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What Determines Acquisition as the Next Strategic Choice: An Alliance-Network Approach

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Abstract

We examine the effect of alliance portfolio including the number of equity-based alliance, the number of repeated alliance, and an unbalanced portfolio between exploration and exploitation alliances on the managerial choice with the alliance portfolio. Our dataset includes 165 firms' contracts during 2000-2004.Our findings show that firms with existing equity-based alliances and high brokerage position are less likely to acquire while the unbalanced portfolio between exploration and exploitation alliances increases the choice of acquisition. In addition, the effect of repeated alliances on subsequent choice of acquisition depends on brokerage position.

Keywords: Alliance Portfolio, Acquisition, Equity-Based Alliance, Repeated Alliance, Exploration and Exploitation, Brokerage Position

Introduction

Since the 1980s, strategic alliances and acquisitions have become important channelsfor firms acquiring specific resources and knowledge. Specifically, in high-technology industries where firms can strengthen their competitive positions through various modes of inter-firm relations [1], alliances or acquisitions have been extremely common. Through alliances, firms can cope with uncertain commercial environments [2], enhance market power by achieving scale and scope economies [3], facilitate entry into new markets [4], or access critical resources and knowledge in dynamic markets [5]. Also, alliances can help firms achieve competitive repositioning more quickly than internal development and are less costly and more flexible than the process of acquisition [6]. As a result, firms tend to be simultaneously engaged in multiple alliances with different partners. However, alliances have been observed as

individual events or transactions until their synergistic effects as a portfolio on performance became studied [7].

Yet managing alliances is not easy, as demonstrated by the low average rate of alliance success [4]. According to transaction cost economics (TCE), a firm chooses a governance structure that lowers transaction costs between markets and hierarchies [8]. As firms may strategically pursue self-interest, some types of transaction costs related to alliance formation can arise from a partner's opportunistic behavior. In order to address this opportunism problem, a firm may want to dissolve by increasing control over resources and knowledge by considering the option of acquisition [9]. For this reason, firms will be more likely to choose acquisitions in the future if current alliance partners incur a higher level of opportunism. Alliances can be a precursor to acquisitions because alliances allow firms to establish a level of comfort and rapport with external partners before proceeding to acquisitions [10]. Therefore, it is necessary to clearly confirm the sequential relationship between alliances and acquisitions through empirical studies.

Recently, researchers have identified sequence patterns of repetitive acquisitions and alliances that a firm initiated each year over its life-course and the pattern of a combination of both acquisitions and alliances has more important implication on performance [11]. As a firm involved into many alliances simultaneously, the ties that form an alliance portfolio and the position within the alliance network are becoming more critical due to the increasingly interdependent business environment. However, the existing literature has not considered the interactive effects of alliance portfolio characteristics and position on sequential choice of acquisitions, although the types of ties and network positions play important roles in firms' strategy and competitive advantage [12] [13].

This study aims to fulfill this research gap and recognize that how the alliance portfolio characteristics and network position affect the sequential choice in managing alliances. In next section, we present a research model and hypotheses, followed by methodological introduction. We then provide statistical findings. This study concludes with discussion of our findings.

Theoretical Background

Strategic alliances as voluntary agreements between independent firms to exchange, share, and co-develop products, technologies, or services. Alliances can take various forms, from non-equity-based alliances (including a wide range of contractual agreements) to equity-based alliances (including joint ventures). Acquisitions occur when a firm takes over some or all assets of another firm. Firms choose alliances, acquisitions, or a combination of the two to build competitive advantage; they may take such actions, for example, as a means to increase market power, facilitate entry into new markets, or engage in capability enhancement. Both alliances and acquisitions are governance structures where firms combine their resources and knowledge to attain similar strategic goals; however, they involve different ownership structures [14]. While alliances usually are signed by two independent firms via agreement, acquisitions require ownership change within the firms involved [9].

Accordingly, unlike alliances, acquisitions internalize external resources and knowledge: firms can fully manage and control their activities through acquisitions. This means the strategic choice between alliance and acquisition raises the concern that, as a firm's ownership changes, its control may be affected.

Hence, alliances and acquisitions are two strategic choices by which firms seek to acquire resources and knowledge [9]. Yet while alliances offer strategic flexibility, they tend to lack strong commitment to the given choice (due to the less formal structure); acquisitions represent a strategy of strong commitment but are rigid and resistant to change [9]. Thus, although it may be difficult to regard the relationship between alliances and acquisitions as two distinct alternatives, they have been frequently compared as substitutes. This study focuses mainly on the relationship between alliances and acquisitions, with specific regard to firms' subsequent choices of acquisitions.

Firms are not atomistic players but relational entities subject to opportunities and constraints in their networks. Firms' subsequent choices of alliances or acquisitions are fundamentally about inter-firm governance choices, which are relational in nature and can be influenced by firms' embeddedness in the alliance networks [9]. A stream of research has treated alliances as a portfolio of strategic agreements instead of individual events or transactions to recognize their synergistic effects. Studies of this stream suggested that relationships of an alliance portfolio enable high technology firms to acquire new knowledge to improve innovative and financial performance [7]. Another stream of recent work has focused on the critical roles of network position in firms' strategy and competitive advantage. Especially, firms occupying structural-hole positions are treated as brokers and the unique position allows them to access non-redundant and novel knowledge [12]. Firms benefit from broker position so that can affect innovation performance [15], drive acquisition decisions [16] and facilitate joint venture partner selection [11].

Above all, alliance portfolio and network position are important factors of the quantity and quality of resource and knowledge that a firm can access in order that they affect the sequential choice of whether alliance or acquisition to approach and control the resource. From this network perspective, we specify alliance portfolio characteristics and investigate their effects and interactive effects with alliance network position on the sequential pattern of alliances and acquisitions.

Hypotheses

While prior research tends to focus on alliances with a single partner, recent papers have paid more attention to an alliance portfolio as the unit of analysis, which raises new and important issues [17][18]. Firms in multiple alliances have different partners simultaneously, which is defined as an "alliance portfolio" [19]. In terms of different ties and structure of alliance portfolio that may affect the sequential choice of acquisition, we specify three characteristics of alliance portfolio: Equity-based alliances, non-equity repeated alliances, and unbalance of exploration and exploitation alliances.

Given that each strategy has pros and cons, the success or continuity of alliances depends on the structure of governance that manages relationships with alliance partners. The transaction costs approach suggests that an equity-based alliance is an effective structure of governance because it reduces partners' opportunistic behavior [20]. When there is an equity-based alliance, partners' concerns for their initial and ongoing investments reduce the incentive to behave opportunistically [8]. Without equity-based investment, a moral hazard can happen to alliances, and the likelihood thus increases that alliance partners run counter to the shared goals. Although non-equity-based alliances may enable faster negotiations [21], the partners may face more difficulties in encountering opportunistic behavior in the process of transferring tacit knowledge and in making smaller alliance-specific investments than equity-based alliances [22]. Indeed, the faster negotiation of non-equity-based alliances may involve high degrees of ambiguity regarding formal procedures [23]. In contrast, equity-based alliances (including joint ventures) make partners committed to the shared goals, which more effectively prevent opportunistic behavior of partners [4]. Therefore, it is likely that equity-based alliances enhance partners' commitment to the current alliance, which lowers the likelihood of acquisition. Hence, we hypothesize:

Hypothesis 1. The number of equity-based alliances in the current year decreases the likelihood a firm will make an acquisition in the subsequent year.

Studies have suggested that repeated alliances with existing alliance partners may incrementally enhance trust [24] [25]. Repeated alliances with existing alliance partners allow firms to develop a common understanding of each other's routines and processes, in addition to tacit knowledge with respect to the management of alliances [26]. The frequent interaction through repeated alliances, accordingly, leads to a decrease in uncertainties or in information asymmetries. That is, existing alliance partners learn more about each other as their interactions deepen through repeated alliances. Thus, repeated alliances eventually increase trust between the involved firms, which appears to reduce the need for contractual safeguards in the subsequent alliances [25]. Therefore, repeated alliances are likely to lower the likelihood of acquisitions.

Hypothesis 2a. The number of repeated alliances in the current year decreases the likelihood a firm will make an acquisition in the subsequent year**.**

However, repeated alliances can be treated as strong ties according to network theory. It is argued that weak ties, instead of strong ties, are responsible for the main part of the embeddedness and structure of social networks [27]. Specifically, novel information flows through weak ties more than strong ties. If the alliance portfolio is full of repeated alliances, the focal firm tends to act similarly and the information overlaps considerably with their alliance partners. Under this situation, pharmaceutical firms tend to make an acquisition of a firm whose knowledge is totally new to the focal firm. Therefore, repeated alliances are likely to increase the likelihood of subsequent acquisitions. Hence, we hypothesize:

Hypothesis 2b. The number of repeated alliances in the current year increases the likelihood a firm will make an acquisition in the subsequent year.

Since Koza and Lewin [28] extended March's [29] concepts of exploration and exploitation into alliance research, two differing types of alliance have been delineated: exploration alliance versus exploitation alliance. Exploration alliances would discover something new, whereas exploitation alliances would connect existing competencies across organizational boundaries [27]. Exploration alliances and exploitation alliances are opposite activities that cause tensions because they are self-reinforcing and compete over limited resources and strategic goals within a firm [29]. The tensions require sacrifice of either alliance choice when firms decide on the quantity of resources to be allocated to specific activities. Recent literature has increasingly explained that firms need to achieve a balance between exploration alliances and exploitation alliances [16]. This balanced approach is embedded in the concept of ambidexterity. The concept of ambidexterity, defined as an organization's ability to explore new opportunities and exploit existing competencies simultaneously [30], has been applied in various contexts. Since Koza and Lewin [28], researchers have started to explore alliance ambidexterity in alliance portfolio [16].

However, although alliance ambidexterity between exploration alliances and exploitation alliances is the important element for long-term survival and success, resource constraints often force firms to choose either type of alliance. Such a biased choice can lead to excessive dependence on external resources and knowledge required specifically for either exploration or exploitation. That is, firms may be able to develop capabilities that are more broadly applicable, thus reducing the dependence on other firms. For example, an alliance with the lead firm can improve a focal firm's capabilities, but also lead to increasing the dependence on the lead firm. Teece [31] explains that relying exclusively on the partners can result in a competitive disadvantage because loss of internal competence leads to inability. Hence, an unbalanced alliance portfolio can lead to the increase of transaction costs such as negotiation and other contractual costs when firms form new alliances to maintain alliance ambidexterity. Managing alliances also requires a great deal of costs and efforts over the life of the alliances due to the complex and multi-faceted natures of alliances.

Regarded as a faster way to get access to external resources and knowledge [32], firms may prefer acquisitions to alliance when they want to internalize new resources and knowledge. Acquisition is also favored when firms reduce competition (by absorbing an important rival), manage the interdependence over sources of inputs or purchasers of outputs (by absorbing suppliers or distributors), or lessen the dependence on the firms which it exchanges (by diversifying operations). Therefore, the choice of acquisition as a governance mode may depend on how much control and management are needed in a variety of alliances. As a result, firms may be more concerned with pursuit of the independence through acquisitions than creation of the dependence on other firms through multiple alliances.

When a firm consistently forms a single type of alliance with multiple partners, the unbalanced alliance portfolio may fall into the dependence. Kasch and Dowling [33] have argued that this is a serious problem and that, particularly, high-technology

firms should balance their efforts between exploration and exploitation. When facing the unbalanced alliance portfolio, firms may want to acquire other firms in order to strengthen their control of resources and knowledge to reduce the dependence over specific alliances [16]. In other words, firms will choose acquisitions in the future to make up for the unbalanced alliance portfolio. Hence, we hypothesize:

Hypothesis 3. The unbalance of exploration and exploitation alliances in the current year increases the likelihood a firm will make an acquisition in the subsequent year.
Although firms can depend on alliance portfolio characteristics for subsequent acquisitions, such dependence is often facilitated or hindered by firms' network positions [34]. Thus, it may be better to consider both a firm's alliance portfolio characteristics and its network position, given their close interaction. A broker is defined as a firm that bridges a structural hole (disconnection between non-redundant contacts) in the alliance network [34]. This unique position allows firms to access non-redundant (usually novel) information from diverse sources and clusters [12]. It is expected that firms in brokerage positions have the potential to access a broad array of distinct knowledge and referrals that help them anticipate and explore new opportunities. Although firms can depend on alliance portfolio characteristics for subsequent acquisitions, such dependence is often facilitated or hindered by firms' network positions [34]. Thus, it may be better to jointly consider a firm's alliance portfolio characteristics with its network position, given their close interaction.

Hypothesis 4. The brokerage position moderates the effects of (a) equity-based alliances, (b) non-equity repeated alliances, (c) unbalance of exploration and exploitation alliances on the likelihood of acquisition a firm will make in the subsequent year.

Methodology

The data for alliances and acquisitions are obtained from Recombinant Capital (ReCap), a comprehensive database that includes inter-firm arrangements among biotech and pharmaceutical firms. ReCap provides in-depth information on formal agreements of alliances starting from 1973; the data have been used for several studies in strategy and management. The information about alliance characteristics is accumulated over the lifespan of the firms; this includes, for example, the date of alliance agreements, the identity of alliance partners, and the type of alliances, ownership structure, or a brief description regarding the purpose of the alliances. Financial data are collected from the Compustat database provided by the Wharton Research Data Service (WRDS). Patent data are available at the U.S. Patent and Trademark Office (USPTO). The finalized dataset consists of 2,677 alliances formed over the period 2000-2004 among 326 biotech and pharmaceutical firms in the United States.

We use the event of acquisition for the dependent variable in a form of dummy variable. For independent variables, we use the number of equity-based alliances, if any alliance is formed by the purchase of equity stakes or a joint venture. Other

independent variables includerepeated alliances and exploration alliance ratio. Brokerage was constructed following the approach of Burt [12]. The usual control variables such as *f*irm size(the natural logarithm of the total number of a firm's employees in the year t), firm age, cash flow(the total amount of income before extraordinary items plus amortization and depreciation in the year *t*), available slack (the ratio of current assets/current liabilities), firm performance (ROA), R&D intensity, prior alliance experience, and prior acquisition experience are also included in the model.

The panel dataset consists of 551 observations on alliances and acquisitions that occurred from 2000 to 2004 among 165 biotech and pharmaceutical firms. The use of a binary variable (the event of acquisition) as a dependent variable makes using a binary logistic regression model appropriate for statistical analysis. It is also possible to consider a count variable, for example, the number of acquisitions initiated by a focal firm in the year *t+1*, as a dependent variable for which Poisson regression or negative binomial regression is considered. Yet the count variable ranges only between 0 and 3, and each value has the small number of observations in Table 1. In addition, given that acquisitions are relatively rare, complex, and heterogeneous compared with other corporate activities, it appears that in order to confirm the event of acquisition, a binary variable is more appropriate to use than a count variable.

To analyze the panel data, random-effects models with Stata 10 statistical analysis software are usedto reduce the threat for unobserved heterogeneity. The result of Hausman test shows no systematic difference between the fixed-effects estimators and the random-effects estimators.

Table1:Number of acquisitions by a focal firm in the year t+1

Acquisitions	Frequency	Percent
0	461	83.67
1	78	14.15
2	11	2.00
3	1	0.18
Total	551	100.00

Results

Table 2 provides descriptive statistics and the correlation matrix for all of the variables. To assess the potential threat of multicollinearity associated with high correlations, we check the variance inflation factors (VIFs), which range between 1.09 and 2.86. The VIFs suggest that all variables are within an acceptable range of correlation without any concern of multicollinearity.Table 3 reports the results of the logistic regressions on the event of acquisition. As a baseline, Model 1 includes only

the control variables. Models 2-5 gradually add the independent variables separately; Models 6-8 include moderator effects; Model 9 is the full model that includes all variables. Among control variables, only firm size ($p<0.05$), firm age ($p<0.05$) and prior acquisition experience ($p<0.1$) turn out to be significant in Model 1.

Table2: Descriptive statistics and a correlation matrix

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1.The event of acquisition	0.163	0.370	1.00												
2.Firm size	-1.580	1.759	0.173	1.000											
3.Firm age	18.768	18.621	0.019	0.500	1.000										
4.Available slack	7.274	8.101	-0.082	-0.153	-0.181	1.000									
5.R&D intensity	17.124	91.962	-0.054	-0.148	-0.053	0.139	1.000								
6.ROA	-0.404	0.801	0.076	0.400	0.138	0.165	-0.200	1.000							
7.Cash flow	73.057	524.615	0.078	0.501	0.526	-0.122	-0.038	0.140	1.000						
8.Prior alliance experience	15.274	14.364	0.141	0.565	0.267	-0.127	-0.120	0.175	0.440	1.000					
9.Prior acquisition experience	1.194	1.849	0.177	0.459	0.343	-0.177	-0.078	0.106	0.369	0.575	1.000				
10.Equity-based alliances	0.399	0.661	-0.074	0.089	0.021	0.042	0.029	-0.032	0.076	0.107	0.137	1.000			
11.Repeated alliances	0.544	0.883	0.111	0.321	0.153	-0.064	-0.053	0.096	0.208	0.472	0.354	0.138	1.000		
12.Exploration alliance ratio	0.208	0.200	-0.004	-0.058	-0.125	0.104	0.015	0.079	-0.014	-0.038	-0.129	-0.024	-0.032	1.000	
13.Brokerage	-0.487	0.313	-0.015	0.356	0.135	-0.098	-0.122	0.153	0.201	0.403	0.276	0.262	0.296	-0.081	1.000

Note: * $p < 0.05$.

Table3: Logistics regression result

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Firm size	0.225*	0.254*	0.222*	0.283**	0.286**	0.304**	0.278*	0.323**	0.334**
Firm age	-0.018*	-0.019*	-0.018*	-0.019*	-0.020*	-0.021*	-0.020*	-0.021*	-0.023*
Available slack	-0.028	-0.025	-0.028	-0.027	-0.029	-0.027	-0.032	-0.029	-0.027
R&D intensity	-0.002	-0.001	-0.002	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002
ROA	0.203	0.145	0.206	0.149	0.179	0.130	0.216	0.139	0.140
Cash flow	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Prior alliance experience	0.000	0.000	-0.002	0.002	0.007	0.006	-0.002	0.007	-0.005
Prior acquisition experience	0.132†	0.153*	0.126†	0.128†	0.145*	0.161*	0.131†	0.138†	0.145†
Equity-based alliances		-0.522*				-0.426			-0.510†
Repeated alliances			0.089				0.512*		0.654**
Exploration alliance ratio				-1.058				-1.026	-1.254†
Exploration alliance ratio^2				7.630**				6.142*	6.419*
Brokerage					-1.197**	-1.035*	-1.638***	-0.996*	-1.370**
Equity-based alliances × Brokerage						-0.035			-0.199
Repeated alliances × Brokerage							1.465*		1.792**
Exploration alliance ratio^2 × Brokerage								-1.202	-0.553
Constant	-0.834*	-0.700*	-0.848*	-0.898*	-1.481**	-1.281**	-1.550***	-1.387**	-1.213*
N	551	551	551	551	551	551	551	551	551
Log likelihood	-228.407	-225.386	-228.197	-222.995	-224.581	-222.681	-220.820	-220.391	-213.702
Wald chi-squre	33.77	39.80	34.18	44.58	41.41	45.21	48.93	49.79	63.17
Classification hit-ratio	84.39%	83.30%	84.21%	84.94%	84.75%	83.67%	84.39%	85.30%	84.75%

Note: Year dummy variables are included, but not reported here.
†p<0.10, *p<0.05, **p<0.01, ***p<0.001

Hypothesis 1 assumes that the number of equity-based alliances in the current year decreases the likelihood a firm will make an acquisition in the subsequent year. Model 2 adds the number of equity-based alliances, and the result shows that the event of acquisition is negatively related to equity-based alliances ($p<0.05$). Thus, Hypothesis 1 is supported.Hypothesis 2 tests the effect of repeated alliances in the current year on the event of acquisitions in the subsequent year. Model 3 adds the number of repeated alliances, and the results shows that Hypothesis 2 is not supported.Hypothesis 3 assumes that the unbalanced alliance portfolio in the current year increases the likelihood a firm will make an acquisition in the subsequent year. Model 4 adds exploration alliance ratio and the square of exploration alliance ratio. The results show that the event of acquisition is positively related to the square of exploration alliance ratio in Model 4 ($p<0.05$), while exploration alliance ratio is weakly significant in the full Model 9 ($p<0.1$). Therefore, there exists a U-shape relationship between exploration alliance ratio and the event of acquisition, supporting Hypothesis 3. In other words, while a firm is less likely to conduct acquisitions when its alliance portfolio is in balance between exploration alliances and exploitation alliances, it is more likely to conduct acquisitions when its alliance portfolio is unbalanced, or biased for specific alliances.Hypothesis 4 assume that brokerage moderates the effect of (a) equity-based alliances, (b) repeated alliances, (c) unbalance of exploration and exploitation alliances on the likelihood of acquisition in the subsequent year. Models 6-8 add the interaction effects and the results show that brokerage only moderates the effect of repeated alliance on the event of acquisition ($p<0.05$). Figure 1 shows the interaction plots. When the focal firm is in a high brokerage position, the number of repeated alliances increases the likelihood of acquisitions in the subsequent year, while repeated alliances of low brokerage firm decreases the likelihood of acquisitions in the subsequent year.

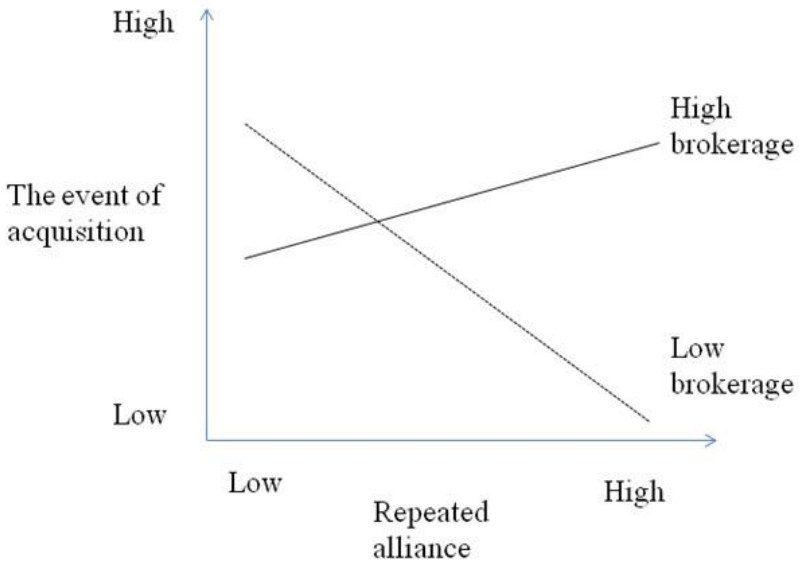

Figure 1: Interaction effects between repeated alliances and brokerage

Overall, Hypothesis 1, Hypothesis 3, and Hypothesis 4b are supported. The significant improvement of the log-likelihood from -228.407 (in Model 1) to -213.702 (in Model 9) explains that adding independent variables related to alliance portfolio and network position should result in a better fitted model. In addition, we choose the number of acquisitions as an alternative measure for the event of acquisition to test the robustness of the results. The results from this additional robustness checks are also very consistent with the results reported in Table 3.

Conclusions

Our findings suggest that alliance portfolio and network position related factors influence the likelihood of acquisition in the subsequent year. Thus, if firms already have equity-based alliances, they are less likely to consider acquisition as a next step to reduce inefficient transaction costs.In contrast, repeated alliances do not have direct link to acquisitions, even though repeated alliances incrementally enhance trust and consequently reduce transaction costs. Repeated alliances have limitations to quickly update new resources and knowledge; consequently, firms may pursue additional collaboration in order to make up for the lack of new resources and knowledge. Also, this study suggests that firms should maintain a balance between exploration alliances and exploitation alliances in their alliance portfolio. Finally, we have found brokerage as a moderator. The relationship, that a firm with more repeated alliances in higher brokerage position is more likely to conduct an acquisition in the subsequent year than in lower brokerage position, is supported. The result shows that when the focal firm is in a low brokerage position, repeated alliances enhances trust between alliance partners so that decreases the likelihood of acquisitions;when the focal firm is in a high brokerage position, the firm relies on the open network structure to access nonredundant information. The number of repeated alliancesincreases the likelihood of acquisitions in the subsequent year as a result of less access to new knowledge from alliance partners.

Hence, this study contributes to an analysis of the relationship between alliances and acquisitions; our findings suggest that firms need to examine management of existing alliances and their positions within alliance network before they strategically make the next choice between alliances and acquisitions.

References

[1] Powell, W., Koput, K., and Smith-Doerr, L., 1996,“Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology,” ASQ, 41(1) pp. 116-145.

[2] Ireland, R., Hitt, M., and Vaidyanath, D., 2002, “Alliance Management as a Source of Competitive Advantage,” JOM, 28(3) pp. 413-446.

[3] Kogut, B., 1991,“Joint Ventures and the Option to Expand and Acquire,” MS, 37(1) pp. 19-34.

[4] Kale, P., Singh, H., and Perlmutter, H., 2000,"Learning and Protection of Proprietary Assets in Strategic Alliances: Building Relational Capital,"SMJ, 21 pp. 217-237.
[5] Rothaermel, F., and Boeker, W., 2008,"Old Technology Meets New Technology: Complementarities, Similarities, and Alliance Formation," SMJ, 29(1) pp. 47-77.
[6] Porter, M., and Fuller, M., 1986,"Coalitions and Global Strategy," In Porter, M., (Eds), Competition in Global Industries,Boston, MA: Harvard Business School Press, pp. 315-344.
[7] George, G., Zahra, S., Wheatley, K., and Khan, R., 2001,"The Effects of Alliance Portfolio Characteristics and Absorptive Capacity on Performance: AStudy of Biotechnology Firms," JHTMR, 12(2) pp. 205-226.
[8] Williamson, O., 1975, Markets and Hierarchies: Analysis and Antitrust Implications, New York: Free Press.
[9] Yin, X., and Shanley, M., 2008,"Industry Determinants of the "Merger versus Alliance" Decision," AMR, 33(2) pp. 473-491.
[10] Haspeslagh, P., and Jemison, D., 1991, Managing Acquisitions: Creating Value through Corporate Renewal, New York: Free Press.
[11] Shi, W., and Prescott, J., 2012,"Rhythm and Entrainment of Acquisition and Alliance Initiatives and Firm Performance: A Temporal Perspective,"OST, 33(10) pp.281-1310.
[12] Burt, R., 1992, Structural Holes: The Social Structure of Competition, Cambridge, MA: Harvard University Press.
[13] Koka, B., and Prescott, J., 2008,"Designing Alliance Networks: The Influence of Network Position, Environmental Change, and Strategy on Firm Performance,"SMJ, 29(6) pp. 639–661.
[14] McConnell, J., and Nantell, T., 1985,"Corporate Combinations and Common Stock Returns: The Case of Joint Ventures," JOF, 40(2) pp. 519-536.
[15] Soda, G., 2011,"The Management of Firms' Alliance Network Positioning: Implications for Innovation," EMJ, 29(5) pp. 377-388.
[16] Lin, Z., Peng, M., Yang, H., and Sun, S., 2009,"How Do Networks and Learning Drive M&As?: An Institutional Comparison between China and the United States," SMJ, 30 pp. 1113-1132.
[17] Gulati, R., 1998,"Alliances and Networksm"SMJ, 19 pp. 293-317.
[18] Lavie, D., 2007,"Alliance Portfolios and Firm Performance: A Study of Value Creation and Appropriation in the U.S. Software Industry,"SMJ, 28 pp. 1187-1212.
[19] Hoffmann, W., 2007,"Strategies for Managing a Portfolio of Alliances,"SMJ, 28 pp. 827-856.
[20] Goerzen, A., 2007,"Alliance Networks and Firm Performance: The Impact of Repeated Partnerships,"SMJ, 28 pp. 487-509.
[21] Gulati, R., and Singh, H., 1998,"The Architecture of Cooperation: Managing Coordination Costs and Appropriation Concerns in Strategic Alliances,"ASQ, 43 pp. 781-814.

[22] Joskow, P., 1985,"Vertical Integration and Long-term Contracts: The Case of Coal-Burning Electric Generation Plants,"JLEO, 1(1) pp. 33-80.
[23] Murray, J., and Kotabe, M., 2005,"Performance Implications of Strategic Fit between Alliance Attributes and Alliance Forms,"JBR, 58 pp. 1525-1533.
[24] Dyer, J., and Chu, W., 2003,"The Role of Trustworthiness in Reducing Transaction Costs and Improving Performance: Empirical Evidence from the United States, Japan, and Korea,"ORGSCI, 14(1) pp. 57-68.
[25] Gulati, R., 1995,"Social Structure and Alliance Formation Patterns: A Longitudinal Analysis,"ASQ, 40 pp. 619-652.
[26] Rothaermel, F., and Deeds, D. 2006,"Alliance Type, Alliance Experience and Alliance Management Capability in High-technology Ventures,"JBV, 21 pp. 429-460.
[27] Granovetter, M., 1973,"The Strength of Weak Ties," AJS, 78(6) pp. 1360-1380.
[28] Koza, M., and Lewin, A., 1998,"The Co-evolution of Strategic Alliances,"ORGSCI, 9(3) pp. 255-264.
[28] March, J., 1991,"Exploration and Exploitation in Organizational Learning," ORGSCI, 2(1) pp. 71-87.
[29] Rothaermel, F., and Alexandre, M., 2009,"Ambidexterity in Technology Sourcing: The Moderating Role of Absorptive Capacity,"ORGSCI, 20(4) pp. 759-780.
[30] Teece, D., 1986,"Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy,"RESPOL, 15 pp. 285-305.
[31] Duysters, G., and de Man, A., 2003,"Transitory Alliances: An Instrument for Surviving Turbulent Industries?,"R&D MGMT, 33(1) pp. 49-58.
[32] Kasch, S., and Dowling, M., 2008,"Commercialization Strategies of Young Biotechnology Firms: An Empirical Analysis of the U.S. Industry," RESPOL, 37 pp. 1765-1777.
[33] Yang, H., Lin, Z., and Peng, M., 2011, "Behind Acquisitions of Alliance Partners: Exploratory Learning and Network Embeddedness," AMJ, 54(5) pp. 1069-1080.