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RESEARCH NOTE

ALLIANCE ENTREPRENEURSHIP AND FIRM MARKET PERFORMANCE

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This paper extends entrepreneurship into the domain of alliances, and investigates the effect of alliance proactiveness on market-based firm performance (defined in terms of sales growth, market share, market development and product development). Alliance proactiveness is defined as the extent to which an organization engages in identifying and responding to partnering opportunities. The effect of alliance proactiveness on performance is tested within a contingency framework, with size and perceived environmental uncertainty as moderators, and using data from 182 firms. We estimated the model using partial least squares. Results indicate that alliance proactiveness leads to superior market-based performance, and that this effect is stronger for small firms and in unstable market environments. Copyright © 2001 John Wiley & Sons, Ltd.

Entrepreneurship, which typically leads to new product introduction or market entry, creates value through association with the discovery and exploitation of profitable business opportunities, (Shane and Venkataraman, 2000; Lumpkin and Dess, 1996). In addition, entrepreneurial activities also create value when they facilitate 'access relationships' to resources and capabilities that are strategic to competitiveness and performance (Stuart, 2000). Consequently, although extant literature has focused predominantly on entrepreneurship in product markets, *entrepreneurial opportunities also exist in factor markets* (Shane and Venkataraman, 2000; Schumpeter, 1934). Strategic factor markets have been defined as 'market(s) where the resources necessary to implement a strategy are acquired' (Barney, 1986: 1231). For instance, the relevant strategic factor market for firms seeking to augment their resources or capabilities through interfirm collaborations is the market for alliance partners.

The entrepreneurial aspect of alliances is rooted in the social network perspective (Granovetter, 1985) which argues that structural holes or disconnects in the social structure in which firms conduct business present entrepreneurial opportunities through 'information access, timing, referrals, and control' (Burt, 1992: 2). Accordingly, the network literature holds that a firm's *external embeddedness* is a potential source of enterpreneurial profits and thus value creation, especially since sources of innovation do not reside exclusively inside firms but are instead 'commonly found in the interstices between firms, universities, research laboratories, suppliers and customers' (Powell, Koput, and Smith-Doerr, 1996: 118). The importance of external resource networks on competitiveness and value creation (McEvily and Zaheer, 1999)[1] implies that value

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[1] For example, Doz and Hamel note, 'now more than ever, many of the skills and resources essential to a company's

may be created not only through entrepreneurial reorganization of suboptimally utilized or configured resources and capabilities (Casson, 1982), but also through accessing and integrating key strategic resources and know-how that are transorganizational (Achrol, 1997). Entrepreneurial firms that can identify and exploit synergistic value-creating opportunities with partners that own complementary resources and capabilities may be advantaged over those that are either unable, or unwilling, to do so (Lado, Boyd, and Hanlon, 1997; Dyer and Singh, 1998; McEvily and Zaheer, 1999). Therefore, entrepreneurial behavior associated with forming access relationships into valuable complementary resources and know-how is strategic in nature.

Consequently, we propose that firms that are proactive in forming alliances are likely to enjoy higher performance. We also examine the moderating influences of firm size and environmental uncertainty on the relationship between alliance proactiveness and performance. This research makes three primary contributions. First, in arguing for the entrepreneurial nature of alliances, this study extends one dimension of entrepreneurial orientation, proactiveness, into factor markets. Second, our results link the proactiveness of a firm with regard to forming alliances, rather than sheer amount of alliance activity, to performance. Third, we provide a contingency framework to ascertain the differential effects of size and environment on the alliance proactiveness–performance relationship.

ALLIANCE PROACTIVENESS AND PERFORMANCE

Proactiveness is one facet of the multidimensional concept of entrepreneurship (Covin and Slevin, 1989), along with autonomy, innovativeness, risk-taking propensity, and competitive aggressiveness. It has been argued that these dimensions may be independent, rather than covarying (Lumpkin and Dess, 1996). For instance, a highly proactive organization may not be as innovative or aggressive, yet it may be considered entrepreneurial in terms of its initiatives. Accordingly, our singular focus on one dimension of entrepreneurship and only one aspect of a firm's larger proactive orientation leads to finer-grained theoretical development and testing.

The proactive approach considers the possibility that individuals and organizations shape their environments through their own actions (Krueger, 1993). According to Miller and Friesen, firm proactiveness depends on the response to the question, 'Does it shape the environment by introducing new products, technologies, administrative techniques, or does it merely react?' (Miller and Friesen, 1978: 923). As Lumpkin and Dess (1996) explain, a proactive firm seizes new opportunities through (a) scanning the environment to seek opportunities (Venkatraman, 1989) and (b) taking preemptive action in response to perceived opportunity. Consequently, we conceptualize alliance proactiveness in terms of efforts to identify potentially valuable partnering opportunities, and to initiate preemptive actions in response to identified opportunities.

Above-normal returns are obtainable when firms can create or exploit imperfections in strategic factor markets (Barney, 1986). In such situations, early movers preempt resource spaces of various types, such as geographic space, technology space, and customer perceptual space (Lieberman and Montgomery, 1998). The strategic factor market for partners, or potential collaborator firms that are compatible and possess required strategic resources, is likely to be imperfect. First, the tacit nature of relevant resources and capabilities precludes adequate bundling through market transactions since they are distributed and embedded throughout a firm (Teece and Pisano, 1994; Kogut and Zander, 1992). Markets are effective at exchanging codifiable resources and know-how that are easy to identify and which can be separated from the possessing firm without loss in value (Powell, 1990). However, markets are inefficient in transacting tacit knowledge flows even if the value of the resource or capability can be established, whereas alliances are argued to be more effective in providing governance mechanisms that facilitate the transmittal and coordination of tacit knowledge flows (Madhok and Tallman, 1998). Second, there is likely to be asymmetric information and differing expectations among firms about the future value of a specific alliance. Better-informed firms may be able to exploit imperfections in their favor. Third, a

future prosperity lie outside the firm's boundaries, and outside management's direct control' (Doz and Hamel, 1998: 9).

potential 'small numbers' problem may lead to a scarcity of potential alliance partners, and leave late movers with suboptimal options (Sarkar, Cavusgil, and Aulakh, 1999). Therefore, alliance proactiveness is likely to result in first mover advantages, as early mover firms capture advantageous positions in partner space. Gomes-Casseres (1996) calls this 'strategic gridlock,' a situation in which partnership options are used up as alliances proliferate in an industry, and where resulting preemption of valuable and scarce resources in partner space is a source of strategic advantage (Dyer and Singh, 1998). The unique resource configurations or 'constellations' that result from proactive alliance activity may thus be difficult to imitate, leading to sustainable performance differences (Dyer and Singh, 1998; Gomes-Casseres, 1996).

Alliances also provide the opportunity to leverage external resources (Hitt *et al.*, 2000), transfer knowledge, and enhance organizational learning (Kogut, 1988; Lane and Lubatkin, 1998). Since the rent-creating ability of most resources tends to dissipate over time, alliance proactive firms may have a greater ability to sustain a dynamic process of asset and capability accumulation (Collis, 1994). Also, as Barney (1995) explains, specialized skills that result from socially complex phenomena unique to the firm are more likely to lead to advantages that are hard for competitors to duplicate. In fact, much of the skills and knowledge needed to succeed in alliances is likely to be associated with complex relational and learning processes that depend on interaction with internal and external social networks (Powell *et al.*, 1996). Proactiveness may facilitate acquisition of specialized skills and knowledge associated with formation and management of alliances by helping firms 'learn as they do.' Since there is a large cumulative learning effect for alliances (Anand and Khanna, 2000),[2] early participation by proactive firms can speed them down the learning curve and thus provide an even greater potential for competitive advantage. For example, partner selection is a complicated process that influences alliance outcomes (Hitt *et al.*, 2000). An alliance proactive firm is more likely to possess, within its organizational routines, specialized knowledge associated with identifying and selecting appropriate alliance partners. In addition, since current alliance networks provide future alliance opportunities (Gulati, 1995), early participation may provide firms with potentially valuable possibilities in the future.

Therefore, alliance proactiveness is likely to be directly associated with a firm's market-based performance, defined in terms of sales growth, market share, product development, and market development.

Hypothesis 1: Higher levels of alliance proactiveness will be associated with higher levels of market-based performance.

Our preceding discussion suggests that entrepreneurial motivation surrounding alliance opportunities directs and limits firms' access relationships to key strategic resources, and thus creates value. An important issue meriting investigation, however, is the effect of environmental uncertainty, a variable that has been associated with alliances as the organizational form of choice (Auster, 1992; Pfeffer and Salancik, 1978), on the relationship between alliance proactiveness and firm market performance.

We posit that the extent to which entrepreneurial alliance-related behavior adds value, and therefore impacts performance, will be conditional on value-creating opportunities in the environment. The environment, which represents a stock of resources that constrain and control the organization (Dess and Beard, 1984), sets boundary conditions on the outcomes of decision choices related to creating and exploiting alliance opportunities. For instance, Madhavan, Koka, and Prescott (1998) note that industry events and resultant uncertainty and change provide firms with valuable opportunities to improve their network positions through forming new relationships. Thus, it appears that the extent to which alliance-related entrepreneurial motivation creates value depends on the 'richness' of environmental opportunities. It is during times when environmental changes are threatening to make existing sources of competitive advantage obsolete, when competitive landscapes are being transformed, customer demands are being redefined, and the value of existing competencies being questioned, that proactive alliance formation is likely to create greater

[2] For example, to enhance organization-wide alliance capability, some firms have developed internal alliance departments (e.g., Adobe, Eli Lilly, Cisco Systems, Lucent, Xerox).

value. These arguments suggest a moderating effect of environmental uncertainty on the relationship between alliance proactiveness and performance.

One dimension of uncertainty relates to environmental dynamism, or major market-related changes that reduce management's ability to accurately assess the external environment and changes therein (Duncan, 1972; Keats and Hitt, 1988). We consider three sources of dynamism, namely technological, market, and competitive. Technology shifts threaten the continued relevance of existing competencies (Hagedoorn, 1993; Singh, 1997), and increase the potential pay-off for firms that can form links with partners that possess new and complementary competencies. For example, in pharmaceuticals, the technological shift from organic chemistry to life science-based drug development implies that incumbent pharmaceutical companies that are capable of locking-in innovative new biotech firms through alliances are likely to be advantaged in product innovation. In an environment of technological change such as this, alliance proactive firms should have an advantage through being early movers and creating exclusive arrangements with preferred partners.

Similarly, in markets where customer needs are evolving rapidly, the potential value in being able to tap into external resource pools to develop products and services that keep pace with demand changes may be substantial. In such situations, proactively tapping into complementary capabilities would facilitate appropriate market offerings of new products and services that satisfy emerging customer needs, quick entry into new markets and segments, and access to complementary products that enable 'solution'-based offerings. Thus, in dynamic markets, a proactive alliance strategy is likely to increase firms' market orientation, and presumably their performance.

Rapidly transforming competitive landscapes present potential opportunities for firms to reengineer their affiliations and undertake structural changes in their networks so as to improve their positions therein (Madhavan *et al.*, 1998). Proactive network formation could presumably advantage firms and enhance their performance by increasing entry barriers into their strategic groups, and thus reducing the level of competitive intensity that they are subject to in the subsequent time period (Porter, 1976). Therefore:

Hypothesis 2a–c: Perceived technological dynamism (market dynamism, competitive dynamism) will moderate the relationship between alliance proactiveness and performance, such that the higher the perceived technological uncertainty (market dynamism, competitive dynamism), the stronger the relationship between alliance proactiveness and performance.

We next address the question whether entrepreneurial alliance-related behavior creates different levels of value for small and large firms. On one hand, research suggests that small firms, being disadvantaged *vis-à-vis* their large partners, get unfairly exploited and actually suffer over the longer term (Alvarez and Barney, 2001). If smaller firms are disadvantaged in negotiations with larger firms, one might argue that proactiveness on the part of a smaller firm might actually reduce its bargaining power even more. On the other hand, empirical evidence indicates that abnormal returns from alliances are greater for small firms compared to large firms (Anand and Khanna, 2000; Stuart, 2000; Das, Sen, and Sengupta, 1998; Koh and Venkataraman, 1991).

Theoretically, a number of arguments support the idea that alliance proactive behavior creates disproportionately greater value for smaller firms. First, alliances offer access into strategic resources possessed by partners. Larger firms, due to their larger internal resources, presumably have the option to internally develop, buy or acquire the required strategic resource, whereas for a small firm, partnering may be the only viable option. Second, through access relationships, small firms may be able to offset scale and scope disadvantages. Typically, small firms operate below minimum efficient size and therefore have a cost disadvantage compared to large firms. Partnering offers a solution to scale related barriers for small firms. By accessing external resources, they may be able to reach threshold levels of resources required to compete with larger firms. Further, through alliances, small firms can access co-specialized assets (which they typically lack) that enable them to transform their know-how into marketplace value (Teece, 1986). Third, some researchers argue that technological know-how, which is typically in the domain of innovative small firms, is relatively more rare compared to financial and marketing resources of large firms

(Das *et al.*, 1998). Alliances typically provide larger firms access to tacit technological know-how of small firms, which in turn benefit from tangible financial and marketing resources of their larger partners (Alvarez and Barney, 2001; Koh and Venkataraman, 1991).[3] The scarcity of technological resources may serve to increase the bargaining power of the innovative small firm in an alliance, and thus empower it to appropriate greater value from the relationship even though it is disadvantaged in size. We therefore advance the following hypothesis:

> *Hypothesis 3: Size will negatively moderate the relationship between alliance proactiveness and performance, such that the smaller (larger) the size of the organization, the stronger (weaker) the relationship between alliance proactiveness and performance.*

METHOD

The study was conducted in two stages using a discovery-oriented approach (Menon *et al.*, 1999). In stage one, after a review of the literature, measures were developed through an iterative modification process and in-depth interviews with a convenience sample of 25 senior managers with alliance formation/management responsibilities. In stage two, data were collected from senior executives through mail survey. First, 1800 firms with annual sales over $25 million were drawn randomly from the *CorpTech Directory of Technology Companies*.[4] We sent a letter and return envelope to CEOs requesting participation and asking for the contact details of senior-level executives knowledgeable about the company's strategic alliance-related processes and activities (the CEO could also identify himself/herself). Thirty-seven surveys returned undeliverable and 110 companies responded that for various reasons they were unable to participate. From the effective sampling frame of 1653, 293 firms agreed to participate for an effective response rate of 17.7 percent in the first round. We mailed the survey, along with a cover letter and a business reply envelope, followed by email and telephone reminders, and a second mailing. A total of 184 companies (66.7%) responded, of which two surveys were unusable due to substantial missing data. Respondents were mostly senior-level executives, with vice presidents and above accounting for 95.5 percent. From 28 firms, where we received two responses each, we used the response from the more senior manager.[5]

To assess nonresponse bias, early and late responders were compared on sales volume, number of employees, and the items used to measure market performance (Armstrong and Overton, 1977). The results indicate no statistically significant difference between these groups. We also randomly selected 50 nonresponding public companies, and compared them to key attributes of responding public companies (firm size in terms of the number of employees and annual sales, and performance) and on selected performance dimensions from secondary data. We found no statistically significant differences in means.

Measures

All our measures used 5-point Likert scales. Our 7-item scale to measure alliance proactiveness was adapted from Covin and Slevin's (1989) entrepreneurial orientation scale. For the environmental dynamism variables, we adapted items from Jaworski and Kohli (1993) and Dickson and Weaver (1997) to develop 3-item scales for technological and competitive dynamism and a 4-item scale for market dynamism. We used the logarithmic transformation of sales as our measure of size.[6] For performance, we adopted Venkatraman and Ramanujam's (1986) conceptualization of market performance, namely market share, sales growth, market development, and

[3] We acknowledge, however, that these arguments may be more accurate in high-technology industries, and that they may vary on whether the alliance is domestic or international.
[4] The firms were from the following primary SIC codes: SIC 28—Chemicals and allied products; SIC 35—Industrial and machinery equipment; SIC 36—Electronic and other electric equipment; SIC 38—Instruments and related products; SIC 73—Computer and data processing; SIC 87—Engineering and management services.
[5] Wilcoxon signed-ranks tests, conducted at the item level on both independent and dependent variables for paired sample data obtained from multiple respondents, indicated no difference between respondents on any of the items.
[6] The firms range in size, in terms of U.S. dollars, from a minimum of $18 million to a maximum of $30 billion (median = $120 million). The size, in terms of people employed, ranged from a minimum of 50 employees to a maximum of 131,000 employees (median = 800 employees).

product development. Respondents rated their performance, relative to their competitors, on these items on a 5-point Likert scale with the anchors being 'Much Worse' and 'Much Better' to control for industry effects (Judge and Douglas, 1998).

Controls

We included a control for industry in the form of a dummy variable at the 2-digit SIC level to further partial out any industry effects. We also included number of alliances (as logarithmic scores) to control for the totality of a firm's alliances in order to isolate the effect of proactiveness on performance. In addition, we included a surrogate for absorptive capacity to control for a firm's alliance-related learning processes to partial out the effect of proactiveness on performance.[7]

RESULTS

Our models were estimated using partial least squares (PLSGRAPH v.2.91).[8] A PLS model is analyzed and interpreted in two stages: (a) the assessment and reliability of the measurement model, and (b) the testing of the structural model (Hulland, 1999). We assessed the adequacy of the measurement model through an examination of individual item reliabilities, convergent and discriminant validity.[9] Table 1 reports the internal consistency values for the constructs and the correlation matrix between constructs, with the diagonal indicating the square root of the average variance extracted. We also conducted several tests to examine the potential for common method bias.[10]

Having established confidence in our measurement model, we examined the main effects. Table 2 includes only the hypothesized variables and two control variables, namely absorptive capacity and number of alliances. None of the industry-specific dummy variables were statistically significant. PLS does not makes any distributional assumptions; therefore, traditional parametric tests are inappropriate. A bootstrapping method of sampling with replacement was used, and standard errors computed on the basis of 500 bootstrapping runs. Results indicate that the R^2 for Model I is 0.20. Alliance Proactiveness (ALLPRO) is statistically significant at the 0.05 level ($\beta = 0.37$), thus providing support for a positive main effect of alliance proactiveness on market-based firm performance (Hypothesis 1).

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[7] We used a 4-item scale that measured the extent to which the firm engages in systematic alliance-related learning. Details are available from authors.

[8] Under conditions of measurement error, traditional statistical techniques, such as multiple regression, may fail to accurately estimate interactions (McClelland and Judd, 1993). Chin, Marcolin, and Newsted (1996) propose a PLS-based latent variable interaction approach to model interaction effects.

[9] Detail on the items and factor loadings are available from the authors. All factor loadings for our constructs are greater than the minimum cut-off recommended by Hulland (1999), thereby demonstrating adequate item reliabilities. We checked for convergent validity using the internal consistency measure developed by Fornell and Larcker (1981). The internal consistency values for the constructs are reported in the left column of Table 1. Based on guidelines offered by Nunnaly (1978), all of our constructs exhibit adequate convergent validity. Finally, Fornell and Larcker (1981) suggest the use of average variance extracted to assess discriminant validity. Table 1 also shows the correlation matrix between constructs, with the diagonal indicating the square root of the average variance extracted. An examination of this table reveals that the diagonal elements of this correlation matrix are significantly greater than the off-diagonal elements (Barclay, Thompson, and Higgins, 1995), thereby satisfying a major criterion of discriminant validity. Also, as suggested by Barclay *et al.* (1995) and Hulland (1999), we checked and found no statistically significant item cross-loadings, thereby indicating adequate discriminant validity of our constructs.

[10] We first conducted Harman's test, as suggested by Podsakoff and Organ (1986), to check for common method bias. We performed a factor analysis on items related to the four exogenous constructs and one endogenous construct. Five distinct factors emerged. Items for the exogenous and endogenous constructs loaded on different, separate factors. Also, no factor representing common or spurious variance was obtained. Further, we investigated the relationship between our perceptual measure of market performance and archival performance data. Our sample of 182 responses contained inputs from 79 public firms, of which nine reported that they were responding at the business-unit level. For the remaining 70 firms (38%), we collected performance data from the COMPUSTAT data base. We collected data on commonly used measures of performance—Return on Assets (ROA), Return on Equity (ROE), Return on Investment (ROI), and Sales Growth (SG)—for 1996, 1997, and 1998. We subtracted the industry average (based on a firm's 4-digit SIC code) from each firm's ROA, ROE, ROI, and SG to control for industry effects (Agle, Mitchell, and Sonnenfeld, 1999). We then averaged 3 years of performance data to create composite firm-specific measures of ROA, ROE, ROI, and SG. Correlations between perceptual market performance and ROA, ROE, ROI, and SG were 0.43, 0.42, 0.43, and 0.27 respectively. All were statistically significant at 0.05 level. The positive and significant correlations between perceptual and archival measures of performance suggest that although the objective and subjective measures are not identical, the objective measures constituted a key element of the respondents' subjective assessments (Geringer and Hebert, 1991; Powell, 1995). We believe these results indicate satisfactory validation of our survey measure of performance.

Table 1. Construct-level measurement statistics and correlation of constructs

Construct	Internal consistency	MPERF	ALL PRO	TECH ENVT	MKT ENVT	COMP ENVT	SIZE	#ALL	ABSOR
Market performance (MPERF)	0.75	**0.75**[a]							
Alliance proactiveness (ALLPRO)	0.88	0.32	**0.72**						
Perceived technological dynamism (TECHENVT)	0.75	–0.06	–0.04	**0.85**					
Perceived market dynamism (MKTENVT)	0.84	0.17	0.06	0.33	**0.66**				
Perceived competitive dynamism (COMPENVT)	0.82	–0.11	0.09	0.23	0.14	**0.78**			
Firm size (SIZE)	Single measure	0.11	0.06	–0.11	0.02	–0.03	**1.00**		
Number of alliances (#ALL)	Single measure	0.06	0.18	0.13	0.06	–0.02	0.19	**1.00**	
Absorptive Capacity (ABSOR)	0.86	0.16	0.43	0.05	0.17	0.12	0.19	0.22	**0.73**

[a]Diagonal elements in bold are square roots of average variance extracted (Hulland, 1999).

Table 2. PLS path analysis results (standardized beta coefficients and *t*-values). Endogenous variable: market performance

Exogenous variables	PLS (Stage I)	PLS (Stage II)
Alliance proactiveness	0.37 (3.94)**	0.32 (4.29)**
Perceived market dynamism	0.21 (1.21)	0.19 (2.35)**
Perceived competitive dynamism	–0.14 (–0.70)	–0.14 (–1.96)**
Perceived technological dynamism	–0.12 (–0.81)	–0.10 (–1.16)
Size	0.10 (1.25)	0.09 (1.09)
Number of alliances	–0.05 (–0.70)	–0.03 (–0.31)
Absorptive capacity	–0.04 (–0.36)	–0.04 (–0.36)
Alliance proactiveness * Perceived market dynamism		0.15 (2.00)**
Alliance proactiveness * Perceived competitive dynamism		0.08 (0.92)
Alliance proactiveness * Perceived technological dynamism		–0.03 (–0.32)
Alliance proactiveness * Size		–0.15 (–2.02)**
Construct R^2	0.20	0.25

Path coefficients (*t*-values) $^{*}p < 0.10$; $^{**}p < 0.05$

Next, we included the moderating variables in addition to the main effects (and controls). As in regression analysis, the predictor and moderator variables are multiplied to obtain the interaction terms. As suggested by Chin, Marcolin, and Newsted (1996), we mean-centered the indicators prior to multiplying them. The results of the second stage are found in the second column of Table 2. The R^2 for Stage II is 0.25. Using procedures suggested by Tabachnick and Fidell (1996), we find that the R^2 increase attributable to the moderating effects is statistically significant at 0.05 ($F_{4,\ 165} = 2.75 > F_{\text{critical}} = 2.37$).

As hypothesized, perceived market dynamism positively moderates the relationship between alliance proactiveness and market performance (β

= 0.15, $p < 0.05$), such that at higher levels of perceived market dynamism the relationship between alliance proactiveness and market performance is strengthened (Hypothesis 2b). Further, firm size negatively moderates the relationship between alliance proactiveness and performance ($\beta = -0.15$, $p < 0.05$), such that the larger the size of the firm, the weaker the relationship between alliance proactiveness and market-based performance (Hypothesis 3). However, results show no support for the moderating effects of technological dynamism or competitive dynamism (Hypothesis 2a,c). We also used a blindfolding procedure to establish the predictive validity of our model.[11]

DISCUSSION

While entrepreneurship research has primarily focused on product markets, this study embraces the perspective that value creation occurs when firms take advantage of entrepreneurial opportunities in factor markets (Shane and Venkataraman, 2000; Burt, 1992; Schumpeter, 1934). We argue that proactive formation of strategic networks reflects an important dimension of entrepreneurial behavior in that it enables firms to develop access relationships into required strategic assets, and in doing so transcend from atomistic units into ambidextrous and flexible transorganizational systems (Achrol, 1997). We investigate proactive behavior *vis-à-vis* alliance formation as a potential explanation of value creation instead of 'number of alliances' which may have resulted from both firm and partner initiatives. In fact, although the correlation between number of alliances and proactiveness was 0.18 and statistically significant, the former did not have a statistically significant effect on performance. Instead, strong evidence that alliance proactiveness is positively associated with firm performance indicates that access relationships represent opportunities for firms to create value through learning new skills (Kogut, 1988; Lane and Lubatkin, 1998), and leveraging the complementary resources of their partners (Hitt *et al.*, 2000).

In capability-based competition, where key strategic assets are transorganizational and beyond management's direct control, enterprising firms that are able to create unique resource constellations and form strategic gridlocks with capable partners are likely to be advantaged. Since alliance networks tend to be difficult to duplicate, they can lead to sustainable, above-average market performance (Barney, 1995; Dyer and Singh, 1998; Gomes-Casseres, 1996). In addition, proactiveness can facilitate the development of skills and knowledge associated with alliance creation itself, such as partner selection (Hitt *et al.*, 2000). Proactiveness increases partnering options, and possibly the skill to select high potential options, thus creating a performance advantage relative to alliance reactive firms. Further, the link between early participation and cumulative alliance learning indicates that proactive firms may possess greater alliance capabilities, due to which they are able to create more value through their alliances (Anand and Khanna, 2000).[12]

Our finding that size moderates the relationship between proactiveness and performance suggests that smaller firms seem to benefit more from alliance proactiveness, or that alliances contribute more to the overall performance of small firms than they do for large ones. The apparent inconsistency with Alvarez and Barney (2001) may be a result of different focus: while they study the relative value appropriation between small and large partners in a single alliance, we focus on the link between value creation and the organization zeal to identify and seize alliance opportunities. Even though distribution of benefits from a specific alliance may favor large firms, it would not be inconsistent with our finding that the value of alliance proactiveness is greater for small firms relative to that for large firms. While it remains to be investigated how smaller partners can appropriate their legitimate share of collaborative benefits, it is plausible that proactiveness allows small firms to select less opportunistic and more

[11] In order to study the predictive relevance of our regression model, we used a blindfolding procedure that omits part of the data for a particular construct and then attempts to estimate the omitted part using the already estimated parameters (Geisser, 1975; Stone, 1974). We blindfolded the market-based performance construct using a range of omission distances ranging from 5 to 10 (Chin, 1998). The average Q^2 over the various blindfold runs was 0.303, which implies that our model has predictive relevance. Also, the jackknifed estimates of standard errors are small, indicating relatively stable parameter estimates. Details of these tests are available from the authors.

[12] We would like to thank an anonymous reviewer for this suggestion.

cooperative partners. Given a finite number of desirable partners who possess required resources, are partnering oriented, and are less likely to act as predators or opportunists, proactiveness allows small firms to select from among the best.

The results indicate very limited support for the moderating role of environmental dynamism. The statistically significant moderating role for *only* market dynamism, and the nonsignificance of the others, indicates that value created by alliance proactive behavior is higher in environments where demand conditions are evolving rapidly, but appears to be universalistic across different levels of technological and competitive dynamism. When product–market conditions are characterized by volatile customer preferences, and increasing heterogeneity across emerging and existing consumer segments, being alliance proactive enhances the ability of a firm to improve its market-related performance. Changing market profiles, customer needs and preferences create a premium for the ability to proactively look beyond internal resources and access complementary transorganizational capabilities. Such behavior presumably enhances a firm's market orientation, and in dynamic markets increases its ability to develop product and service configurations that satisfy emerging customer needs and segments.

With regard to the nonsignificance of the technological dynamism variables, it is possible that in this particular group, drawn from a directory of technology-based companies, companies typically face high rates of technological change. Similarly, firms may universally experience problems with their ability to predict the competitive landscape, the rate of new entrants, and the actions of competitors, which are items used in the competitive dynamism scale. It seems logical that in technology-based companies technology and competitive dimensions are more similar than market dimensions. Another explanation may be that, in certain environments, the costs associated with pioneering may lead to a 'first mover disadvantage,' thus offsetting any advantages we discussed earlier.

For practitioners, this study provides some evidence that assigning resources to alliance identification and development may create value and better performance. Some of the alliance promotion features we found among the more proactive firms included alliance procedure manuals, alliance training, alliance managers, in-house alliance research, alliance business plans, and even web sites related to alliances.

Several potential limitations merit discussion. First, since we cannot rule out the rival hypothesis that performance increases proactiveness, we recognize that the causal chain from alliance proactiveness to firm performance needs further investigation. Future research should address possible indirect effects through mediating variables such as alliance performance, since the art of relational governance may be quite different from proactiveness. Focusing on alliance performance would enable us to explain away the influence of unrelated forces on overall firm performance. Further, the narrow focus of this research on one dimension of entrepreneurial orientation and only one aspect of a firm's overall proactive orientation, while allowing finer-grained theoretical development and testing, also limits the contributions of this study.

Second, other 'global' variables (beside industry and size) could be influencing firm performance, and need to be added to be controlled for. However, the presence of many private companies in our sample, while possibly increasing the generalizability of our results, also prevents us from obtaining these types of controls from archival sources. In addition, alliance proactiveness may be one component of an overall strategic proactiveness, which in turn drives performance. However, it is also plausible that similar to the various aspects of entrepreneurship, the dimensions of strategic proactiveness (of which alliance proactiveness is one) in turn are independent. In other words, a firm may exhibit proactive behavior in a certain domain, but not in another. Future research needs to investigate this issue in order to move toward a conceptually richer domain of strategic proactiveness.

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