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NON-OVERLAPPING PARTNER CAPABILITIES AND ALLIANCE PERFORMANCE: EVIDENCE FROM US FILM INDUSTRY

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Abstract

This paper builds on the theory of strategic alliances that focuses on their role, not in acquiring, but in accessing partners' capabilities. Hypotheses are developed and tested regarding the effects on alliance performance of less overlap in partner firms' capabilities in joint development alliances. The extent to which the capabilities of alliance partners are non-overlapping was found to have a positive and significant influence on alliance performance. This effect becomes more pronounced as the pool of the capabilities contributed by alliance partners falls short of the capability requirements of the alliance product. Discussion of findings and implications for the alliance research conclude the paper.

INTRODUCTION

Research has found that alliance partners either become similar in knowledge and capabilities and end their partnership or stay specialized and continue with the alliance (Mowery et al., 1996; Nakamura et al., 1996). The dominant learning view of alliances provides an explanation for the finding about the former group of alliances but not the latter. According to this view the convergence of partner capabilities and the subsequent dissolution of the alliance is a consequence of the process of learning and knowledge transfer between partners. Alliances, in this line of thinking, are vehicles for learning and transfer of knowledge (Hamel, 1991; Khanna et al., 1998; Kale et al., 2000) and lose their raison d'être once the knowledge transfer is complete and the partners have become similar. As a result, partners see no further utility for their partnership and hence, disband.

The learning view, however, is silent about the finding that in a significant subset of alliances, partners maintain and even enhance their differences in specialized knowledge

and capabilities (Nakamura et al., 1996). Mowery et al. (1996) explicitly point to the limits of the dominant learning view of alliances in this regard:

> "…the empirical analysis also suggests that there are limits to the 'capabilities acquisition' view of alliances. Consistent with the view that alliance activity can lead to increased specialization, as firms access others' capabilities (rather than acquiring them or developing them internally), we find that capabilities of partner firms become more divergent in a substantial subset of alliances." (1996: 78)

The access view of alliances alluded to by Mowery et al. (1996) is spelled out in Grant and Baden-Fuller (2004), where they criticize the learning view for limiting our understanding of alliances by ignoring their central attribute as an organizational mode that can reconcile the benefits of knowledge specialization with those of flexible integration.

We argue here that the access view offers a fuller, more plausible explanation for the findings regarding both groups of alliances, i.e. the group with converging partner capabilities and the one with divergent partner capabilities. This explanation is also consistent with the recent corporate strategy trends towards refocusing on a number of core competitive capabilities and outsourcing the non-core ones (Grant & Baden-Fuller, 2004). In this view, alliances dissolve when partners become similar not because they have no more incentives to learn from one another, but because the alliance loses its inherent advantage leading to performance decline. When partners possess less overlapping capabilities, however, they realize performance advantages that motivate them to continue with the alliance. Our contribution in this paper is to theoretically elaborate and empirically test the link between non-overlapping partner capabilities and alliance performance.

The issue of overlap (or lack thereof) in partner characteristics has been the subject of inquiry in alliance research. In particular, existing research has addressed the role of complementarity of alliance partners in motivating alliance formation. We know from this research that complementary partners are more likely to form alliances together (Chung et al., 2000; Rothaermel & Boecker, 2008; Mitsuhashi & Greve, 2009). But the link between such complementarities and alliance performance has not been explored in this literature. We argue that besides revealing a gap in our understanding of alliances, this missing link points to a fundamental problem of the dominant conceptualization of alliances as inter-organizational learning mechanisms.

In this paper we build on the access view of alliances to develop and test a theory of the performance consequences when alliance partners have low overlapping capabilities in joint development alliances. In essence the crux of our argument is that the lower the

overlap in partner capabilities that go into the production of the alliance product, the higher the alliance performance. The paper is organized as follows: theory and hypotheses development is followed by a description of the empirical context of the study. We conclude by presenting the results, the discussion, and the implications for future research.

THEORY AND HYPOTHESES

Low overlap and Complementarity in Alliances

While in this paper we are not specifically talking about the mechanisms of complementarity among alliance partners, we believe that having low overlap in capabilities conceptually encompasses the idea of complementarity. Low overlap in partner capabilities could be thought of as a more relaxed constraint on an alliance than complementarity. In essence, if combined with extra assumptions, low overlap in capabilities leads to complementarity among partners. Existing research in alliance literature has addressed the issue of complementarity. Mainly, this research has pointed to the pooling of complementary skills and resources to create added value as a main incentive for firms to engage in strategic alliances (Stuart, 2000; Chung et al., 2000; Rothaermel, 2001). Strategic alliances have been promoted as an opportunity for partner firms to combine their skills and resources to realize synergies that are impossible by relying on internal resources (Nohria & Garcia-Pont, 1991; Dyer & Singh, 1998; Rothaermel & Boeker, 2008). We see the conceptual proximity of the two concepts-i.e. low overlap in capabilities and complementarity- as a potential area of contribution to the complementarity literature.

In general, the complementarity literature has found that firms that occupy complementary niches or complement each other along the industry value chain are more likely to form alliances (Gulati, 1995; Mowery et al., 1998; Chung et al., 2000; Mitsuhashi & Greve, 2009). For instance, alliance formations between small, innovative firms and large, established firms with access to capital, marketing, and distribution channels have been shown to be motivated primarily by such complementarities (Rothaermel, 2001; Rothaermel & Boeker, 2008). Rothermael (2001) found that incumbents that focus on exploiting complementarities with new entrants do better than those focusing on exploring the new entrant's new technologies. Rothaermel & Boeker (2008) also found that complementarities in skills and capabilities create opportunities for young biotechnology firms and large established pharmaceutical companies to form alliances to complement their internal resources and capabilities.

Despite its attention to the role of complementarity in motivating alliance formation, this research has not established a link between complementarity and alliance performance. As mentioned earlier, we believe this gap is attributable to the dominant conceptualization of alliances as inter-organizational learning mechanisms. In fact, any expectation of performance benefits from complementarity falls outside the framework of the learning view. More specifically, the learning theory of alliances entails the inherent assumption that once knowledge transfer is complete and the partners have converged in their capabilities, the partnership is dissolved. In other words, the degree to which the main task of learning and inter-organizational knowledge transfer has been accomplished will define the performance of the alliance in the eyes of partners, and no other attributes of the alliance (e.g. the financial performance of alliance product in joint development alliances). It would even be plausible under this view, to think of situations where partners tolerate poor financial performance of an alliance to ensure that the learning and transfer process is completed.

The alternative access view of alliances, which we adopt here, offers a fundamentally different view that, among other advantages, leaves room for theorizing about the effects of non-overlapping partner capabilities on alliance performance. In this view, firms benefit from alliances to the extent that they provide non-overlapping capabilities required by the alliance product and maximizing the utilization of their otherwise underutilized capabilities.

Knowledge-Based Nature of Capabilities

Competitive capabilities are primarily comprised of tacit knowledge and know-how (Teece et al., 1997). The knowledge-based view of the firm and the organizational learning literature identify two distinct classes of activities that correspond to the ways in which knowledge is acquired and applied by firms (March, 1991; Spender, 1996): exploration (knowledge generation), and exploitation (knowledge application). In the context of alliances, knowledge generation refers to alliances as vehicles of learning by acquiring partners' knowledge, while knowledge application refers to a form of knowledge sharing where partners access each other's stock of knowledge to exploit complementarities.

With a couple of exceptions (e.g. Lavie & Rosenkopf, 2006), the alliance literature has primarily focused on knowledge generation by assuming that firms enter alliances with the primary goal of increasing their stock of knowledge by acquiring the specialized knowledge of their partners. However, the organizational learning literature has shown that firms often engage in both activities and tend to maintain a balance of the two across their lines of business and over time (March, 1991; Lavie & Rosenkopf, 2006). Therefore the alliance literature has provided a lopsided view of alliances by focusing exclusively

on knowledge transfer, and a theory of alliances that incorporates knowledge access is necessary.

In their theoretical arguments for a knowledge-accessing view of alliances, Grant and Baden-Fuller (2004) discuss the key knowledge characteristics that make the access view of alliances a better representation of reality in many, if not all, alliances. Knowledge is created by individuals and embedded in organizational processes and routines (Nelson & Winter, 1982) which makes it indivisible and subject to economies of scale and scope (Grant & Baden-Fuller, 2004). In other words, the development of tacit, specialized knowledge becomes more reasonable as more units of the same product that requires that knowledge type is produced (economies of scale). Also, most types of specialized knowledge are applicable to more than one product and to the extent that they are applied to products other than the ones they were originally intended for they become more profitable (economies of scope).

Such scale and scope economies present a challenge for firms over which type of knowledge to invest in and which products to produce. As a result, often firms are faced with the issue of mismatch between the requirements of an envisioned product and capabilities available to the firm (Garrette et al., 2009). The access view of alliances posits that a better utilization of underutilized capabilities is possible through an alliance (Grant & Baden-Fuller, 2004). In this view, the core advantage of alliances as a form of production organization lies in facilitating capability development within firms (by reducing concerns over their potential underutilization), and capability application within the alliance (by matching the otherwise underutilized capabilities in the form of a jointly-developed product).

Following this line of reasoning, our first hypothesis concerns the effect of overlap in partner firm capabilities on alliance performance. We argue that such overlap hurts alliance performance and to the extent that partner capabilities are non-overlapping the alliance will yield a better outcome. Firstly, less overlap in partner capabilities reduces opportunistic behavior in a cooperative relationship by creating more interdependence among partners which is also known as a mutual hostage position (Kogut, 1988). Overlap indicates direct competition between partners outside the alliance, which could increase tendencies to divert inevitable spillovers into own business outside the alliance and hence, start the vicious cycle of the learning race. Second, less overlap makes it easier to identify contributions by partners and in turn, facilitates the appropriation of outcomes. Reduced appropriation concerns lead to higher commitment from partners and improves performance. Finally, less overlap reduces confusion as to who is providing a certain

capability, and who is accessing it. Less confusion over the roles assumed by each partner regarding any specific dimension of the product's capability requirements leads to more effective utilization of capabilities and better performance. Hence,

H1: The lower the overlap in alliance partner capabilities the higher the alliance performance.

At the same time the lack of overlap does not mean that all the capability requirements of the alliance product are fully met by the capability pool of alliance partners. Our second hypothesis concerns the positive and moderating effect of the shortcomings that most alliances face when the pool of capabilities available from alliance partners fails to meet all the capability requirements of the alliance product. Such shortcomings are the product of the practical limits to partner choices that firms face in reality and reflect the fact that firms often choose partners that increase but not maximize the utilization of their underutilized capabilities.

Coping with the adverse effect of capability shortcomings presents challenges for alliance partners as it requires extra attention and remedial action to offset its negative consequences. Less overlap in alliance partner capabilities reduces motivations to engage in overlapping efforts and contributions to the alliance product by each partner and frees up slack time and resources that could be devoted to remedy or mitigate the adverse effects of capability shortcomings. Moreover, when partners have less overlapping capabilities, they tend to be less consumed with the specifics of the activities performed by the other partners in which they (i.e. the partner not performing the activity) are also capable. When less consumed, the partners tend to be less ignorant towards the shortcomings and be more likely to take actions to mitigate them.

Finally, research has shown that when partners in a joint effort possess diverse capabilities, they tend to be more creative (Milliken & Martins, 1996). Low overlap increases the chances of alliance partners having more diverse capabilities and hence, being more creative in their search for solutions to remedy the consequences of capability shortcomings. In other words, when alliances face higher capability shortcomings, the positive effect of non-overlapping partner capabilities is even more pronounced. Hence,

H2: The extent of capability shortcomings in an alliance will positively moderate the effect of less overlap in partner capabilities on alliance performance.

METHODS

Data and Sample

The empirical context of this study is the US film industry in the period 1995-2009. The major players in the US film production are the six major studios-Twentieth Century Fox,

Warner Brothers, Paramount, Sony-Columbia, Disney, and Universal. Since 1940s and the demise of the era dominated by vertically integrated studios, co-production of films has become a common practice in Hollywood. Although sometimes two or even three major studios cooperate on a production project, the majority of co-productions involve one of the majors and one or two of the smaller, mostly independent studios. There are over 30 such studios in US that team up (almost exclusively) with the majors to produce feature films.

The contemporary film industry is a suitable context for testing the proposed theory in this paper since film genres, as an established framework for distinguishing films based on their required resources and skills (Shamsie et al., 2009), provide a way to measure partner capabilities as well as capability requirements of film projects. The capabilities literature has suffered from eclectic and arbitrary definitions of firm capabilities which have limited the generalizability of the findings (Ethiraj et al., 2005). By relying on film genres to identify capability requirements, this study draws on prior research that has demonstrated a close association between genres and distinct capabilities in film production (Miller & Shamsie, 2001).

Information was collected and organized for a sample of 325 films from various specialty film databases including *www.imdb.com*, the premier online source for film credits and reviews, and *www.boxofficemojo.com*, the prominent source for current and archival box office information.

Dependent variable

The context of film industry is very relevant for this study due to the availability and reliability of a clear measure of alliance performance, i.e. box office receipts. The difficulty of determining alliance performance has been pointed out by prior research as a main issue in most alliance studies. Measures such as alliance longevity and partner firms' performance have been frequently used in literature, drawing criticism as to whether these measures actually get at alliance performance. The context of the film industry lends itself conveniently to the testing of the proposed theory particularly because concrete measures of the performance of the alliance product exist.

The commercial success of the film, also referred to as box office receipts, is the most widely used measure of film success in business literature (Hsu, 2005). We follow this literature and operationalize alliance performance as the total US box office for the period that a film was screened in theaters. We focus on US market to be consistent across the sample since not all films are exhibited in theaters outside US. The box office measure

tends to be left skewed, for which a Box-Cox transformation is employed to generate a more favorable distribution of the dependent variable.

Although data on awards and nominations was also collected, we decided to use box office as the measure of success for a couple of reasons. First, as for-profit organizations, the commercial success of a film tends to be the foremost priority of studios to ensure survival and success in the highly competitive film industry. Second, in our preliminary analysis, we found a high correlation between box office and the total number of awards and nomination (correlation of 0.5) which indicates that the findings would be reasonably consistent even if a composite measure of performance (composed of box office and awards) was used.

Independent variables

Film study literature in general and strategy research in particular, have shown that film genres are closely associated to the types of capabilities needed to produce a film (Hsu 2006; Shamsie et al., 2009). Each genre represents a distinct product in terms of plot, character, setting, thematic, and style, determining the kinds of resources and skills needed to produce, target, and promote a movie in that genre. We collected information about film genres from *www.imdb.com* which categorizes motion pictures across 26 genres. Five of these 26 genres correspond to TV shows (e.g. Talk Show, Reality TV) and hence were not applicable for our sample of feature films. We constructed a vector of the size 21 for each film, with each element corresponding to one genre. For each film, the elements of this vector were set to one if the film was classified in that genre and zero otherwise. This vector represents the capability requirements of the alliance product.

It is worth noticing that many films are categorized along more than one genre (the average film in our sample has three or more genres). For instance, the highest grossing film of 2009, Avatar, is classified as Action, Adventure, Fantasy, and Sci-Fi. In our operationalization of capability requirements, we treat this multi-genre classification as an indicator of multiple capability requirements. So in the case of Avatar, the classes of required capabilities include Action, Adventure, Fantasy, and Sci-Fi.

The main hypothesized effect in this study is the non-overlapping capabilities of alliance partners. Conceptually, non-overlapping capabilities refer to the extent to which partners possess and contribute different classes of required capabilities to the alliance product. Going back to the example of Avatar, consider two different scenarios for the ways in which the production studios (i.e. Fox and Lightstorm Entertainment) contributed in terms of the film's capability requirements (depicted in Figure 1). In scenario 1, fox has strong capabilities in Action and Sci-Fi and Lightstorm is very capable in Adventure and Fantasy. In scenario 2, Fox has strong capabilities in Action, Adventure, and Sci-Fi and

Lightstorm is very capable in Adventure, Fantasy, and Sci-Fi. There is less overlap in capabilities of alliance partners in scenario 1 than in scenario 2, due to the overlap associated with Adventure and Sci-Fi in scenario 2.

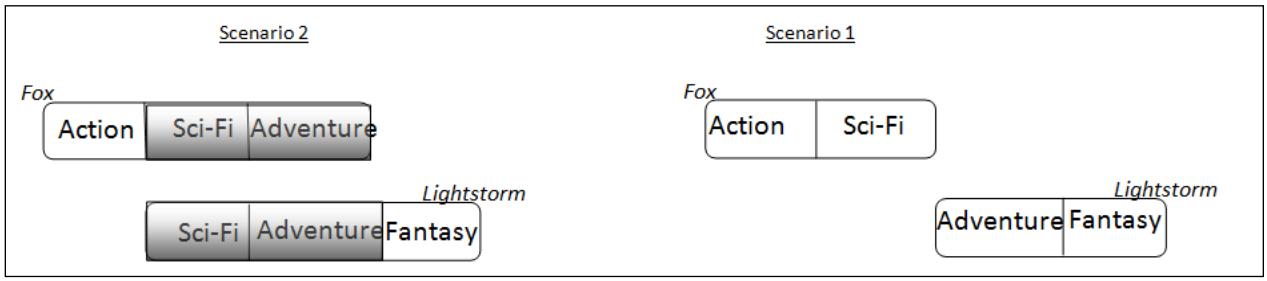

FIG 1. SCHEMATIC DEPICTION OF THE CONCEPT OF NON-OVERLAPPING CAPABILITIES OF ALLIANCE PARTNERS

We define the variable SPECIALIZE as the angle between the capability vectors of alliance partners. SPECIALIZE in this sense is the reverse of overlap and was chosen because it corresponded more directly to the parameters of the vector operations in our empirical setting and allows a more direct test of our hypotheses. We constructed vectors of partner capabilities along the 21 dimensions of film genres discussed before. Capability vector is constructed for each partner studio by counting the number of top grossing films (ranked among top three highest grossing of the year) by that studio in any of the focal film's genres over the three year period immediately before the focal film's year of release. Given the fast pace of change in audiences' commercial and artistic taste, the three year period is a reasonably long period of time to measure accumulated, relevant capabilities for current market needs as shown in other film studies in management research (e.g. Sorenson & Waguespack, 2006).

To illustrate, consider the hypothetical situation depicted in Figure 2. Studios A and B co-produced film F in 2004 with Drama, Biography, and War as the associated genres. The capability vector of Studio A at the time of producing film F (i.e. C_a), for instance, is measured as the count of top grossing Drama, Biography, and War films studio A produced during 2001, 2002, and 2003. And the elements of C_a corresponding to Drama, Biography, and War are set to these count numbers. To maintain consistency, all vectors are defined to have the size of 21 with elements not associated with the focal film's genres or the ones in which a given partner has no capabilities, set to zero. SPECIALIZE is measured as the angle between C_a and C_b.

The gap between the capability requirements of the product and the total pool of capabilities contributed by all partners (i.e. capability shortcomings) is measured by a

similar vector operation. As mentioned before, we constructed a vector of capability requirements for each film in the sample with elements equal to one for the genres associated with the film and zero for the rest of the elements (C_f in Figure 2). The capability shortcomings variable, CAPGAP, is measured as the angle between the capability requirement vector, i.e. C_f, and the sum vector of partner studios' capabilities, i.e. C.

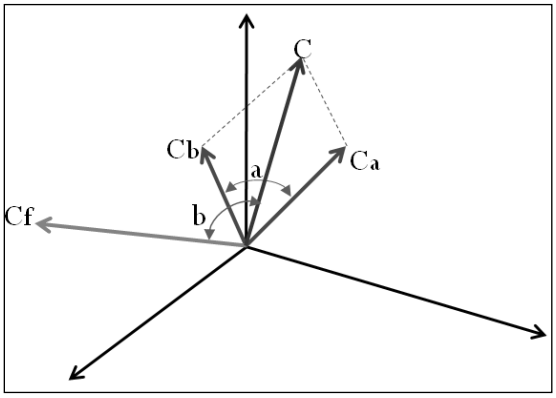

FIG 2. VECTOR OPERATIONS TO GENERATE MEASURES OF NON-OVERLAPPING CAPABILITIES AND CAPABILITY SHORTCOMINGS

We also included a measure of the number of prior co-productions (in past three years) that the alliance partners were jointly involved in, as a measure of repeated interaction. Therefore, following the example in Figure 2, PRIOR is the count of films co-produced by Studios A and B in the three year period before film F's year of release. This variable helps us detect and control for any learning effects that might be present in our sample.

Controls

Following the film studies literature, we control for budget as a major determinant of a film's commercial success. We also control for MPAA (Motion Picture Association of America) ratings since generally, films that get less restrictive ratings from MPAA are received more favorably at the box office. Film industry also demonstrates significant seasonality as people tend to go to movies more often in high seasons (summer, Christmas, etc.). We control for a film's release during the high season.

As alluded to earlier, to avoid the problem of endogeneity that arises from firm-specific effects regarding partner choice and focal firm performance, we include firm dummies associated with the six major studios (e.g. FOX, WAR, PAR, COL, DIS, UNI). The logic behind including dummies only for the majors is that anecdotal evidence shows that they (and not the small studios) have the biggest say in partnering decisions and any significant firm-specific performance effects will be reasonably captured through these dummies removing endogenous selection bias from the estimation process. Since, as the

dominant partners, the major studios are more likely to affect alliance performance through their firm-specific performance advantages, the dummies also partially mitigate the potential bias resulting from firm-level performance effects and help isolate the effects of hypothesized independent variables. Excluding films that do not involve a major studio in our sample ensures the reasonable effectiveness of this technique.

RESULTS

Tables 1 and 2 present the descriptive statistics and the pair-wise correlations for all variables.

TABLE 1. DESCRIPTIVE STATISTICS

	Mean	Std. Dev.	Min	Max
BOXOFFIC	71.53	75.00	0.2	600
SPECIALIZE	1.57	0.81	1	3
CAPGAP	1.20	0.19	0.68	1.57
SEASON	0.45	0.49	0	1
MPAA	3.14	0.77	1	6
BUDGET	55.53	40.54	0.1	225
COL	0.12	0.33	0	1
FOX	0.11	0.31	0	1
WAR	0.21	0.41	0	1
PAR	0.12	0.33	0	1
DIS	0.08	0.28	0	1
UNI	0.27	0.44	0	1
PRIOR	1.84	2.18	0	9

TABLE 2. CORRELATION MATRIX

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. BOX	1.00												
2.SPECIALIZE	0.10	1.00											
3.CAPGAP	-0.02	-0.25	1.00										
4.SEASON	0.21	-0.02	0.08	1.00									
5.MPAA	-0.04	-0.02	-0.07	-0.11	1.00								
6.BUDGET	0.66	0.05	-0.13	0.17	-0.11	1.00							
7.COL	-0.03	-0.05	0.01	0.00	-0.03	0.02	1.00						
8.FOX	-0.06	0.09	0.03	0.06	-0.14	-0.04	-0.13	1.00					
9.WAR	-0.00	-0.03	-0.09	0.02	0.12	0.05	-0.19	-0.18	1.00				
10.PAR	0.09	-0.07	0.12	0.06	0.03	0.05	-0.14	-0.13	-0.19	1.00			
11.DIS	0.00	0.11	0.06	-0.05	-0.18	0.01	-0.11	-0.11	-0.16	-0.11	1.00		
12.UNI	-0.02	-0.00	-0.07	-0.08	0.06	-0.09	-0.23	-0.21	-0.31	-0.23	-0.18	1.00	
13.PRIOR	-0.01	-0.02	-0.04	0.07	0.00	-0.03	-0.02	-0.05	0.27	-0.19	-0.03	-0.00	1.00

The estimation results are presented in Table 3. Four models were tested. Model 1 only includes the controls and captures their predictive power over film performance. Model 2 captures the sole effect of SPECIALIZE after including all the controls in the model. We found moderately significant support (p<0.1) for a positive effect of SPECIAIZE on the box office performance, as predicted in H1. Model 3 introduces the main and the interaction effects of CAPGAP. We found significant support (p <0.05) for a positive moderating effect of CAPGAP on the main effect of SPECIALIZE on box office performance, in line with H2.

Finally, Model 4 introduces the main and interaction effects of PRIOR. No significant effect was found for prior experience of alliance partners together, on alliance performance. The non-significant effect for PRIOR is in line with our arguments regarding the major role of capability access and specialization (as opposed to learning and transfer) within the context of joint development alliances.

TABLE 3. ESTIMATED EFFECTS, ROBUST STANDARD ERRORS, AND CORRESPONDING LEVELS OF SIGNIFICANCE (*** p<0.01, ** p<0.05, * p<0.1)

VARIABLES	Model 1	Model 2	Model 3	Model 4
SPECIALIZE		0.24*	-2.36**	-2.52**
		(0.14)	(1.02)	(1.02)
CAPGAP			-3.13**	-3.19**
			(1.41)	(1.41)
SPECIALIZE_CAPGAP			2.22**	2.25**
			(0.87)	(0.87)
PRIOR				-0.16
				(0.12)
SPECIALIZE_PRIOR				0.08
				(0.06)
BUDGET	0.042***	0.048***	0.041***	0.04***
	(0.00)	(0.00)	(0.00)	(0.00)
SEASON	0.61***	0.63***	0.62***	0.66***
	(0.22)	(0.22)	(0.22)	(0.22)
MPAA	0.09	0.09	0.10	0.11
	(0.15)	(0.15)	(0.14)	(0.14)
FOX	-0.32	-0.40	-0.24	-0.28
	(0.52)	(0.53)	(0.55)	(0.56)
WAR	-0.35	-0.36	-0.39	-0.33
	(0.50)	(0.51)	(0.50)	(0.50)
PAR	-0.36	-0.34	-0.32	-0.39
	(0.54)	(0.54)	(0.53)	(0.54)
COL	-0.73	-0.72	-0.63	-0.59
	(0.54)	(0.53)	(0.53)	(0.53)
DIS	-0.13	-0.23	-0.29	-0.33
	(0.61)	(0.60)	(0.59)	(0.60)
Constant	3.83***	3.49***	7.17***	7.46***
	(0.64)	(0.67)	(1.89)	(1.92)
Observations	325	325	325	325
R-squared	0.46	0.46	0.48	0.48

DISCUSSION AND CONCLUSION

Alliance research has come a long way over the past decades to reveal many aspects of strategic behavior within the contexts of alliances. However, a knowledge-based (and equivalently, a capability-based) view of alliances has been developed only limitedly due to a dominant view that has favored a learning and knowledge transfer perspective. The arguments and the findings in this paper point out to the need to reconsider alliances from a knowledge and capability access view and to examine the various potential implications that such a view could have for the alliance activity and its outcome.

By contrasting the learning and the access view of alliances, this paper presented a theoretical and empirical framework for assessing the effect of less overlap in alliance partner capabilities on alliance performance. The apparent concentration of alliance activities in high-tech industries (Stuart, 2000), has allegedly led the alliance literature to conceive of alliances mainly as vehicles for inter-organizational learning and transfer of specialized knowledge and capabilities. However, building on the access view of alliances suggested by Grant and Baden-Fuller (2004), we argued that at least for joint development alliances, a capability access view provides a more accurate theoretical lens. In particular, due to their unique facility to allow partners to integrate their specialized knowledge at the component level within the firm with the overall integration happening at the alliance level, alliances could offer capability utilization advantages over firms under certain circumstances. Alliances allow firms to offer their underutilized capabilities to alliance partners and overcome the inherent underutilization that arise from developing and maintaining a wide scope of specialized knowledge in-house.

If alliances are best suited to allow a better utilization of otherwise underutilized capabilities, the best fit between their optimal and actual functions will be achieved when complementarities are maximized and overlap is minimized. By showing that specialization of partner capabilities leads to higher alliance performance, this paper has empirically shown that a specialized matching of partner capabilities towards the capability requirements of the alliance product, in effect, increases the fit between the optimal and the actual use of alliances as a form of production organization, which in turn leads to performance benefits.

An interesting practical implication of our findings is that firms need to design and structure alliances in ways that minimize incentives for opportunistic behavior that could trigger a vicious learning race and undermine the benefits of specialization and access. Specialized cooperation can only work if partners accept to open their capabilities for

access and to become dependent on each other. This exposes them to risks of spillovers and hold-ups which if left uncontrolled, will trigger a learning race and a premature demise of the alliance. These risks could be controlled by appropriate alliance design and management.

Future research could follow up by examining other novel issues that arise and gain legitimacy by adopting a capability access lens to the study of alliances. For instance, future research could expand the arguments made in this paper for alliances compared to other forms of organizations, by studying a comparable sample of products that were solely produced to those that were co-produced. This way, the actual utility of the alliances could be measured in a comparative sense to bolster the arguments regarding the relative advantages of alliances under the stipulated conditions in this paper.

A number of other contingencies on the effect of capabilities specialization on performance warrant further investigation. For instance, does repeated interaction enhance or suppress the effect of specialization. However, previous research (Nakamura et al., 1996) and preliminary findings of this paper tend to support the former rather than the latter. Future research could also analyze more closely the situations that trigger the learning races that could undermine the benefits of access and specialization. An examination of the hypotheses at the level of portfolios of alliances could also establish more validity to the arguments made in this paper.

Overall, alliance literature could take significant steps towards explaining the real world trends in corporate strategy by taking a capability access view and testing hypotheses such as the ones developed and tested in this paper. By focusing on the specialization of contributed capabilities to alliances, at least in joint development alliances, scholars could be better equipped to explain recent trends among corporations towards refocusing on core competencies and outsourcing the non-core ones.

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