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Interaction of Alliance Governance and Inter-partner Diversity: Mechanisms to Realize Good Performance of Alliances

ABSTRACT

This study discusses the interaction of alliance governance and inter-partner diversity by considering two forms of alliance governance, namely contractual governance and relational governance, as well as two types of inter-partner diversity, namely diversity of corporate culture and diversity of capabilities. Based on the empirical analysis using the data of 457 alliance samples from survey to alliance managers, the study clarified that contractual governance is effective in governing diversity of capabilities, while relational governance is effective in governing diversity of corporate culture. It was also clarified that other approaches to govern the diversities are counterproductive. The results of this study show the importance of matching a proper alliance governance to inter-partner diversity in realizing good performance of alliances.

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INTRODUCTION

Strategic alliances are voluntary arrangements between multiple independent firms involving the exchange, sharing, or co-development of products, technologies, or services (Gulati, 1998). In spite of the collaborative relationships between them, partners are mutually independent, with different interests; therefore, they are likely to give priority to their own interests even if such behaviors sacrifice the interests of others. If this is the case, the relationship between partners becomes unstable and alliance performance is impaired. Furthermore, business policies and work routines are different between partners, and such inconsistency will create various inefficiencies in their collaboration. In order to realize good performance of alliances, it is necessary to effectively govern the behaviors of partners so that they give priority to the interests of the overall alliance and collaborate with each other by following harmonized business policies. The structure for governing these behaviors of partners is called alliance governance. Prior literature has concluded that an appropriate governance structure is an indispensable requirement to achieve good performance of alliances (Folta, 1998).

The importance of alliance governance is greater for global business environments. As business is globalized, firms from various countries collaborate as alliance partners. In this situation, it is required that partners with different cultures and values agree on the unified management policies, and partners with different knowledge and capabilities also work together to promote their synergy effects. These different characteristics between partners are called inter-partner diversity, and such diversity in international alliances is generally greater than that in domestic alliances where partners are located in the same country. Compared with alliances between homogeneous partners, those between partners with great inter-partner diversity have difficulty in adjusting and harmonizing their behaviors and require more thorough governance mechanisms to control partners.

The purpose of this study is to discuss the interaction of alliance governance and

inter-partner diversity. There are various kinds of inter-partner diversity; i.e. diversity of corporate culture, diversity of capabilities, diversity of resources, diversity of industries, etc. It is necessary to carefully evaluate the diversities between partners so that such diversities are effectively coordinated and utilized in alliances. This study tries to empirically analyze and clarify how good alliance performance is realized through the matching of alliance governance to the various diversities that exist between partners.

The outline of this paper is as follows. The next section will review prior literature which discusses alliance governance from various viewpoints. The section following that will summarize the points of issue concerning inter-partner diversity, and formulate hypotheses about the matching of alliance governance to inter-partner diversity. Subsequently, the methodology to test the validity of the hypotheses will be introduced, and the results of an empirical survey and their analysis will be presented. Finally, the last section will summarize the findings of this study, discuss their implications, and present the issues left for future research.

ALLIANCE GOVERNANCE AND ALLIANCE PERFORMANCE

Contractual Governance and Relational Governance

Alliance governance is the mechanism for governing each partner's behaviors (Pateli & Lioukas, 2011). Alliance governance has two purposes: one is to control partners so that the risk of them adopting opportunistic behaviors is mitigated, and the other is to coordinate partners so that the synergy effects are enhanced through the optimal combination of their resources (Hansen, Hoskisson & Barney, 2008). Opportunistic behaviors mean that a firm attempts to extract additional rents from the partner by failing to perform as agreed (Williamson, 1985). Examples of opportunistic behaviors include that a firm does not live up to its promised contribution of resources, or a firm uses the information received from a

partner for unauthorized purposes. It is expensive to cope with the threats of such opportunistic behaviors in alliances. One purpose of alliance governance is to control partners so that the threats of opportunistic behaviors are mitigated and the transaction costs associated with them are minimized.

Another purpose of alliance governance is to coordinate partners so that the gains generated through the collaboration are maximized. In alliances, all partners contribute their resources and aim to achieve a level of performance which is not achievable alone (Das & Teng, 1998). For the purpose of maximizing gains, it is necessary for partners to properly evaluate respective strengths, and realize the best combination of their resources. In addition, it is also important to adjust operational procedures because each partner has its individual work routines based on its unique customs and experience. Partners need to allocate respective roles, adjust respective works, and coordinate to create the maximum synergetic effects through the combination of their resources.

In order to achieve these two purposes of control and coordination in alliances, there are two different approaches for alliance governance, namely contractual governance and relational governance. Contractual governance is the mechanism to govern partners through explicitly specifying in written contracts the “rules of the game”, such as the allocation of rights and duties between partners, the penalties applied for breaches of agreements, the methods of monitoring each partner’s behaviors, etc. (Poppo & Zenger, 2002). Because it is clearly specified in the contract what should be done and what should not be done, firms will be controlled to fulfill their obligations by following terms and conditions specified in the contract. If one partner does not follow such specified conditions, the other partner has the option of invoking the courts. Considering the expensive court costs and reputational damage from legal proceedings, partners have incentives to faithfully carry out their duties in accordance with mutual agreements (Parmigiani & Mitchell, 2010). Contractual governance is also effective in the coordination between partners. Because the kind of information that

should be provided to the alliance is explicitly specified in the contract, the flow of information is accelerated and enhanced. In addition, because it is also specified how each partner should behave, one partner can easily predict the behavior of the other. The enhancement of information flow as well as the predictability of actions will build up a closer relationship between partners and make its coordination more efficient (Mayer & Argyres, 2004).

On the other hand, relational governance does not base its power upon explicit rules such as contract agreements; it governs the behaviors of partners based on aspects of their mutual relationship, such as trust and commitment (Lee & Cavsgil, 2006). Such a mechanism is realized through frequent communication, direct managerial contact, shared decision-making, joint problem-solving, etc. (Gulati, 1998). A strong trustful relationship will cause each partner to refrain from adopting opportunistic behavior solely in its own interests. If partners share the intention to maintain and develop their relationships, they may behave by prioritizing the performance of the alliance over their own self-interest. If they have confidence that their partners will not betray them, they may also act to meet the expectations of the partners (Das & Teng, 1998). Frequent communication and close friendship will also help to build the work routines to coordinate actions of partners (Dyer & Singh, 1998). Common terminologies will be used to discuss issues in specialized fields such as technology and marketing, which make complicated coordination easier. In this way, behaviors of both partners are controlled and coordinated based on the mutual relationships.

Relationships between Two Forms of Alliance Governance

Any alliance has a mechanism of contractual governance because partners must sign a contract when starting alliances. However, the details and enforceability of contracts differ from one alliance to another; accordingly, the level of contractual governance also differs. In a similar manner, any alliance has a mechanism of relational governance because partners must

have a certain trust each other when forming alliances. However, the level of relational governance differs depending on the level of trust, intimacy and communication between partners. These two approaches to alliance governance coexist and function in alliances in a complementary manner (Roppo & Zenger, 2002). However, the issues concerning relationships between these two forms of governance, i.e. what kind of combination of the two governances is effective, or when one form of governance is superior to the other, are poorly understood (Hoetker & Mellewigt, 2009).

Certain prior literature has discussed the comparison between these two forms of governance. For example, it is pointed out that contractual governance is effective in stable environments, while relational governance leads to good performance in uncertain environments (Oxley, 1997). It is also shown that contractual governance is valid if the purpose of an alliance is exploitative application, while relational governance works well if the purpose is explorative development (Arranz & Frez de Arroyabe, 2012). Other literature pays attention to the type of assets involved in alliances, and has clarified that contractual governance plays a key role if the major assets in alliances are property-based, while relational governance is more suited if the major assets are knowledge-based (Hoetker & Mellewigt, 2009). Furthermore, with respect to the achievements of alliance governance, it was empirically clarified that contractual governance is effective in the cost-minimization, while relational governance is useful in the gain-maximization (Yasuda, 2018).

In order to further develop the stream of governance research, this study aims to analyze the relationships between alliance governance and inter-partner diversity. As described in the previous section, differences and similarities in partner characteristics have an important influence on alliance performance, especially in the business environment where more alliances are formed on a global basis. However, little research has been done on alliance governance in relation to inter-partner diversity. The purpose of this study is to clarify how contractual governance and relational governance are complemented depending on the level

of inter-partner diversity in alliances. The next section will describe some key issues of inter-partner diversity and formulate hypotheses about its interaction with alliance governance.

ALLIANCE GOVERNANCE AND INTER-PARTNER DIVERSITY

Inter-partner Diversity of Corporate Culture

Because partners in alliances are independent organizations, there are differences in their characteristics, such as their corporate culture, values, work routines, capabilities, knowledge, technology, experience, etc. Inter-partner diversity means the difference of various characteristics between partners in alliances (Buruyaka, Caner & Prescott, 2011). Alliance performance will be influenced not only by the capabilities of each partner, but also by the inter-partner diversity between them. Certain types of diversity positively influence alliance performance while other types have negative influences. As the globalization of business progresses, the inter-partner diversity plays a more important role in alliances than ever. In order to realize the good performance of alliances, it is important to actively utilize the positive influence of inter-partner diversity while effectively overcoming its negative influence. For this purpose, it is necessary to appropriately control and coordinate partners' behaviors, and alliance governance plays a key role in this. This section considers two types of inter-partner diversity, namely diversity of corporate culture and diversity of capabilities, and discusses how alliance governance interacts with these diversities.

Difference in corporate culture between partners is a major reason for the failure of alliances (Lavie, Haunschild & Khanna, 2012). In order to make alliances successful, it is important that values and norms are shared among partners. However, if there is a difference in corporate culture, partners are likely to recognize different problems and act differently towards the same problem (Kumar & Anderson, 2000). This will cause a conflict of interests

and alliance management is likely to become stagnant. If partners persist in following only their own interests, the possibility of opportunistic behaviors will increase (Kumar & Nti, 2004). In order to overcome this negative influence of diversity, thorough control to restrain opportunistic behaviors is required through strengthening alliance governance.

Furthermore, a combination of firms with different cultures will induce misperception and misunderstanding (Lane & Beamish, 1990; Yan & Zen, 1999), mismatch of recognition (Delurue & Simon, 2009), and disagreement on solutions to problems (Kogut & Singh, 1988), all of which will make the collaboration inefficient. This inefficiency will be overcome by strengthening the coordination role of alliance governance, because this will harmonize the actions of partners and enhance the synergy effects between them. In these ways, if there is a high level of inter-partner diversity of corporate culture, strengthening alliance governance will restrain opportunistic behaviors and enhance synergy effects, then the good performance of alliances will be realized. Based on the above discussion, the following two hypotheses, one for contractual governance and the other for relational governance, are proposed. Each hypothesis has two mediating factors, the restraint of opportunistic behaviors and the enhancement of synergy effects, which mediate the influence of alliance governance on the alliance performance.

Hypothesis 1. The higher the level of inter-partner diversity of corporate culture, the more likely it is that strong contractual governance will improve alliance performance through restraint of opportunistic behaviors (H1a) and enhancement of synergy effects (H1b)).

Hypothesis 2. The higher the level of inter-partner diversity of corporate culture, the more likely it is that strong relational governance will improve alliance performance through restraint of opportunistic behaviors (H2a), and enhancement of synergy effects (H2b).

Inter-partner Diversity of Capabilities

In technology alliances such as joint development or collaborative research, a key to success is to create new knowledge and innovation which cannot be created alone. In the creation of such new knowledge, the fusion of heterogeneous and diverse capabilities is essential (Phene, Lindquist & Marsh, 2006). The performance of alliances improves as the capabilities of alliance partners become diversified and such diversified capabilities are complementarily combined (Das & Teng, 2003). Based on the empirical research in the bio-medical industry, McCutchen, Swamidass, & Teng (2008) have also pointed out that the complementarity of heterogeneous capabilities brought by partners contributes to the good performance of alliances. Furthermore, Garette & Dussauge (2000) have analyzed alliance samples of European firms and claimed that, compared to alliances with partners in the same country, alliances with extra territorial partners can enhance each of the partner's competitive power by enabling access to new capabilities and global markets.

Because diversity of capabilities has a positive influence on alliance performance as mentioned above, such diversity must be actively utilized. However, as the level of diversity is increased, it becomes more difficult to connect their capabilities and find the best combination of their strengths. In this situation, it is necessary to merge both partners' resources and enhance synergy effects by strengthening alliance governance and enforcing coordination between the partners. Furthermore, as the capabilities of partners are diversified, it is more likely that each partner will pursue a different direction suitable to its own strengths, and their interests will be in conflict. As a result, each partner tends to stick to its own demands, disregarding the circumstances of its partner, and the risk of opportunistic behaviors will increase. In order to realize good performance of alliances, these behaviors need to be restrained by governance to thoroughly control them. In these ways, in the situation of a high level of inter-partner diversity of capabilities, strengthening alliance governance will restrain

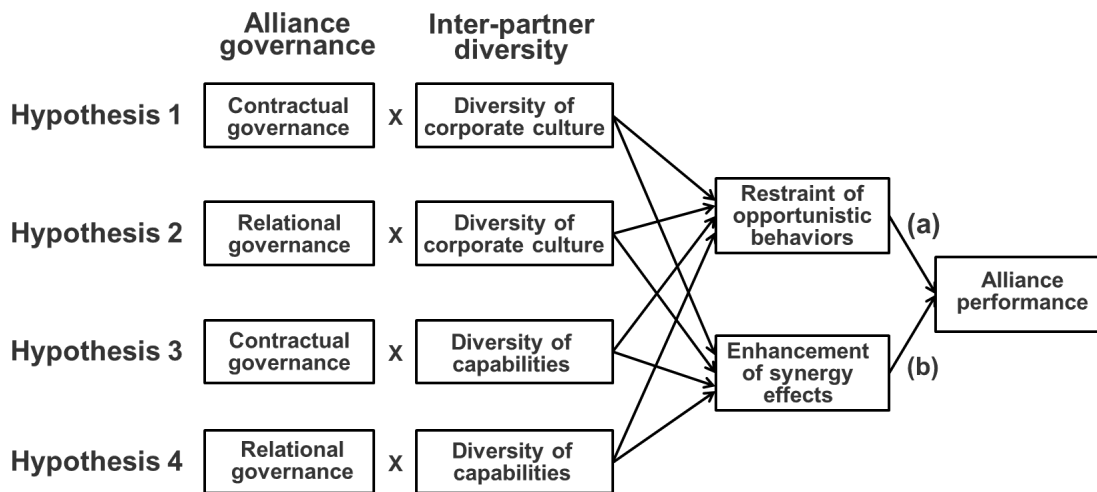
opportunistic behaviors and enhance synergy effects, and thus alliance performance will be improved. Based on the above discussion, the following two hypotheses, one for contractual governance and the other for relational governance, are proposed.

Hypothesis 3. The higher the level of inter-partner diversity of capabilities, the more likely it is that the strong contractual governance will improve alliance performance through restraint of opportunistic behaviors (H3a) and enhancement of synergy effects (H3b).

Hypothesis 4. The higher the level of inter-partner diversity of capabilities, the more likely it is that the strong relational governance will improve alliance performance through restraint of opportunistic behaviors (H4a), and enhancement of synergy effects (H4b).

The next section will make an analysis to test the validity of the hypotheses as proposed above. In order to test the moderating effects of inter-partner diversity on the influence of alliance governance described in the hypotheses, the interaction term is created following Baron & Kenny (1986). For each hypothesis, it is necessary to verify that the interaction of alliance governance and inter-partner diversity has a positive influence on the alliance performance through the restraint of opportunistic behaviors and enhancement of synergy effects. Figure 1 shows the analytical framework to test these relationships.

Figure 1. Analytical framework



RESEARCH METHOD

For the purpose of testing the validity of the proposed hypotheses, a survey was conducted on strategic alliances which Japanese manufacturing firms had formed with foreign as well as domestic partners. The survey was conducted using an on-line survey system offered by NTT Communication, Inc. Managers of Japanese manufacturing firms registered in the system as having experience of managing alliances were selected as respondents. They were requested to choose one or two alliance cases from their experience, and respond to questionnaires for those alliances. In this survey, the definition of alliances includes a wide range of collaborative arrangements in the fields of joint development, joint manufacturing, sales collaboration, shared administration, etc., but it excludes the deals of mergers and acquisitions. A questionnaire was prepared to measure the constructs used in the hypotheses as variables. Scale items for constructs were formulated by referring to prior literature, and confirmed by two alliance managers in the preliminary test. Based on the results of the preliminary test, ambiguous items were clarified and overlapping items were integrated. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Because all survey data are based on the subjective evaluation of respondents, the

possibility exists of common method bias (Podsakoff & Organ, 1986). In order to alleviate this problem, the survey's cover letter emphasized the secrecy of responses and encouraged the respondents to fairly evaluate the alliance from an objective standpoint.

Effective responses were obtained from 375 respondents, and the response rate was 15.6%. This rate is on a par with the response rates of similar studies (Kauppila, 2015). In total, data for 457 alliance samples became available. For all constructs, the principal components factor analysis yielded a single factor, and synthesized variables for constructs were used in the subsequent analysis. The constructs, scale items, scale reliability (α) as well as literatures referred to are shown in the Appendix.

In carrying out the regression analysis, the annual sales volume of the firms and their business categories were controlled by adding dummy variables. Annual sales volume were classified into (i) less than US\$10 million, (ii) more than US\$10 million and less than US\$100 million, (iii) more than US\$100 million and less than US\$ 1 billion, (iv) more than US\$1 billion and less than US\$10 billion, and (v) more than US\$10 billion, while business categories were classified into (i) pharmaceutical and chemical, (ii) electronics and communication, (iii) automobile and machinery, (iv) materials and energy, and (v) others. Alliance scope was also controlled by introducing a variable to identify a major functional activity that the alliance performed, whether it was joint development, joint manufacturing, sales collaboration, or shared administration. Furthermore, another variable was added to identify whether the alliance was international or domestic. The descriptive statistics of variables used in this study and their zero-order correlation are shown in Table 1.

Table.1. Descriptive statistics of variables and their correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Diversity of corporate culture	3.33	.66	-												
2 Diversity of capabilities	3.50	.66	.32 **	-											
3 Contractual governance	3.70	.64	.20 **	.32 **	-										
4 Relational governance	3.59	.65	.14 **	.34 **	.67 **	-									
5 Restraint of opportunistic behaviors	3.51	.68	.13 **	.34 **	.60 **	.68 **	-								
6 Enhancement of synergy effects	3.61	.72	.10 *	.42 **	.51 **	.66 **	.59 **	-							
7 Alliance performance	3.41	.87	.04	.29 **	.46 **	.64 **	.57 **	.69 **	-						
8 Annual sales	3.25	1.38	-.01	-.02	.07	.02	-.02	-.13 **	-.13 **	-					
9 Business categories	3.10	1.18	.13 **	-.01	.04	.01	.00	-.03	-.06	.19 **	-				
10 Joint development	.46	.48	.01	.07	.08 +	.13 **	.06	.09 *	.03	.15 **	.16 **	-			
11 Joint manufacturing	.46	.49	.00	.03	.02	.00	.03	.01	-.07	.12 **	.03	.00	-		
12 Sales collaboration	.46	.48	.04	.05	.00	-.03	.00	.00	-.05	.13 **	-.01	-.12 **	.09 *	-	
13 Shared administration	.46	.43	.04	.12 **	.03	.03	.08 +	.04	.08 +	.04	-.05	-.09 +	.05	.18 **	-
14 International alliance	.46	.44	-.01	.00	.00	-.07	-.02	-.02	-.12 *	.25 **	.08 +	.07	.18 **	.11 *	.08

** p< .01 ; * p< .05 ; + p< .10

RESULTS

Each of the four hypotheses provided in the previous section suggests that the interaction of alliance governance (i.e. *contractual governance*, *relational governance*) and inter-partner diversity (i.e. *diversity of corporate culture*, *diversity of capabilities*) improves the *alliance performance* by influencing mediating factors such as *restraint of opportunistic behaviors* and *enhancement of synergy effects*. In other words, the interaction of *alliance governance* and *inter-partner diversity* as an independent variable has a positive influence on the *alliance performance* as a dependent variable through the *restraint of opportunistic behaviors* and *enhancement of synergy effects* as mediating variables. In order to verify these relationships, the study conducts mediated regression analyses in three steps following Baron & Kenny (1986). To verify that an independent variable influences a dependent variable through a mediating variable, the following three steps need to be confirmed; (i) an independent variable influences a mediating variable in step 1, (ii) an independent variable influences a dependent variable in step 2, (iii) a mediating variable influences a dependent variable, and also the influence of an independent variable on a dependent variable is significantly reduced when a mediating variable is introduced in step 3. If the significant influence of an independent variable on a mediating variable is not confirmed in step 1, the verification process ends with the conclusion that the proposed hypothesis is not supported. This study has

two mediating variables, *restraint of opportunistic behaviors* and *enhancement of synergy effects*. If a significant influence is confirmed on only one mediating factor, the verification process moves to the next step for such a mediating factor. As for the other mediating factor, it is concluded that the proposed hypothesis is not supported. If significant influences on both mediating factors are confirmed, the verification process moves to the next step for both factors.

Step 2 tests the influence of an independent variable on a dependent variable, and if the significant influence is confirmed, then the verification process moves on to the following step. Step 3 tests how the influence of an independent variable on a dependent variable changes after a mediating variable as confirmed in step 1 is introduced. If the influence is significantly reduced in the course from step 2 to step 3, the hypothesis is concluded to be supported, otherwise it is not supported.

Table 2 (Model 1 through Model 6) shows the results of multiple regression analysis which explains each mediating variable (*restraint of opportunistic behaviors*, *enhancement of synergy effects*) with independent variables (interaction of *alliance governance* and *inter-partner diversity* and). Table 3 (Model 7 through Model 11) shows the results of multiple regression analysis which explains a dependent variable (*alliance performance*) with independent variables and mediating variables. In the verification process, step 1 uses Models 3 and 6, step 2 uses Model 8, and step 3 uses Models 9, 10, and 11.

As for hypothesis 1, an independent variable is the interaction of *contractual governance* and *diversity of corporate culture*. In step 1, as shown in Models 3 and 6, the independent variable does not have a positive significant influence on either of the mediating variables (*restraint of opportunistic behaviors*, *enhancement of synergy effects*) ($r=-.87$, $p<.01$; $r=.47$, $p>.10$). Especially, the influence on the *restraint of opportunistic behaviors* is significantly negative. Accordingly, in regard to Hypothesis 1, both H1a (*restraint of opportunistic behaviors*) and H1b (*enhancement of synergy effects*) are not supported.

As for Hypothesis 2, an independent variable is the interaction of *relational governance* and *diversity of corporate culture*. In step 1, the independent variable has a positive significant influence on the mediating variable (*restraint of opportunistic behaviors*) as shown in Model 3 ($r=.83, p<.01$); however its influence on another mediating variable (*enhancement of synergy effects*) is not significant, as shown in Model 6 ($r=.47, p>.10$). Therefore, the verification process will move to the next step for only one mediating variable (*restraint of opportunistic behaviors*). In step 2, the independent variable has a significant positive influence on a dependent variable (*alliance performance*) as shown in Model 8 ($r=.67, p<.05$), and in step 3, this influence is significantly reduced when a mediating variable (*restraint of opportunistic behaviors*) is introduced, as shown in Model 10 ($r=.39, p>.10$). Accordingly, in regard to Hypothesis 2, H2a (*restraint of opportunistic behaviors*) is supported, while H2b (*enhancement of synergy effects*) is not supported.

As for Hypothesis 3, an independent variable is the interaction of *contractual governance* and *diversity of capabilities*. In step 1, the independent variable has a significant positive influence on a mediating variable (*restraint of opportunistic behaviors*) as shown in Model 3 ($r=1.00, p<.01$), and it also has a significant positive influence on another mediating variable (*enhancement of synergy effects*) as shown in Model 6 ($r=.82, p<.05$). Accordingly, the verification process will move to the next step for both mediating variables. In step 2, the independent variable has a significant positive influence on a dependent variable (*alliance performance*) as shown in Model 8 ($r=.33, p<.05$). In step 3, this influence is significantly reduced when mediating variables (*restraint of opportunistic behaviors, enhancement of synergy effects*) are introduced, as shown in Models 10 and 11 respectively ($r=.05, p>.10$; $r=.24, p>.10$). Accordingly, in regard to Hypothesis 3, both H3a (*restraint of opportunistic behaviors*) and H3b (*enhancement of synergy effects*) are supported.

As for Hypothesis 4, an independent variable is the interaction of *relational governance* and *diversity of capabilities*. In step 1, as shown in Models 3 and 6, the independent variable

does not have a positive influence on either of the two mediating variables (*restraint of opportunistic behaviors, enhancement of synergy effects*) ($r=-.76$, $p<.05$; $r=-.31$, $p>.10$). Especially, its influence on *restraint of opportunistic behaviors* is significantly negative. Accordingly, in regard to Hypothesis 4, both H4a (*restraint of opportunistic behaviors*) and H4b (*enhancement of synergy effects*) are not supported.

Table 2. Multiple regression analysis which explains mediating variables

	Restraint of opportunistic behaviors			Enhancement of synergy effects		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Diversity of corporate culture		-.01 (.03)	.04 (.21)		-.07 (.03) *	-.27 (.23)
Diversity of capabilities		.08 (.03) *	-.07 (.21)		.22 (.04) **	-.11 (.22)
Contractual governance		.24 (.04) **	.15 (.26)		.11 (.05) **	-.62 (.28) *
Relational governance		.50 (.04) **	.46 (.26) +		.52 (.05) **	.82 (.28) **
Contractual governance x Diversity of corporate culture			-.87 (.05) **			.47 (.06)
Relational governance x Diversity of corporate culture			.83 (.05) **			-.19 (.06)
Contractual governance x Diversity of capabilities			1.00 (.06) **			.82 (.06) *
Relational governance x Diversity of capabilities			-.76 (.05) *			-.31 (.06)
Annual sales	-.03 (.02)	-.05 (.01)	-.06 (.01) +	-.15 (.02) **	-.16 (.01) **	-.16 (.01) **
Business categories	-.00 (.02)	-.01 (.02)	-.00 (.02)	-.02 (.02)	-.01 (.02)	-.00 (.02)
Joint development	.08 (.06) +	-.01 (.04)	-.01 (.04)	.13 (.07) **	.02 (.05)	.01 (.05)
Joint manufacturing	.03 (.06)	.02 (.04)	.03 (.04)	.03 (.06)	.02 (.04)	.02 (.04)
Sales collaboration	.00 (.06)	.01 (.04)	.01 (.04)	.02 (.07)	.03 (.05)	.03 (.05)
Shared administration	.09 (.07) +	.04 (.05)	.04 (.05)	.05 (.08)	-.00 (.05)	.00 (.05)
International alliance	-.03 (.07)	.02 (.05)	.03 (.05)	-.01 (.08)	.04 (.05)	.03 (.05)
Adjusted R ²	.01	.52	.54	.03	.50	.53
Samples	457	457	457	457	457	457

** p < .01 ; * p < .05 ; + p < .10 (Standard Deviation)

Table 3. Multiple regression analysis which explains a dependent variable

	Alliance performance				
	Model 7	Model 8	Model 9	Model 10	Model 11
Restraint of opportunistic behaviors			.25 (.05) **	.23 (.06) **	
Enhancement of synergy effects			.54 (.04) **		.47 (.05) **
Diversity of corporate culture		-.42 (.28) *		-.35 (.27) +	-.23 (.25)
Diversity of capabilities		-.26 (.26)		-.16 (.25)	-.20 (.23)
Contractual governance		-.19 (.06)		-.01 (.06)	-.22 (.06)
Contractual governance x Diversity of corporate culture					
Relational governance x Diversity of corporate culture		.67 (.06) *		.39 (.06)	.47 (.05) *
Contractual governance x Diversity of capabilities		.33 (.06) *		.05 (.06)	.24 (.05)
Relational governance x Diversity of capabilities		.25 (.05)		.34 (.05)	.06 (.05)
Annual sales	-.10 (.03) *	-.12 (.02) **	-.01 (.02)	-.11 (.02) **	-.04 (.02)
Business categories	-.04 (.03)	-.01 (.02)	-.02 (.02)	-.01 (.02)	-.01 (.02)
Joint development	.06 (.08)	-.03 (.06)	-.02 (.05)	-.02 (.06)	-.04 (.05)
Joint manufacturing	-.04 (.08)	-.04 (.06)	-.06 (.05) *	-.05 (.06)	-.05 (.05) +
Sales collaboration	-.04 (.09)	-.02 (.06)	-.05 (.06) +	-.02 (.06)	-.04 (.05)
Shared administration	.11 (.09) *	.06 (.07) +	.05 (.06) +	.05 (.07)	.06 (.06) *
International alliance	-.09 (.09) +	-.04 (.07)	-.08 (.06) *	-.05 (.07)	-.06 (.06) +
Adjusted R ²	.04	.46	.55	.48	.55
Samples	457	457	457	457	457

** p < .01 ; * p < .05 ; + p < .10 (Standard Deviation)

CONCLUSION

Summary of Findings

As the market becomes globalized, many alliances are formed on a global basis. Because partners with different characteristics from different countries collaborate, such alliances are characterized by a high level of inter-partner diversity. Alliances enjoy immeasurable merits from diversity, while they also face serious difficulties due to diversity. In order to overcome these difficulties and realize the good performance of alliances, it is necessary to effectively govern the relationships between partners. Based on this awareness of the issues, this study pays attention to the interaction of alliance governance and inter-partner diversity, and tries to empirically clarify how appropriate governance is matched to the diversity in place. The findings of this study can be summarized as follows.

First of all, as verified by the support of Hypothesis 2 (H2a), relational governance is effective in governing inter-partner diversity of corporate culture. In other words, in alliances formed by partners with different corporate cultures, it is necessary to strengthen the level of relational governance by endeavoring to have frequent communication, close connection, and united teamwork between partners. This will cultivate trustful bonds between partners, and mitigate the risk of opportunistic behaviors and conflicts of interest. If partners respect the position of each other and give priority to the overall success of the alliance rather than their own interests, it is more likely that the alliance will achieve good performance. Although the strengthening of relational governance leads to the restraint of opportunistic behaviors, this study could not confirm its effects on the enhancement of synergy effects as shown by the rejection of H2b. It is understood that relational governance has a limitation in coordinating the work procedures of partners; therefore its influence on synergy effects is limited.

On the other hand, as verified by the support of Hypothesis 3 (H3a and H3b), contractual governance is effective in governing inter-partner diversity of capabilities. In other words, if

partners with different capabilities collaborate in alliances, it is important to strengthen the level of contractual governance by explicitly defining mutual roles, responsibilities and penalties charged in the case of contract breach. With these conditions specified in the detailed contracts, potential conflicts caused by heterogeneous capabilities will be avoided; thus, opportunistic behavior will be restrained. Strengthening of contractual governance is also effective in the enhancement of synergy effects through the combination of different capabilities. If each duty and the coordination of all tasks are specified in the contract, the vectors of partners will be directed in the same direction. This will help innovative technologies and creative businesses to be developed through the synergetic fusion of heterogeneous capabilities (Rosenkopf & Nerkar, 2001).

The interaction of contractual governance and diversity of corporate culture as well as that of relational governance and diversity of capabilities do not have a positive influence on alliance performance. Especially, they show a negative influence on the restraint of opportunistic behaviors. In other words, if partners with different corporate cultures are controlled by specifying detailed conditions in the contracts, or partners with different capabilities are coordinated by relying on their relationships, these governance mechanisms will be counterproductive. The results of this study show the importance of matching a proper alliance governance to inter-partner diversity.

Discussion

As clarified in the study, alliance performance will improve by strengthening the level of alliance governance matching the inter-partner diversity in place. This finding will be theoretically explained in this section. According to the transaction cost theory, the most efficient structure of inter-firm relationships is determined by the level of transaction cost required to carry out transactions between firms (Williamson, 1975). As shown in Figure 2(a), the transaction cost increases as transactions are made in the market, while the internal

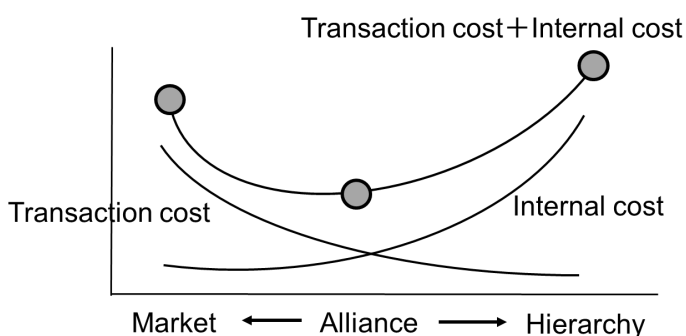
cost increases as transactions are made in the hierarchy. Alliances will be formed when the sum of the transaction cost and internal cost is minimized in the intermediate transaction.

As the level of inter-partner diversity increases, the transaction cost required to control or coordinate the relationships between partners will also increase (Folta & Ferrier, 2000). As shown in Figure 2(b), the curve indicating the transaction cost moves upward (movement of **【A】**) and the minimal point of the sum of transaction cost and internal cost moves to the right (movement of **【B】**). The alliance relationship which formerly minimized the sum of the transaction cost and internal cost is not optimal any more, thus the alliance performance will be hampered (Park & Russo, 1995).

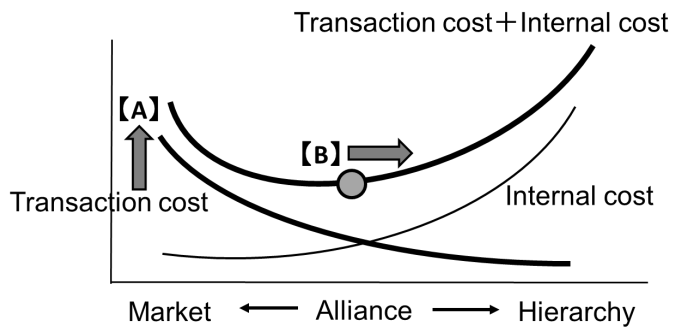
In order for alliances to recover good performance, it is necessary to make the relationship more hierarchical, in accordance with the shift of the minimal point to the right. This is realized by strengthening the level of alliance governance. Strengthening of alliance governance will improve the alliance performance as the level of inter-partner diversity increases.

Figure 2. Theoretical explanation of alliance formation

(a) Base model



(b) Model showing the influence of inter-partner diversity



However, the influence on alliance performance will be different if the characteristics of inter-partner diversity differ. Accordingly, the appropriate method of governance for realizing good alliance performance also differs. Figure 3(a) and 3(b) show the results of slope analysis (Aiken & West, 1991), which show the difference of alliance performance between strong alliance governance and weak alliance governance, comparing two sample groups with a high level and a low level of inter-partner diversity. Figure 3(a) shows the interaction of relational governance and diversity of corporate culture, and Figure 3(b) shows the interaction of contractual governance and diversity of capabilities.

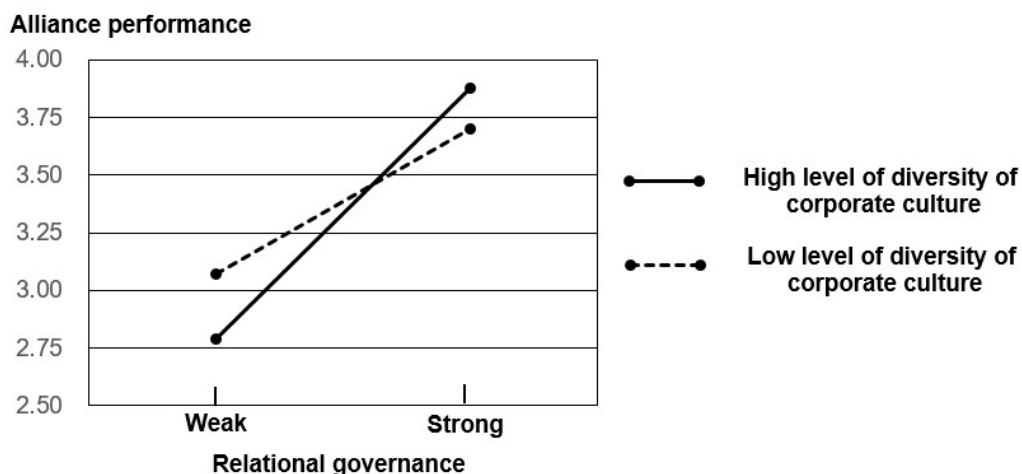
As shown in Figure 3(a), if relational governance is weak, alliance performance of the sample group with a high level of diversity of corporate culture is inferior to that of the sample group with a low level of diversity. This tendency can be explained in the same way as in prior literature, i.e. that the difference in corporate culture causes misunderstanding and mistrust between partners, which hampers the alliance performance through potential conflicts and opportunistic behaviors. However, as shown in the figure, alliance performance improves for both sample groups as relational governance is strengthened. In particular, the improvement of the sample group with a high level of diversity of corporate culture is remarkable. This explains why relational governance is matched to the diversity of corporate culture. Contrary to the arguments of prior literature insisting on the negative influence of

diversity of corporate culture, this study evaluates the interaction of diversity and alliance governance, and clarifies that such diversity has a positive influence on alliance performance if relational governance is strong enough.

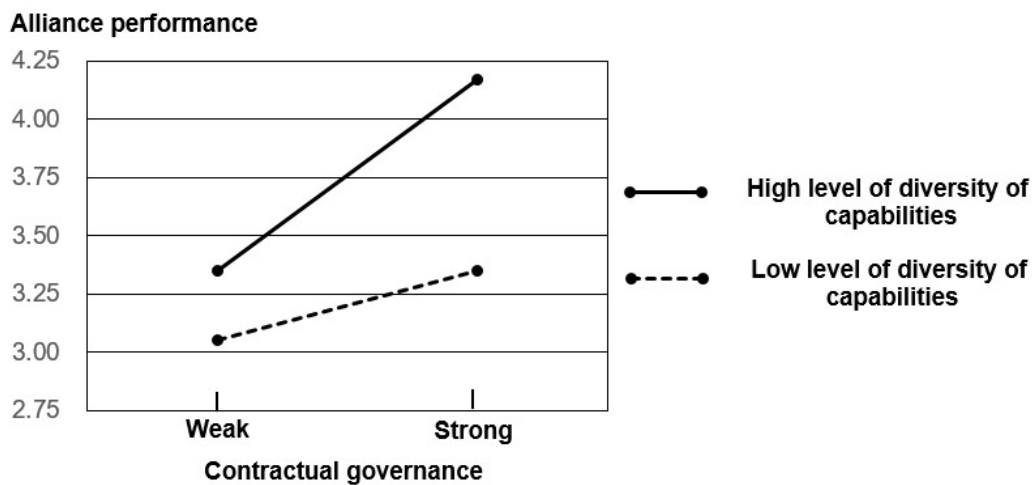
On the other hand, Figure 3(b) shows that alliance performance of the sample group with a high level of diversity of capabilities is superior to that of the sample group with a low level of diversity. This tendency can also be explained by the argument of prior literature that the fusion of heterogeneous capabilities enhances the creation of new knowledge, which leads to good performance of alliances. Figure 3(b) also shows that the superior performance of a high level of diversity is further enhanced as the contractual governance is strengthened. This explains why contractual governance is matched to the diversity of capabilities. In addition to the insistence of prior literature that the diversity of capabilities has a positive influence on alliance performance, this study finds that this tendency is enhanced by the strong establishment of contractual governance.

Figure 3. Slope analysis of interaction

(a) Interaction plot for relational governance and diversity of corporate culture



(b) Interaction plot for contractual governance and diversity of capabilities



Suggestions for Future Research

Future research could address some of the limitations of this research. This study empirically analyzed the interaction of alliance governance and inter-partner diversity, and clarified that strong relational governance matching the diversity of corporate culture as well as strong contractual governance matching the diversity of capabilities are effective in realizing good performance of alliances. Based on the empirical analysis using the survey data, this study gives an explanation of why these matchings are effective; however, this explanation is not grounded in enough theoretical arguments. More theoretical consideration needs to be added to the findings of this study through carefully surveying organizational theories and governance literatures.

Next, this study uses a simplified analytical model with two types of inter-partner diversity, namely diversity of corporate culture and diversity of capabilities. There are other differences in characteristics between partners, which will have different influences on alliance performance. With other factors of diversity incorporated in the model, it will be possible to extend the scope of analysis. Furthermore, the model of this study considers two mediating factors influencing alliance performance, namely restraint of opportunistic

behaviors and enhancement of synergy effects. Each of these two factors corresponds to the two roles of alliance governance, control and coordination, respectively. However there are also other mediating factors which play the roles of control and coordination. Future research may explore more factors in the model and deepen understanding of the influence of governance and inter-partner diversity on alliance performance.

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APPENDIX

Constructs and scale items

Constructs	Reliability	Scale items
Diversity of corporate culture (Calori and Sarnin, 1991; Lavie et al., 2012)	$\alpha=0.83$	Partner has different attitude to challenge new things by taking risks than our firm.
		Partner has different attitude towards change (aggressive vs conservative) than our firm.
		Partner has different relations among employees (cooperative or competitive) than our firm.
		Partner has different ways of evaluation (results oriented vs process oriented) than our firm.
		Partner has different style of decision making (top down vs bottom up) than our firm.
		Partner has different ways to proceed jobs (team oriented vs individual oriented) than our
Diversity of capabilities (Kale, Singh, Perlmutter, 2000; Tomita, 2010)	$\alpha=0.82$	Partner owns different capabilities than our firm.
		Partner owns different knowledge and technologies than our firm.
		Partner owns different management resources than our firm.
		Partner owns different viewpoints to solve problems than ours.
		Partner takes different approaches to solve problems than ours.
Contractual governance (Arranz & de Arroyabe, 2012; Wallenburg & Whu, 2014)	$\alpha=0.85$	Detailed contracts are executed between partners
		Cooperative procedures observe the rules defined in the contracts
		Goals of the alliance are clearly defined
		Achievements of alliance are reviewed and monitored
		Project organization is clearly defined
		Roles, duties, authorities of members are clearly defined
Relational governance (Hoetker and Mellewigt, 2009; Kale, Singh & Perlmutter, 2000; Arranz and de Arroyabe, 2012)	$\alpha=0.85$	Information is openly exchanged between partners
		There exists mutual trust between partners
		There exists close communication between each level of partners
		Long term and short term goals of alliance is shared between partners
		Steering committee of top management is established between partners
Restraint of opportunistic behaviors (Judge and Dooley, 2006)	$\alpha=0.87$	Working teams of specialists are organized between partners
		Actions follow mutual agreements
		Mutual agreements are respected although they are not convenient
		Any opportunities are refrained if they are against mutual agreements
Enhancement of synergy effects (Arifio, 2003; Lavie, Haunschild & Khanna, 2012)	$\alpha=0.87$	Benefits of alliance have priority over benefits of each party
		There exists a synergy in cooperation between parties
		Good performance is achieved which is never achieved by individual
		Knowledge and ideas are created which are never created by individual
Alliance performance (Judge and Dooley, 2006; Arranz and de Arroyabe, 2012; Wallenburg and Whu, 2014)	$\alpha=0.93$	Good opportunities are gained which are never gained by individual
		Alliance performance is satisfactory
		Goals of alliance are achieved
		Good return is gained for the investment in alliances
		Alliance is successful