Social Structure and Alliance Formation in the Korean Telecommunications Industry

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I. Introduction

Many organizational scholars have argued that firm's response to environmental elements influences patterns of competition in the market, while the outcomes of competition are generally coordinated by resource heterogeneity and environmental characteristics. Moreover, approaches for identifying embedded economic transactions propose that social relations each organization has previously accumulated provide unique entrepreneurial opportunities that are not possible otherwise (Granovetter, 1985; Burt, 1992; Baker, 1990). It is because social relations channel market exchange and facilitate collective action both within and outside market contexts (Zukin & DiMaggio, 1990).

This study investigates whether firm behavior reflects the attributes of social structure, and how firm strategy is constrained by its network

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embeddedness. More specifically, we examine strategic alliance formation that is partly constrained by the characteristics of social relations in the Korean telecommunications industry.

As a part of deregulation policy, the Korean government announced to allow new entrants with qualifications in the industry in 1996. The government asked firms that wanted to enter the telecommunications market to submit application forms such that it could decide who could enter the industry. In response to this, a record number of firms formed consortia to meet required qualifications set by the government. Using the data, we investigate whether social structure influences the selection of alliance partner.

II. Theoretical Background and Hypotheses

1. Social Structure and Social Capital

Problematic dimensions such as uncertainty (Pfeffer & Salancik, 1978), legitimacy (Meyer & Rowan, 1977), or cooperative relations (Jarillo, 1988) describe organizational environment. Specially, social network analysis defines the environment as social relations among social actors, and allows researchers to measure specific dimensions of the environment in question while using observable patterns of interaction between organizations (Cook & Whitmeyer, 1992).

The effect of social relations or structure on firm behavior and performance can be coined as the concept of social capital. Social capital is one of the constructs to describe relationships among organizations and the specific dimensions of the environment. Although the definitions of social capital vary over a wide range of studies, empirical explorations usually place a great emphasis on the observable patterns of social interaction.

Accordingly, social capital is explained in terms of social relations with the elements of environment. That is, actors possessing 'a durable network' of relationships with members in the community are likely to develop social capital (Bourdieu & Wacquant, 1992; Burt, 1992, 1997). For instance, Bourdieu articulates social capital as the sum of resources that accrue to actors due to their social relations (Bourdieu & Wacquant, 1992). Coleman (1988) also deals with productive aspects of social capital, and identifies it as resources that are available to actors in achieving their interests.

Productive value of social capital comes from the access to resources, including information. Distribution of resources is frequently skewed, and their mobility is not so perfect as in competitive market. In such cases, some firms can make a stable access to resources by utilizing their relationship with others who have control over the resources. It is because mutual recognition and trust created by durable social relations lead to embedded transactions between them. In addition, firms expect favorable cooperation from others in relations when focal firms' resources are not sufficient for some purpose.

2. Social Structure and Firm Behavior

As the open system approach indicates (Pfeffer & Salancik, 1978), organizations cannot survive without sufficient support from environments. Transaction is not conducted impersonally; rather it is influenced by the content of social relations that firms have with their environments. That is, economic transactions are frequently completed within limited participants because of embeddedness or network effect (Granovetter, 1985; Uzzi, 1996).

The network effect can be ultimately expressed in terms of performance because social structure that they are embedded in may influence strategic decisions (Pennings, Lee, & Witteloostuijn, 1998). The reciprocity of social

relations imposes structural constraints on the range of firm behavior; thus, the effects of social networks on the performance can be reduced to firm behavior caused by the structural constraints.

For instance, firms having diversified relations with less cohesive others will have high structural autonomy and thus have ability to pursue and realize their interests 'without constraint from other firms' in the market (Burt, 1982). Moreover, firms occupying non-redundant contacts between others can expect abnormal returns from their monopolistic positions caused by information of and control over others (Burt, 1992, 1997). In this view, the economic consequences of social relations are not only the matter of absolute amount of social relations(i.e., the density of social capital) But it is also the matter of comparative content of social relations each firm has. In some cases, as Burt (1982) said, 'relations that firms do not have to others are as important as the relations they have.'

The theoretical grounds for the relation between firm behavior and social capital are relevantly provided by two independent research streams- strategic groups (Fiegenbaum & Thomas, 1995; McGee & Thomas, 1986) and status-based competition (Podolny, 1993; Podolny et al., 1996). First, firms making strategic decisions have a tendency to take others in relations as their referents when information flows through social relations and mutual commitment to the relations fosters trust and group norm between actors. Such similarity judgment produces different natures of strategic groups along with the barriers to replication and imitation (Fiegenbaum & Thomas, 1995; Farjoun & Lai, 1997; McGee & Thomas, 1986). That is, adjusting and evaluating its behavior to the group norm to which it belongs, a firm imitates others or differentiates itself from others.

Second, firms having dissimilar status do not compete with each other in the short run although cooptive strategy such as interlocking directorates modifies their social relations. In other words, dissimilar status leads firms

to explore different niches in the market. Defining status as a perceived quality of a firm's product in relation to that of its competitors, Podolny (1993) asserts that the market competition is quite influenced by a firm's status in the market.

Because quality, in many cases, cannot be evaluated before consuming products, a firm's status is signified in the form of a generalized reputation that is judged by salient index such as previous performance and the reputation of its suppliers and buyers. Consequently, the market is stratified into sub-markets such as high-end or low-end where firms with similar social capital compete more directly with one another than firms with dissimilar one do.

For example, organizations can exploit direct ties to control or monitor others, and expect stable transactions from them on the basis of group norm reinforced by past experience. Organizations can also explore indirect ties to expand available resources, including information, and compete with one another in searching similar indirect ties to mobilize scarce resources.

If interfirm relations constrain each firm behavior through cognition and stratification, then what relations develop group norm between firms, or allow some firms to share the same status? One way to approach the productive value of social relations(i.e., social capital) is to classify firms, depending on whether or not their direct and indirect relations with others fall within a range of prescribed properties.

Most measures of relations used in the social network analysis usually do not expound *a priori* qualitative aspects of relations. It is noted, however, that the properties of direct, and indirect ties presuppose what relations are 'direct' qualitatively and quantitatively. This study employs two constructs, cohesion and structural equivalence on the basis of the following reasons: first, relations differ in the mode of communication, direct or symbolic; second, relations differ in the obligations assigned to

firms in the relations.

Constructs to measure cohesion between focal firms assume that a group of firms in a specific network will share group norm and evaluative information when they are adjacent to each other, close enough to interact with each other, or have frequent interaction between them (Wasserman & Faust, 1994). That is, cohesion develops through *direct communication* and affiliation with group norms.

On each actor's part, being in a cohesive subgroup means that one is socially closer to another in the subgroup than to any other actors in different subgroups. Since the contagion by direct communication provides the evaluative reference to the firms within the subgroup, it is likely that imitation or isomorphism will occur among the members of cohesive subgroup (Galaskiewicz & Burt, 1991).

On the other hand, the equivalence based on role theory includes structural equivalence, isomorphic equivalence, and regular equivalence, which are employed on their own assumption of what is the identical relation (Wasserman & Faust, 1994). That is, equivalence is maintained through symbolic communication and the same roles to others. The equivalence is an approach for classifying actors on the basis of their positions in networks: whether two actors in networks are equivalent or not can be judged by the types of relations to third parties that each actor has.

For example, two actors are, in a strong sense, structural equivalent with each other if and only if they have identical ties to and from identical other actors – the Euclidean distance between their respective network positions is 0. It can be noted that other weak criteria of alternative equivalence are widely used to produce meaningful interpretation of data. One of advantages of equivalence over other constructs is that it considers indirect ties with others as well as direct ties simultaneously. The

equivalence enables researchers to absorb symbolic interactions in their models.

Using structural equivalence, Mizruchi (1992) points out the similarity of political behavior carried out by firms. In simulation, Abrahamson and Rosenkopf (1997) observe isomorphism between equivalent actors. Studies on corporate philanthropy (Galaskiewicz & Burt, 1991), technological patent (Podolny et al., 1996), R&D (Stuart & Podolny, 1996), and the diffusion of poison pills (Davis, 1991) report that clusters of equivalent firms show similar behavioral patterns.

3. Social Structure and Strategic Alliance

Much research on strategic alliances has focused on firm capability and transaction cost as the driving forces leading to strategic alliances. In most cases, however, firms with asymmetric information still need to curb partners' opportunistic behavior even if potential partners have complementary resources for some strategic intentions. Moreover, telecommunications industry has been undergoing a turbulent change of the task environment since a dramatic acceleration of technical changes and rising costs of R&D compel firms slow in innovations to exit the market (Llerena & Wolff, 1994). Because social capital provides cognitive referent for managers and a platform for the status-based competition in the market, firms are likely to rely on social capital to ensure necessary information and normative involvement when both the importance and the uncertainty of decision-making are high.

In this respect, decision-makers exclude a part of potential partners when they have no direct experience or have no third-party referrals to evaluate potential partners' capability and possibility of opportunism. Prior direct ties serve as an important source of information about the reliability and capability of potential partners (Gulati, 1995). Reciprocity and trust

developed through previous interations are the crucial conduit for exchange relationships (Larson, 1992; Zaheer & Venkatraman, 1995).

Since oral communication and direct observation within cohesive subgroups will result in asset-specific investment and diffusion of inside information, social relations generated by direct interaction will constitute reliable governance structure in the market (Chung, Singh, & Lee, *forthcoming*). Therefore, we hypothesize:

Hypothesis 1. The more cohesive relations focal firms have, the more likely are they to form alliance with each other.

On the other hand, decisions or behavior by structurally equivalent firms in the market will serve as an important referent when a focal firm faces high uncertainty of environment and risk in investment and when the potential partners' resources are not the common knowledge for the participants in the market(i.e., everyone does not necessarily know exactly what others have).

First, potential partners' reputation in the market plays an important role in the firms' choice of partners. A firm's status in the market may affect the competition with others. Accordingly, firms have a high chance to cultivate social relations intentionally so that other actors in contacts may support to increase or reinforce their own perceived qualities, thus forming alliances with other prestigious producers (Eisenhardt & Schoonhoven, 1996). Such investment will be in equilibrium to the extent that there is not great difference between their reputation, because alliance with firms with lower reputation can dilute the perceived quality of higher reputation (Podolny, 1993).

Second, equivalents are likely to select each other as alliance partners to avoid destructive competition. Unpredictable environment with rapid

technical progress does not allow firms to explore the needs of future users by themselves. Capabilities between equivalents tend to converge since firms may imitate practices conducted by their equivalents to reduce associated risk in investment (McGee & Thomas, 1986). Thereby, equivalent firms share similar roles or competitive positions in the market, and competition with similar capabilities can exhaust scarce resources for such limited purposes as preserving the status quo. Such competition will be increased when equivalents are sharing the niche in the market.

As a result, if possible, firms that have equivalent relations seek stable cooperation with each other to avoid mutually destructive competition. Therefore, we hypothesize:

Hypothesis 2. The more equivalent focal firms are, the more likely are they to form alliance with each other.

Ⅲ. Methods

Research Setting

To test the hypotheses presented above, we choose Korean telecommunications industry as a research setting. The industry consists of firms involved in telecommunication service and communication equipment. The former includes telephone service, mobile phone service, and other value-added telecommunication service, whereas the latter includes computers with auxiliaries and communication equipment. The industry has recorded rapid growth last decade, and is expected to lead national economic growth in years to come. For example, sales growth of the industry in 1996 was estimated to 49.34 percent, and net income growth 184.24 percent.

In the past, the industry was actually dominated by Korea Telecom, which was controlled and owned by the Korean government. However, because of the WTO agreement, barriers to domestic and foreign entrants in entering the industry are supposed to be removed by 1998. Although the demand for telecommunication service is expected to grow substantially, cut-throat competition will be inevitable due to the deregulation policy of the Korean government and free trade trends by WTO. Furthermore, continuous technological innovations such as CDMA (code division multiple access) cause existing capabilities to be obsolete, intensifying competition in the market.

Prior to opening the telecommunications industry by 1998, the Korean government had steadily loosened constraints on the market structure. In 1996, the government announced to allow additional entrants in the industry, and recommended potential applicants to submit applications with required documents for the review. Since the government demanded rigid qualifications and the competition for the license within segments in the industry was supposed to be particularly keen, a number of applicant firms rushed to engage in consortia to meet the requirements. As a result, a total of 52 consortia were formed and applied for 27 segments in the industry.

5. Data and analysis

Data. The list of participants in the consortia comes from a database and periodicals provided by KISDI, ETRI, and the monthly magazine of Management and Computer. Initially, 137 firms are compiled out of the database and periodicals. Among them, we exclude consortia in which only two firms participate, because this figure is too small to make meaningful interpretation. Also excluded are firms of which information about their

social relations and firm resources is not available. Most of them are the medium or small sized companies that are not listed in the stock market. Final sample size is 90 firms. It is noted that the database and periodicals report only limited numbers of firms participating in consortia because complete membership of participants is not made public.

Variables. Dependent variable is used as a binary variable to measure firms' choice of partners. The dependent variable is set to 1 if two focal firms participate in the same consortium, 0 otherwise.

Independent variables deal with social structure and control variables. Two variables measure the characteristics of social structure – structural equivalence and cohesion. We construct social structure of organizations on the basis of school ties of their top managers and banking connection. Although social structure can be constructed from various social relations, those connections are quite important in Korea culturally and institutionally and information on the connections is publicly available. Therefore, we ignore other aspects of social relations in constructing social structure.

School ties are measured 1 if two focal firms' CEOs are the same college alumni, 0 otherwise. Banking connection is set to 1 if two focal firms transact with the same bank as a lead bank, 0 otherwise. Since July 1974, the Act of Bank has adopted the Principal Transactions Bank System in which each listed company has a designated bank as a lead bank. Such banks monitor designated firms' financial structure, reviewing new lending or existing loans, and guiding capital structure improvement plans. These banking institutions can play a role of a broker in important strategic decisions such as the selection of alliance partner. Pairwise comparison algorithm establishes two separate 90 by 90 matrices with binary values. By adding the two relational matrices with equal weight, we get an adjacency matrix Z.

Using the adjacency matrix, we calculate two measures of social structure structural equivalence and cohesion. Structural equivalence between firm i and firm j is measured by $d_{ij} = \{\Sigma_{q=1,90} \ [(z_{iq} - z_{jq})2 + [(z_{qi} - z_{qj})^2 \ ]\}^{1/2}$. Since smaller value of d_{ij} indicates higher structural equivalence, we subtract dij from the largest value among d_{kl}, k, $l = 1$, 2, , 90. To get d_{ij}, we use structural equivalence/profile similarity command in UCINET IV (Borgatti et al., 1991).

We construct the cohesion measure by reachability (Wasserman & Faust, 1994), utilizing the inverse of geodesic distance between two focal firms. Geodesic distance between two focal firms is the length of shortest path to reach each other in the network. If two firms have direct ties with each other, for instance, geodesic distance between them is 1. If they do not have direct ties with each other but have direct ties with a common third party, it is 2. Since we use the inverse of geodesic distance, the larger the value, the more closive the firms are.

Control variables such as comparative characteristics of two firms' size, niche, and technological capabilities are introduced in the model to control the effect of resource complementarity. We control for them because previous studies on alliance formation has indicated that resource complementarity between two firms increases the possibility of their alliance formation (Gulati, 1995; Chung, Singh, & Lee, forthcoming).

Firm size is measured by the average three year sales volume from 1994 to 1996. We divide the sales volume of larger firm by that of smaller firm to have firm size difference. Some studies (e.g. Sakakibara, 1997) on the niche overlap employ standard industry classification as a proxy for the niche while others (e.g. Cool & Schendel, 1987; Sinha & Noble, 1997) examine the firm resource with the scope commitments such as types of products. The niche is not necessarily dependent on the firm resource, yet indirectly reveals what kind of resource firms have since the niche is a

place conditioning externally firm performance. In this study, we use three different measures to address technological capabilities between two focal firms: niche overlap, R&D intensity and technological specialization.

Using Korean Standard Industry Classification code, niche overlap represents whether two focal firms are in the same two-digit industry. It is coded 1 if they are in the same industry, 0 otherwise. Also introduced are two separate indicators of firms' relative technological capabilities absolute difference in two focal firms' R&D intensity and absolute difference in technological specialization.

R&D intensity is the ratio of R&D spending to total sales. Though patent citation or patent portfolio is preferred in most studies, we use data on R&D spending due to the inaccessibility to patent information of sample firms (see Mowery et al., 1996; Poldony et al., 1996). Technological specialization, a measure for the scope commitment to telecommunications industry, is the proportion of telecommunication related sales to the total sales: such relatedness is based on the standard code by Computer & Communication Promotion Association of Korea.

In addition, a business group variable is included in the model. It refers to whether two focal firms are the affiliated companies of the same Korean business group, namely Chaebol. It has value of 1 if two focal firms are affiliates of the same Chaebol, 0 otherwise. Since strategies conducted by the subsidiaries of Chaebol are likely to be coordinated, it is necessary to control the influence of Chaebol.

Analysis. We test the hypotheses by using a choice model that includes indicators of social structure and control variables as evaluative items (Maddala, 1983). When the utility of each alternative is a function of evaluative items (X_{ik}), the model can be $P(Y_i = 1) = 1/ [1 + \exp(-\Sigma b_k X_{ik})]$, where Y_i, a state of the choice based on the difference in the utility between alternatives, follows logistic distribution. To estimate the

coefficients of covariates, the study uses maximum likelihood estimation by using logistic regression. The number of dyads used in this study is reduced to [N×(N-1)]/2, although the total number of dyads is N×(N-1), because we have symmetric matrices.

IV. Results

Most of the firms in the final sample were established in the 1970s and 37 percent of them are specialized in telecommunications industry in 1995. Table 1 shows descriptive statistics of variables used in this study.

Table 1. Means, Standard Deviations and Correlations

Variables	Mean	s.d.	Correlations						
			1	2	3	4	5	6	7
1.Consortium formed	.12	.33							
2.Cohesion	.567	.231	.051						
3.Structural equivalence	5.74	1.51	.068	.337					
4.Affiliates of the same business group	.004	.059	.121	.035	.039				
5. Niche overlap	.16	.37	-.031	-013	.064	.042			
6. Difference in size	18.68	66.63	-.042	-.008	-010	-.009	.039		
7.Difference in R&D intensity	.14	.73	.047	.002	.041	-.008	-.062	-.028	
8.Difference in technology specialization	36.70	40.70	-.105	.020	-.019	.014	.001	.055	-.030

Table 2 gives the results of logistic regression about partner selection. Model 1 includes variables related with firms' relative resource characteristics and capabilities. We add the indicators of social structure in successive models. In model 2, we add structural equivalence to model 1. Supporting hypothesis 2, its coefficient is positive and significant at 0.01 level. The result shows that structurally equivalent firms are more likely

to form alliance with each other than structurally non-equivalent ones. Incremental chi-square test also indicates that the addition of structural equivalence significantly improves the goodness of fit.

In model 3, we add cohesion variable to model 1. Its coefficient and incremental chi-square test suggest that the closeness between two firms increases the likelihood of their alliance formation. In other words, firms that are closely linked through direct or indirect ties tend to ally with each other. When we use both structural equivalence and cohesion in model 4, the cohesion loses its significance. The coefficient is significant at only 0.06 level. Compared with structural equivalence, cohesion has less

Table 2. Parameter Estimates for Logit Model in the Choice of Partners

VARIABLES	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Intercept	-1.62* (.12)	1.08 (.683)	1.177 (.68)	.899 (.689)
Structural equivalence		.124** (.031)		.103** (.034)
Cohesion			.642** (.203)	.403 (.214)
Niche overlap	.278 (.145)	.312* (.146)	.275 (.146)	.305* (.146)
Difference in size	-.006** (.001)	-.006** (.002)	-.007** (.002)	-.007** (.002)
Difference in technology specialization	-.009** (.001)	-.008** (.001)	-.009** (.001)	-.009** (.001)
Difference in R&D intensity	.124* (.053)	.113* (.053)	.124* (.053)	.114* (.053)
Affiliates of the same business group	-3.53** (.66)	-3.44** (.664)	-3.45** (.661)	-3.41** (.665)
χ^2	106.5	121.9	116.2	125.4
d.f.	5	6	6	7
χ^2 test		Versus Model 1 $\chi^2 = 15.4^{**}$	Versus Model 1 $\chi^2 = 9.7^{**}$	Versus Model 2 $\chi^2 = 3.5$
N	4005	4005	4005	4005

* p < .05

** p < .01

Standard errors are in parenthesis

influence on the choice of alliance partners.

Results also indicate that firms' relative resources are important alliance drivers. The positive coefficient of niche overlap suggests that firms in the same industry tend to ally with each other. The negative coefficient of difference in technology specialization indicates that firms' with similar specialization in telecommunications industry tend to participate in the same consortium. Business group variable has a significant and negative coefficient, suggesting that firms in the same business group tend not to participate in the same consortium. The result implies that Chaebols tried to diversify into varying segments of telecommunications industry and to spread project-risk by forming many different consortia through their affiliated firms.

V. Discussion and Conclusions

Based on the data about consortium formation to enter telecommunications industry in Korea, this study tests the effect of social structure on the selection of alliance partners. Results suggest that strategic behaviors occurred during consortium formation reflects social structure in which firms are embedded. The study reports that structurally equivalent firms are more likely to form alliance with each other than firms within cohesive subgroups.

Previous studies on alliance formation have emphasized the importance of relative resources profiles in selecting alliance partners. Only recently, the role of social structure in the choice of alliance partners is recognized. However recent studies on the social structure have considered cohesion as a driver of alliance formation (Gulati, 1995; Chung, Singh, & Lee, *forthcoming*). Those studies show that firms having direct ties with each other or indirect ties through common third parties tend to ally with each

other.

This study shows that not only cohesion but also structural equivalence facilitates alliance formation. In other words, structurally equivalent firms tend to ally with each other. Then why do structurally equivalent firms ally with each other? One of the possible reasons is that structurally equivalent firms tend to compete with one another and thus their alliance formation can reduce the degree of competition.

This study implies that strategic alliance can be used either to increase the utilization of slack resources or to reduce competition. To increase the utilization of slack resources, firms may consider resources complementarity in selecting alliance partner. When the complementarity is important, cohesion facilitates alliance formation since firms are more concerned with information sharing and curbing opportunistic behaviors of partners. When alliance is formed to reduce the degree of competition and focal firms share their niche in the market, however, structural equivalence rather than cohesion might be more important.

This study has some limitations because it constructs social networks with only two kinds of relationships, although those social structural variables have significant effects on alliance. Future research can investigate what kinds of relationships are more salient and under what conditions structural equivalence is more important than cohesion in forming alliance.

References

Abrahamson, E., and L. Rosenkopf. 1997. Social Network Effects on the Extent of Innovation Diffusion: A Computer Simulation. *Organization Science,* 8(3): 289-309.

Baker, W. 1990. Market, Networks and Corporate Behavior. *American Journal of Sociology,* 96(3): 589-625.

Borgatti, S.P., M.G. Everette, and L.C. Freeman. 1991. *UCINET, version IV.* Columbia, SC: Analytic Technology.

Bourdieu, P., and L. Wacquant. 1992. *An Invitation to Reflexive Sociology.* Chicago, IL: The University of Chicago Press.

Burt, R. 1982. *Toward a Structural Theory of Action: Network Models of Social Structure, Perception, and Action.* NY: Academic Press.

Burt, R. 1992. *Structural Holes: The Social Structure of Competition.* Cambridge, MA: Harvard University Press.

Burt, R. 1997. The Contingent Value of Social Capital. *Administrative Science Quarterly,* 42: 339-365.

Chung, S., H. Singh and K. Lee. *forthcoming.* Complementarity, Status Similarity, and Social Capital as Drivers of Alliance Formation. *Strategic Management Journal.*

Coleman, J. 1988. Social Capital in the Creation of Human Capital. *American Journal of Sociology,* 94: S95-S120.

Cook, K., and J. Whitmeyer. 1992. Two Approaches to Social Structure: Exchange Theory and Network Analysis. *Annual Review of Sociology,* 18: 109-127.

Cool, K., and D. Schendel. 1987. Strategic Group Formation and Performance: The Case of The U.S. Pharmaceutical Industry, 1963-1982. *Management Science,* 33(9): 1102-1124.

Davis, G. 1991. Agent without Principles? The Spread of the Poison Pill through the Intercorporate Network. *Administrative Science Quarterly,* 36: 583-613.

Eisenhardt, K., and C. Schoonhoven. 1996. Resource-Based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms. *Organization Science,* 7(2): 136-150.

Farjoun, M., and L. Lai. 1997. Similarity Judgment in Strategy Formulation: Role, Process and Implication. *Strategic Management Journal,* 18(4): 255-273.

Fiegenbaum, A., and H. Thomas. 1995. Strategic Groups as Reference Groups: Theory, Modeling and Empirical Examination of Industry and Competitive Strategy. *Strategic Management Journal,* 16: 461-476.

Galaskiewicz, J., and R. Burt. 1991. Interorganizational Contagion in Corporate Philanthropy. *Administrative Science Quarterly,* 36: 88-105.

Granovetter, M. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology,* 91(3): 481-510.

Gulati, R. 1995. Social Structure and Alliance Formation Patterns: A Longitudinal Analysis. *Administrative Science Quarterly,* 40: 619-652.

Jarillo, J. 1988. On Strategic Networks. *Strategic Management Journal,* 9: 31-41.

Larson, A. 1992. Network Dyads in Entrepreneurial Settings: A Study of the Governance of Exchange Relationships. *Administrative Science Quarterly,* 37: 76-104.

Llerena, P., and S. Wolff. 1994. Inter-firm Agreements in Telecommunications: Elements of an Analytical Framework. In G. Pogorel (ed.). *Global Telecommunications Strategies and Technical Changes.* Amsterdam: Elsevier Science B.V.: 257-275.

Maddala, G. 1983. *Limited-Dependent and Qualitative Variables in Econometrics*. NY: Cambridge University Press: 59-78.

McGee, J., and H. Thomas. 1986. Strategic Groups: Theory, Research and Taxonomy. *Strategic Management Journal*, 7: 141-160.

Meyer, J., and B. Rowan. 1977. Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology*, 83(2): 340-363.

Mizruchi, M. 1992. *The Structure of Corporate Political Action: Interfirm Relations and Their Consequences*. Cambridge, MA: Havard University Press.

Mowery, D., J. Oxley and B. Silverman. 1996. Strategic Alliances and Interfirm Knowledge Transfer. *Strategic Management Journal*, 17(Winter Special Issue): 77-91.

Pennings, H., K. Lee and A. Witteloostuijn. 1998. Human Capital, Social Capital, and Firm Dissolution. *Academy of Management Journal*, 41: 425-440.

Pfeffer, J., and G. Salancik. 1978. *The External Control of Organizations: A Resource Dependence Perspective*. NY: Harper & Row.

Podolny, J. 1993. A Status-Based Model of Market Competition. *American Journal of Sociology*, 98(4): 829-872.

Podolny, J., T. Stuart, and M. Hannan. 1996. Networks, Knowledge, and Niches: Competition in the Worldwide Semiconductor Industry, 1984-1991. *American Journal of Sociology*, 102(3): 659-689.

Sakakibara, M. 1997. Heterogeniety of Firm Capabilities and Cooperative Research and Development: An Empirical Examination of Motives. *Strategic Management Journal*, 18 (Summer Special Issue): 143-164.

Sinha, R., and C. Noble. 1997. The Performance Consequences of Subfield Entry. *Strategic Management Journal*, 18(6): 465-481.

Stuart, T., and J. Podolny. 1996. Local Search and The Evolution of Technological Capabilities. *Strategic Management Journal,* 17: 21-38.

Uzzi, B. 1996. The Sources and Consequences of Embeddedness For Performance of Organizations: The Network Effect. *American Sociological Review,* 61: 674-698.

Walker, G., B. Kogut, and W. Shan. 1997. Social Capital, Structural Holes, and the Formation of an Industry Network. *Organization Science,* 8(2): 109- 125.

Wasserman, S., and K. Faust. 1994. *Social Network Analysis: Methods and Applications.* NY: Cambridge University Press.

Zaheer, A., and N. Venkatraman. 1995. Relational Governance as an Interorganizational Strategy: An Empirical Test of the Role of Trust in Economic Exchange. *Strategic Management Journal,* 16: 373-392.

Zuckin, S., and P. DiMaggio (eds.). 1990. *Structures of Capital: The Social Organization of the Economy.* NY: Cambridge University Press.

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ABSTRACT

This study investigates the effect of social structure on the selection of alliance partners in the Korean telecommunications industry. We collected data about the consortia formation of Korean firms for entering telecommunications industry in 1996 and constructed social structure of Korean firms on the basis of CEOs school ties and sharing of lead banks. Results of logistic analysis suggest that the social structure significantly influences the selection of alliance partners. Limitations and future research directions are discussed.

본 연구는 한국 통신산업에서의 기업간의 사회적 관계구조가 전략적 제휴대상업체의 선택에 미치는 영향에 대해 고찰하고 있다. 본 연구의 주요 설명변수인 기업간의 사회적 관계구조는 각 기업의 최고경영자들의 학연에 관한 자료, 기업들의 주거래은행에 대한 자료를 이용하여 측정하였고, 종속변수인 전략적 제휴여부는 1996년도에 통신산업에 진출하기 위해 한국의 기업들이 형성한 컨소시움에 대한 자료를 사용하여 측정하였다. 통계적 분석의 결과는 기업간의 사회적 관계구조가 전략적 제휴대상 기업의 선정에 매우 유의한 영향을 미친다는 것을 보여주고 있다. 이 결과에 근거하여 본 연구의 한계점과 미래의 연구방향에 대해 논의한다.

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