# AN EMPIRICAL STUDY OF THE DETERMINANT FOR INTER-ORGANIZATIONAL RELATIONS

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**Abstract—** The objective of this research was to clarify empirically the factors which a company selects regarding various inter-organizational relations, such as merger and acquisition (M&A), keiretsu intragroup dealings (business affiliation), and an alliance. As its research methodology, a questionnaire was given to the managerial class engaged in a company's strategy execution. In conclusion, some important determinants were verified through the questionnaire.

**Keywords—** Inter-organizational relations, M&A, Keiretsu (Business affiliation), Alliance, Questionnaire.

## I. INTRODUCTION

The objective of this research is to clarify empirically the determinants of the inter-organizational relations between companies. In particular, the differences among modes of inter-organizational relation, such as M&A, keiretsu intragroup dealings, and strategic alliances are observed. The research also verifies through a questionnaire the association between such inter-organizational relations and factors influencing the strategy and organization of a company.

The determination of the boundary of a company has long been the subject of argument in business economics. For example, as a classic theory, Coase (1937) examined the boundary subject through the contrast between the rationale of an organization and the rationale of a market. The theorem of Coase was taken up by Williamson (1979) and was improved as a transaction cost theory. Applicability of the transaction cost theory is very high, and it has included various notions related to cost or risk. The transaction cost theory brought progress to business economics, microeconomics and so on.

However, the boundary of the company is increasingly complicated and diversified by the transition of a market or progress of technology, including the internet. There is an increasing need, for example, to take the viewpoint of a competitive strategy or an organizational ability into consideration, especially concerning inter-organizational relations, as signifying the actual condition of a company, in addition to an analysis of cost or risk. In order to explain various inter-organizational relations, new explanation theories appear one after the other: for example, theories about the de facto standard competition on product specifications (Katz & Shapiro, 1985), platform leadership (Gawer&Cusumano, 2001), or open innovation (Chesbrough, 2003). They are theories on company trends in considering strategy and innovation beyond the boundaries of an organization. Besides, it is thought that a simple answer about the inter-organizational relations of a company does not exist as a proof in relation to many of these theories. In selecting inter-organizational relations, the optimal possibilities differ according to the strategy and organization factors of a company. Besides, if a management environment or a strategy changes, the optimal inter-organizational relation will also change.

Therefore, the boundary of a company is a serious and appealing decision-making subject for the top manager of a company. It becomes difficult to perform all activities as a single company as a management environment transnationalizes and technology progresses. Taking into consideration the strategy, managerial resources, and management style, the top manager of a company has to classify the activity which depends on the other company, and has to select inter-organizational relations appropriately. For example, an opportunity to examine the boundary subject of companies—such as restructuring a business organization, starting a new business or advancing into an overseas market—appears frequently. In order to gain necessary activities, various options can be considered including in-house development, M&A, a loose capital relationship and personal exchanges, or a market transaction. If the selection of an inter-organizational relation is appropriate, the company can increase competitiveness. On the contrary, if such a selection is not appropriate, the company cannot carry out a strategy easily and may waste managerial resources.

This research aims at becoming the support to a business decision-making person by proving a selection and rationale of the inter-organizational relations of a company theoretically. As its research methodology, a questionnaire was given to the managerial class engaged in a company's strategy execution.

## II. PRECEDENCE RESEARCH SURVEY

### *2.1. Cost and risk*

One of the traditional theories explaining inter-organizational relations is transaction cost theory

(Williamson, 1979) and its subsequent developmental researches. In this theory, decisions on the selection of internal and external managerial resources of an organization are made by comparison of two kinds of cost. One is a transaction cost, based on the pricing mechanism of a market. The other is the internalization cost, based on the control mechanism of an organization. In addition to the direct counter value of a market transaction, search cost, risk by business contacts' opportunistic behaviour, etc. are contained in a transaction cost.

For example, Dyer, Kale and Singh (2003) explain the selection of inter-organizational relations by application of transaction cost theory. According to Dyer, Kale and Singh (2004), although alliance and acquisition have recently often been performed together as a method of business growth, in fact, many have been unsuccessful. The reason for this is that these two strategies are disparate. Nevertheless, many companies have selected inter-organizational relations simply, without comparing the merits and demerits of an alliance and an acquisition sufficiently. Dyer, Kale and Singh (2004) show five selection criteria as a framework contributing to the decision-making of acquisition or alliance. They are type of synergies, nature of resources, extent of redundant resources, degree of market uncertainty, and level of competition.

Among these, the cost reduction as a result of scale economies may be brought about by the extent of redundant resources. Therefore, in cases where the extent of redundant resources is high, it is desirable to internalize complementary resources, such as market access, by acquisition or merger. Furthermore, in cases where level of competition is high, a strategy which gives priority to speed (time buying) is desirable by internalizing resources promptly by means of acquisition.

Meanwhile, in cases where the degree of market uncertainty is high, the risk of internalizing resources in the company becomes high. In this case, it is thought desirable to lower uncertainty by advancing learning from an external resource by means of alliance. However, when ambiguity in market needs and uncertainty about a technical development increase, the specialization of an organization may progress, utilizing an external resource on a research and development basis. The so-called open innovation (Chesbrough, 2003) can be initiated. Creation of innovation may be promoted by ad hoc cooperation with various external organizations.

### *2.2. The source of competitive advantage*

When considering integration or cooperation with an external organization, not only are quantitative viewpoints, such as the cost of resources possession, important, but so is the qualitative side of a resource, especially in a relationship with a competitive advantage. In terms of theories about the source of competitive advantage, there is the positioning theory (Porter, 1980), which mainly observes the relationship with the external environment of a company, and the resource-based theory (Barney, 1991), which observes the resources and organizational ability inside a company traditionally. The fundamental analysing point of the former is economic efficiency based on an analysis of cost or risk. Meanwhile, the latter's fundamental analysing point is the capability and the imitation difficulty of managerial resources.

Dyer, Kale and Singh (2004) comment that in terms of the nature of resources, it is more desirable to internalize resources through capital alliance etc. in cases where the value of the soft resource compared to a hard resource is relatively high. It is thought that competitive advantage can be improved by internalizing soft resources, since an imitation of soft resources is more difficult than an imitation of hard resources. Similarly, regarding types of synergy, Dyer, Kale and Singh (2004) say that it is more desirable to internalize an external resource through an acquisition etc., in cases where the relation of the resources between organizations is tightly knit. Conversely, as long as the relation of the resources between organizations is simple, an alliance or a market transaction is suitable.

Ulrich's (1995) product architecture theory is one of the major theories explaining the association between inter-organizational relations, resources and organizational ability. Product architecture theory pays attention to the level of interdependence between the components which constitute a product, and between each process. In cases where interdependence is high, it is thought that the resources of an organizational structure tend to be internalized. Conversely, in cases where interdependence is low, it is thought that the organizational structure has specialization and a selection of resources tends to follow. Modularization occurs when interdependence becomes low. For example, according to Clerk and Fujimoto (1991), the product architecture changes with industry segments. In the computer business, the product is modularized, as compared with the motor vehicle industry. Therefore, specialization progresses in the computer business, and integration and keiretsu (business affiliation) progress in the motor vehicle industry.

### *2.3. The competition over standards*

In a modern management environment in which a company considers an alliance or a merger with an external organization, competition over the standard of a product or service is raised. There are some types of competition between standards, and these can be divided into a de facto standard, a de jure standard and a consensus type standard, among others. In a de facto standard style, the network externality is important and increasing the number of the customers and complementary products through market competition as compared with a rival company is

important (Katz & Shapiro, 1985). For example, in the case of the system which consists of hardware and software, a compatible standard arises through network externality (Katz & Shapiro, 1994). If the user of a certain standard surpasses critical mass, a user will be locked up in the standard and the standard will function as an entry barrier to a competitor. Therefore, a company tries to perform a strategic pricing action. The standardization through such market competition tends to serve as a fierce competition between standards.

Therefore, recently, the formulation of standards is performed before product launch through cooperation between various companies, such as a technical consortium. The consensus around a technical adoption is formed through non-market conference. It has been reported that a platform leader company especially often uses a consensus standardization strategy (Gawer&Cusumano, 2002; Iansiti& Levin, 2004).

## III. HYPOTHETICAL DERIVATION

Based on the above-mentioned prior research, the following survey hypotheses for specifying inter-organizational relations were determined.

First, as a hypothesis about cost, in cases where slack resources are abundant, it is thought that internalization of resources aims at cutting costs according to merit. Besides, in cases where a standing expense is large, it is important to increase the volume of sales as much as possible—for example, where a large plant investment is required, in cases where the research expenses for up-to-date technology are large, etc. In this case, a company is thought to include resources from inside and outside the country in order to expand its market. Also, in cases where the level of competition is high, it is thought that an external resource tends to be internalized in order to accelerate the speed of a market extension or a share expansion.

H1. In cases where economies of scale is large, a company selects internalization and M&A with an external resource.

H2. In cases where level of competition is high, a company selects internalization and M&A with an external resource.

On the other hand, where the risks and uncertainties of a management environment, such as market environment and technical environment, are high, a company is thought not to rush into the internalization of resources. For example, where a company moves into an unknown market, the risk of the market needs or social system grow. In that case, it is more desirable to reduce the uncertainty by developing external knowledge over many hours, tying up with various partners. Furthermore, where a company performs a new development in an unknown area, the uncertainty surrounding technical development becomes high. In that case, a company is thought to lower uncertainty by associating broadly with various companies like an open innovation.

H3. In cases where the uncertainty of a management environment is high, a company selects alliance with an external organization.

Next, as a hypothesis about the source of competitive advantage, in cases where managerial resources are important, a company is thought to internalize the resources. When a company internalizes important resources, it becomes difficult for other companies to access the resources. Managerial resources are divided into tangible assets, such as a facility, and intangible assets, such as talented people and intellectual property, and both can become a source of competitive advantage. In contrast, in cases where the value of managerial resources is low or are easily substituted, it is thought that an alliance or a market transaction is selected. Furthermore, in cases where the interdependence of company resources and other resources is low, it is thought that an alliance or a market transaction is selected.

H4. In cases where managerial resources are important as a source of competitive advantage, a company selects internalization and M&A with an external resource.

Next, the hypothesis about the association between inter-organizational relations and a standardization strategy is considered. In the industry segment where standardization is not progressing, a company is thought to integrate and coordinate with an external resource. In contrast, in the industry segment where the standardization is progressing, a company is thought to form an alliance with an external organization loosely to form or participate in the ecosystem about major standards. Furthermore, in cases where there is a standard or service which serves as a business platform for an industry segment, it is thought that a market transaction tends to progress.

H5. In cases where it follows standardization and a platform on an industry segment exists, a company selects alliance with an external organization.

## IV. VERIFICATION METHOD AND RESULTS

### *4.1. Verification method and synopsis of results*

The questionnaire to companies was performed in order to verify the above-mentioned hypotheses. The questionnaire was distributed in the company-oriented management workshop held in Osaka, and requested responses from the manager class which is responsible for the decision making concerning the strategy and organization of a company. The period of distribution was during July, 2015 and the number of valid responses was 50 companies.

The question items in the questionnaire were divided broadly into an objective variable group and an explanatory variable group. The objective variable is the relationship with an external organization. It considers the utilization degree of M&A, Keiretsu

(strong relations around capital and a personnel) and alliances in terms of possession and an intensification of the managerial resources for the important part of a business process. Explanatory variables were designed based on each above-mentioned hypothesis. All responses were measured on a five-point Likert scale (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree).

As an analytical method, after examining ceiling effect, floor effect, reliability scale, etc., question items were collected by factor analysis, and a correlation analysis of the factor scores between an explanatory variable and the objective variable was conducted. SPSS ver22 by International Business Machines was used for each statistical analysis.

### *4.2. Factor analysis results*

The following factors were extracted when the factor analysis was conducted about explanatory variables.

First, two factors were extracted about cost. The first factor consisted of question items about investment cost, slack resources, etc., and was named the economy of scale factor. The second factor consisted of question items about the severity of the competitive environment in terms of market or technology, and was named the level of competition factor.

Next, one factor was extracted about the risk or the uncertainty. It consisted of question items about the uncertainty about a market, technology, and social system, and the uncertainty factor was named.

Next, two factors were extracted about the source of a competitive advantage. The first factor consisted of question items regarding a tangible asset, an intellectual property, etc. as a source of competitive advantage, and was named the competitive advantage asset factor. The second factor consisted of question items regarding a human resource, etc. as a source of competitive advantage, and was named the competitive advantage talented people factor.

Finally, two factors were extracted about the standardization. The first factor consisted of question items regarding standardization, modularization, etc., and was named the standardization factor. The second factor consisted of question items about industry platform etc., and was named the platform factor.

### *4.3. Correlation analysis*

MThe correlation analysis of the inter-organizational relations, which is the above-mentioned objective variable, and a factor score of the factor extracted from each explanatory variable was conducted. Results of the analysis are presented in **Table 1**.

**Table1: Correlation-analysis result. (** 1% of significant probability, * 5% of significant probability)**

| Factor | M&A | Keiretsu | Alliance |
|---|---|---|---|
| 1. Economy of scale | .460** | .335* | .283 |
| 2. Level of competition | .319* | .100 | .048 |
| 3. Uncertainty | .089 | .217 | .399** |
| 4. Competitive advantage resource | .616** | .413** | .202 |
| 5. Competitive advantage talented people | .230 | .001 | .010 |
| 6. Standardization | .136 | .264 | 305* |
| 7. Platform | .015 | .061 | .116 |

### *4.4. Discussion*

Each above-mentioned hypothesis is considered based on correlation analysis results. First, each hypothesis regarding cost or risk was verified. M&A is selected in cases where economies of scale is large, and competition is intense. It is thought that it is the selection which gives priority to speed. On the other hand, alliance is selected in cases where uncertainty is high.

Next, the hypothesis regarding managerial resources was partially verified. In cases where a fixed asset, an intellectual property, etc. is an important managerial resource, a company is thought to internalize it through M&A, etc. On the other hand, in the case of a Japanese firm, the trend to raise human resources inside with a long-term view is traditionally strong as compared with a company in a foreign country. Therefore, it is supposed that the Japanese firm hardly depends on outside human resources.

Finally, the hypothesis about standardization was partially verified. Alliance is selected in cases where the standardization is progressing. In cases where the platform for the industry already exists, it is supposed that a market transaction is used abundantly. Hypotheses one to three were verified and hypotheses four and five were verified partially.

Here, although the relationship between each explanatory variable and objective variable became clear, in an actual firm's choice, these explanatory variables may combine intricately—for example, where a company with surplus assets moves into the emerging country where uncertainty is high, etc. Then, multiple linear regression analysis was conducted on all the factors of explanatory variables in relation to each objective variable. In consideration of the multi-collinearity, the stepwise method extracted only the factor with the strongest relationship. As a result, regarding M&A and

business affiliation, the competitive advantage asset was the most important, and uncertainty was the most important for the alliance. As implied, in order to select inter-organizational relations appropriately, it is thought that the competitive advantage of an asset and environmental uncertainty should first be taken into consideration. If they are equivalent, then another condition should be compared. In the above-mentioned case, if a company thinks that the competitive advantage of its company is also effective in a new market, investing positively in internalization may be desirable. An alliance option may be the first priority if the assessment of the decision making regarding uncertainties, such as market and institution, is the highest.

## CONCLUSIONS

The objective of this research was to clarify empirically the factors which a company selects regarding various inter-organizational relations, such as M&A, keiretsu intragroup dealings, and an alliance. In this research, some important determinants were verified through the questionnaire to the manager class of a company. As implied in this research, support for the decision making of the manager in respect of strategy planning for a company is expected. As a limitation of this research, since the object for analysis is limited to a Japanese firm, there is a possibility that the peculiar management environment of a Japanese firm may have influenced the results of the analysis. Future research should seek to clarify a more robust cause-effect relationship by means of, for example, international comparison research.

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