modeling, as well as their integration with strategic and international management.

Mike W. Peng (PhD, University of Washington) is the Provost's Distinguished Professor of Global Strategy at the University of Texas at Dallas and a National Science Foundation CAREER Award winner. His research interests are global strategy, international business, and emerging economies.