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The Effects of Dynamic Transaction Cost on  
Manufacturer's Wholesale Integration

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**Abstract**

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The results of empirical analysis using structural equation models provide backing for the assertions of traditional TCA that asset specificity has a positive effect on the degree of ownership integration. The results also provide empirical support for the assertions of the dynamic transaction cost model that relative capabilities (differences in capabilities) have a negative effect on the degree of ownership integration and capability tacitness has a negative effect on the degree of coordination integration.

**Key words:** mass customization, delayed product differentiation, postponement-speculation model, multiattribute consumer choice model, uncertainty, innovation

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# THE EFFECTS OF DYNAMIC TRANSACTION COST ON MANUFACTURER'S WHOLESALE INTEGRATION

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In marketing channels, manufacturers make various transaction-relationships with wholesalers. Marketing scholars have examined this subject since the 1980s through the application of transaction cost analysis (TCA). TCA, however, mainly focuses on asymmetric information and opportunistic behavior for a fixed moment, and is thus unable to express such a dynamic issue as the difference of capabilities between firms. This paper investigates manufacturers' procurement of wholesale functions, in order to examine the empirical validity of modified dynamic transaction cost analysis that can solve the problems associated with TCA and also dynamic transaction cost analysis (DTCA).

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**Key words:** marketing channel, dynamic transaction cost, capability, transaction cost, asset specificity, relationship, ownership integration, coordination integration, structural equation modeling

## INTRODUCTION

The purpose of this study is to investigate how manufacturers decide vertical relationships with wholesalers in marketing channels. The process of determining the channel structure is the process of assorting the variety of distribution functions that are needed to operate the marketing channel. Manufacturers make various vertical relationships with wholesalers to

distribute their products. In an extreme case, a manufacturer could vertically integrate wholesale functions and execute all wholesale functions alone. At the other extreme, the manufacturer could purchase wholesale functions from disintegrated independent wholesalers. We can also observe hybrid transactional relationships between vertical integration and arm's length market transaction. In the last two decades, marketers have explored how these transaction relationships are determined using transaction cost analysis (TCA), an approach with roots in Coase (1937) and Williamson (1975, 1985) and large body of literature in marketing channel research (Anderson 1985, Heide 1994).

Although past literature has focused on the role of transaction cost that occurs in times of imperfect information, TCA has many fundamental theoretical problems (Nelson and Winter 1982, Langlois and Robertson 1995). Among these shortcomings, this paper focuses on the problem that TCA assumes that all firms in the industry have uniform technology and production function, and therefore, cannot be applied to markets with firm heterogeneity (Ghosh and John 1999). As a result of such assumption, TCA disregards the firm's organizational capabilities that reflect firm heterogeneity (Richardson 1972; Wernerfelt 1984; Chandler 1992). Moreover, scholars have criticized TCA for not being able to explain the practitioner's intuitive comment that "our company does not do activity X because we're not good at it" (Argyres 1996, p.130)".

This study focuses on dynamic transaction costs, which are the costs of transferring and/or utilizing organizational capabilities among firms. In order to decide manufacturer-wholesaler relationship, manufacturer must consider how much to transfer and/or utilize the wholesaler's capabilities. This paper is organized as follows: in section 2, we focus of the theoretical nature of TCA and TCA based literatures. In section 3, we examine organizational capabilities and dynamic transaction costs, which are the costs of transferring organizational capabilities. In section 4, we model the manufacturer's decision-making based on dynamic transaction cost analysis. Section 5 describes our methodology and empirical analyses. We use the structural

equation modeling with a dataset about Japanese manufacturers. In concluding section 6, we discuss findings, limitation, and directions for future research.

## **TCA AND MANUFACTURER-WHOLESALER RELATIONSHIP**

Manufacturers need wholesale functions to distribute products efficiently and effectively. In these real world conditions, we can observe a variety of wholesale function governance structures between vertical integration, in which the manufacturer performs wholesale functions within the organization, and arm's length market transaction, in which manufacturers purchase wholesale functions from independent wholesalers. Marketers must decide which governance structure to use to obtain wholesale function. This problem is considered to be a fundamental problem of channel structure design.

With this problem in mind, marketers in the last two decades have focused on TCA to examine channel structure, including manufacturer-wholesaler relationship (Anderson and Coughlan 1993). Transaction costs imply search costs, bargaining costs, contracting costs, and enforcement costs (Coase 1960). When manufacturers want to buy wholesale functions from wholesalers through arm's length transactions, manufacturers must face transaction costs of using the market (Coase 1937). When market transactions costs are too expensive for the manufacturer, he will decide to integrate wholesale function and perform the roles himself. In the literature of channel structure and relationship, TCA is now considered a mainstream framework (Rindfleisch and Heide 1997).

TCA has two behavioral assumptions – opportunism and bounded rationality – and an environmental assumption – uncertainty. TCA asserts that the transaction cost that occurs from the above assumptions creates a variety in economic institutions. In particular, TCA has focused on asset specificity (Williamson 1985; 1996). Based on these assumptions, when the

wholesaler makes relation-specific investments for the manufacturer to customize wholesale function efficiently, the wholesaler is locked into the relationship and is no longer able to exit the relationship without sunk cost. Manufacturers who understand this situation for the wholesaler would appropriate his quasi-rent (Klein, Crawford, and Alchian 1978). However, the wholesaler who knows the intention of manufacture would not make enough investment. As a result, investment becomes less than the socially desirable level and manufacturers would not obtain wholesaling functions at the necessary level. This phenomenon is referred to as the hold-up problem from asymmetric information. According to the assertions of TCA, to avoid wholesalers' underinvestment, manufacturers who need relation-specific investment would increase the degree of ownership integration (Williamson 1985).

TCA-based marketing channel literature has focused on transaction cost that manufacturers should pay when buying distribution services from distributors (Anderson 1996). Therefore, TCA has first and foremost been employed as a framework for explaining the make or buy decisions of distribution functions (Anderson and Schmittlein 1984; Palay 1984; Anderson 1985; Maltz 1993). Additionally, TCA is used for explaining firm decision making about international selling organizations (Klein 1989; Klein, Frazier, and Roth 1990; Erramilli and Rao 1993). As a pioneering study of make or buy decision research, Anderson and Schmittlein (1984) examined manufacturers' make or buy decision making on selling functions. The authors found that the higher the asset specificity needed by manufacturers, the higher the difficulty of performance valuation becomes and the higher the integration of selling function becomes. Based on this study, Anderson (1985) reported that when the relation-specific sales-related human asset has value to the manufacturer, the manufacturer would integrate selling function in order to make investments in the human assets of sales representatives. In their studies on the integration of sales companies, Klein (1989), Klein, Frazier, and Roth (1990), and Erramilli and Rao (1993) have reported that asset specificity has a positive effect on vertical integration of

selling organizations when firms enter the global market. From the review of the literature, TCA uses asset specificity as its key concept and asserts that asset specificity has a positive effect on the degree of ownership integration.

The most critical remaining problem with TCA is that the approach does not consider a difference in firms' levels of technology, mostly because TCA has focused on transaction attributes rather than technological factors (Ghosh and John 1999). Although asset specificity makes a firm different than the other firms, asset specificity is not a source of firm personality. In other words, all firms are at the same starting point if they do not have asset specificity, and such a difference among firms could be created by ex post relation specific investment. Therefore, TCA has been criticized for the fact that its analysis ignores a firm's historical and path dependent nature (Chandler 1992). As a result, TCA cannot demonstrate the marketing practitioner's simple assertion that "our company doesn't do activity X because we're not good at it" (Argyres 1996, p.130). TCA remains problematic in that "it does not contribute to explaining why some firms are simply better than others at 'running a business,' that is, better at producing particular goods and services for particular markets" (Hunt 2000, p.101). Empirical research has tackled this problem. For example, Walker and Weber (1984), which tried to test asset specificity through empirical analysis, reporting that the most important independent variable is a firm's unique organizational capability, not TCA factors. In marketing channels, it does not seem that different firms execute the same wholesale functions at the same cost. TCA has failed to explain channel structure design, including firm heterogeneity. Therefore, the next step in TCA research is the combination of heterogeneity among firms with TCA.

## **ORGANIZATIONAL CAPABILITY AND DYNAMIC TRANSACTION COST**

In this section, we will examine organizational capability and dynamic transaction costs

which are expected by marketers because these ideas will identify the firm's heterogeneity beyond TCA (Aulakh and Kotabe 1997; Ghosh and John 1999; Hunt 2000). Organizational capability has become attractive to not only strategy and organization researchers but also marketers (Wernerfelt 1984; Barney 1986; Aaker 1987; Peteraf 1993). Organizational capability is defined as the ability of executing each single activity, and it is created historically and path dependent within the firm (Richardson 1972; Chandler 1992). These capabilities create firm personality, and they are difficult to transfer without knowledge friction. As a result, these capabilities create firm efficiency and effectiveness in firm activity, and also, develop the firm's sustainable competitive advantage. If many firms execute the same activity, based on differences in capability, some firms will be good at it, the other firms will not. Neo-classical economics (NCE) and TCA assume that firms in the same industry have same technology and same production functions, due to the assumption of perfect technological knowledge, not imperfect information (asymmetric information of intention or activity) (Stigler 1951; Williamson 1985). In NCE's worldview, superior technology diffuses all members in the industry with no additional cost, and the factor market is perfectly competitive (Wernerfelt 1984; Barney 1986). As a result, firm difference in organizational capability cannot exist, and, in the same industry, channel structure would be become equal among all firms (Bucklin 1966). In contrast to the neo-classical worldview, this paper will examine the phenomenon of different manufacture-wholesaler relationships coexisting in same industry by focusing on organizational capability.

The process of determining channel structure is the process of assorting the variety of capabilities needed to operate the marketing channel. When assorting capabilities, manufacturers pay other kinds of transaction costs. When manufacturers need high quality distribution services, or when distributors lack the capability to provide distribution services demanded by the manufacturer, the cost required for persuading, educating, and bargaining with

the distributor occurs in trade for such a distribution service. These costs are pure information costs but are derived from an asymmetry of capability and knowledge, not an asymmetry of information claimed by TCA. These costs are called dynamic transaction costs and are defined as “the cost[s] of persuading, negotiating, coordinating, and teaching outside suppliers” or “the cost[s] of not having the capabilities you need when you need” (Langlois and Robertson 1995, p.35). The logic of dynamic transaction cost analysis (DTCA) is similar to TCA. DTCA asserts that when dynamic transaction costs of exchange distribution services are high, manufacturers will integrate wholesale functions, and when dynamic transaction costs are low, manufacturers will disintegrate wholesale functions.

The dependent variables of DTCA come from two dimensions of channel structures: degree of ownership integration and degree of coordination integration. The former signifies the extent that manufacturers have ownership of firms or divisions which execute wholesale function. The latter indicates that coordination of wholesale function is executed by one leader firm, not by each player in marketing channel.

DTCA hypothesizes that the dimensions of channel structure are determined by two variables: relative capability and tacitness of capability. And, these two variables are determined by an independent variable: market uncertainty. Relative capability refers to the difference in the levels of capability between manufacturer and wholesaler. If the manufacturer can perform a particular wholesale function less well than a wholesaler, the supplier’s capability is low. This concept refers to how cheaply firms can execute the wholesale function. Second, tacitness of capability refers to the degree of difficulty in mastering wholesale function for the manufacturer. If manufacturers can readily master wholesale functions, the knowledge of executing wholesale functions is diffused to other firms. The third term, market uncertainty, refers to the degree of turbulence in the competitive environment within which firms compete.

If innovation and/or entry and exit did not occur, the competitive environment would stable. Within a stable environment, local capabilities will diffuse to other firms.

Organizational capability factors have been the subject of various studies. Aulakh and Kotabe (1997) examined the form of global entry for integration and disintegration in manufacturer-wholesaler relationships by focusing on old industrial organization factors, TCA factors, and capability factors. Gulbrandsen and Haugland (2000) examined the internalization of maintenance service through an integrated TCA/DTCA framework. They found that the tacitness of capability decreases integration. This kind of phenomenon is different from the scale economy (Williamson 1985), which occurs from capability factors.

## **CONCEPTUAL FRAMEWORK**

As discussed in the previous sections, there are two potential approaches for the marketing perspective: TCA and DTCA. While the former suggests that manufacturer-wholesaler relationships are determined by transaction costs rooted in asymmetric information, the latter is determined by dynamic transaction costs rooted in asymmetric knowledge. In the real world, the two factors may have an effect on how manufacturers make relationships with wholesalers, because transaction costs and dynamic transaction costs are independent. The rest of this section develops a causal model using the two factors.

Market uncertainty is one of the most important environmental factors for TCA and DTCA. Under rapidly changing consumer preferences and a competitive environment in wholesaling, the manufacturer who specializes in manufacturing will not master wholesale capabilities, and the wholesaler will be competent in executing wholesaling functions. As a result, the wholesaler's capabilities will become greater than those of the manufacturer. The

wholesaler's local experience will be dense and fruitful in the high uncertainty of the wholesale market.

H<sub>1</sub>: Market uncertainty positively influences the wholesaler's capabilities.

Asset specificity is an important construct of TCA. Asset specificity helps to make wholesale functions effective. For example, if the wholesaler makes manufacturer-specific investments (e.g. logistics center or information system), even in a highly uncertain market, manufacturers can distribute products efficiently. If the wholesaler cannot make those investments, manufacturers cannot distribute efficiently. Therefore, we can expect that high uncertainty would make manufacturers want asset specificity.

H<sub>2</sub>: Market uncertainty positively influences asset specificity.

Capability is one of the sources of sustainable competitive advantage, because capabilities are not readily diffused to other firms. If capabilities have the nature of codified knowledge, capabilities will be diffused to all firms in the industry and competitive advantage will disappear (Polanyi 1958). In the stable market environment, firms perform the same business activity, so the firm's capabilities have a codified knowledge nature. However, an uncertain environment would make firms specialize in local wholesale functions. As a result, wholesale capability would be tacit and difficult to diffuse other firms.

H<sub>3</sub>: Market uncertainty positively influences degree of tacitness of capability.

According to DTCA, ownership integration depends on which firm has superior capabilities. If the wholesaler has superior capabilities, the manufacturer would not integrate wholesale functions and would purchase service from the wholesaler.

H<sub>4</sub>: The wholesaler's capabilities negatively influence the degree of ownership integration.

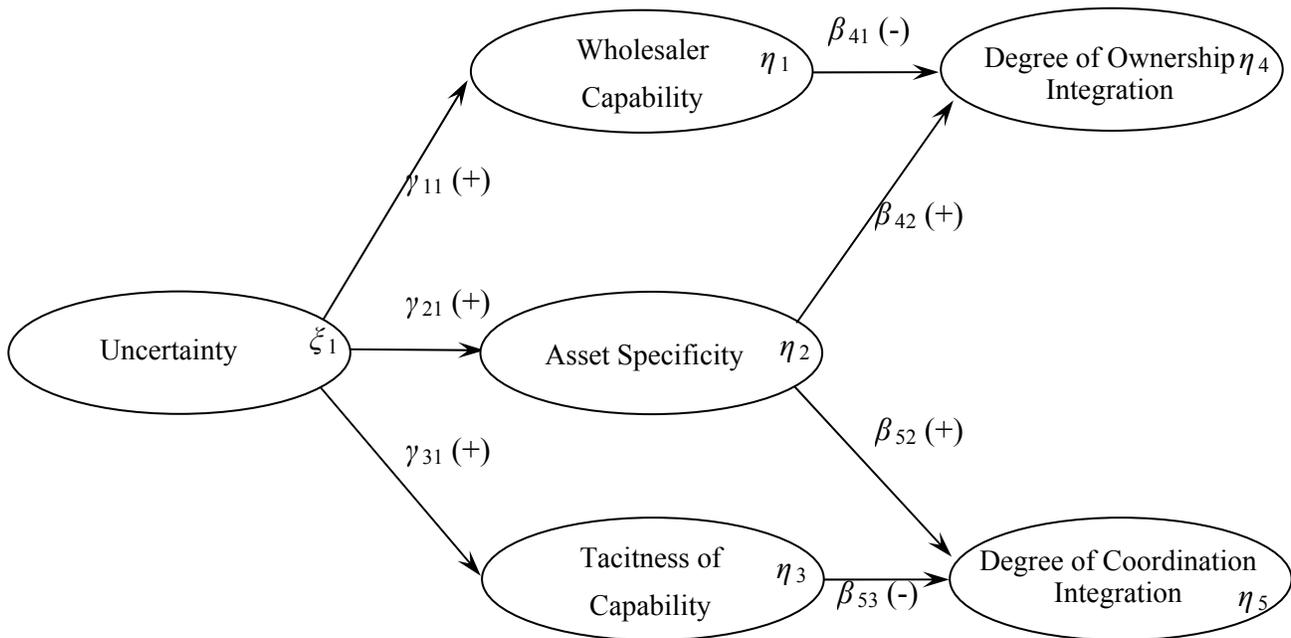
TCA research asserts that ownership integration depends on the specificity of assets

needed by manufacturer. If manufacturers need specific assets, manufactures will integrate ownership of wholesale functions to avoid hold up. This paper includes asset specificity in order to develop a combined TCA/DTCA framework. Such an idea is reasonable because both approaches have different behavioral assumptions. The former has asymmetric information occurring in short term; the latter has asymmetric knowledge occurring in long term.

H<sub>5</sub>: Asset specificity positively influences the degree of ownership integration.

TCA has not properly dealt with coordination integration and has treated the market as decentralized coordination and hierarchy as centralized coordination. TCA does not distinguish coordination integration and ownership integration. However, hybrid relationships with high asset specificity would affect the coordination mechanism. It seems reasonable that wholesalers who have made relation-specific investments to manufacturers need to be coordinated by the manufacture to work efficiently.

**Figure1**  
**Proposed Structural Model**



Notes: Observable indicators, factor loadings, and measurement and latent errors are not included for simplicity of depiction.

H<sub>6</sub>: Asset specificity positively influences the degree of coordination integration.

Capability is the source of sustainable competitive advantage because it is something difficult for other firms to imitate. Capability that is tacit to other firms is difficult to coordinate by the firm who does not have it.

H<sub>7</sub>: Tacitness of capability influences the degree of coordination integration.

Figure 1 summarizes the causal model based on the proposed hypotheses. The following sections test the model empirically by using a primary dataset from the perception of managers in manufacturing firms.

## **METHODOLOGY**

This paper focuses on large Japanese manufacturers that usually produce high numbers of products with scales of economy. However, there are variations of the governance mechanism associated with trading wholesale functions. Some manufacturers use independent wholesalers and perform these roles within the organization. Primary data was collected from division managers of manufacturers in Japan. A Japanese database, *Diamond Soshikizu Keitouzu Binran* (Diamond Survey Data Book of Organizational Structures within Japanese Firms 2002), was used to obtain the mailing addresses of 623 divisions of Japanese manufacturer whose stock is listed on the Tokyo Stock Exchange 1<sup>st</sup> section. Questions were translated into Japanese and the questionnaires were mailed to all of the divisions. Respondents were key persons who work in distributing and marketing products for their customers, and who are committed to information processing and strategy planning.

Questions were asked about three kinds of wholesale functions, logistic functions, credit management functions, and inventory management functions. As a result, the sample size is three times larger than the number of distributed mails. Questionnaires were sent to 623 divisions

**Table 1**  
**Conceptual and Operational Definitions, Cronbach's Alpha**

$\zeta_1$ : Uncertainty (Degree to which customer needs change) $X_1$ : Is there intense competition in new product launching? $X_2$ : Do customers' needs change frequently?	$\alpha = .71$
$\eta_1$ : Wholesaler Capability (Degree to which the wholesaler is more capable than manufacturer in executing wholesale functions) $X_3$ : Does the wholesaler have special know-how in executing wholesaling functions? $X_4$ : Can you satisfy the wholesaling functions which are provided by the wholesaler? $X_5$ : Do wholesalers provide wholesaling functions that match your strategic intention?	$\alpha = .83$
$\eta_2$ : Asset Specificity (Degree to which the manufacturer needs wholesaler to make relation-specific investment) $X_6$ : Are physical distribution facilities of the wholesaler prepared specifically for transactions with you? $X_7$ : Is long-term learning of your product necessary for the execution of wholesaling functions?	$\alpha = .57$
$\eta_3$ : Tacitness of Capability (Degree to which wholesaling capability is united towards a particular wholesaler) $X_8$ : Is each wholesaling function executed by electronic commerce, not by humans? (scale reversed) $X_9$ : Can you make a comprehensive manual that describes the know-how about wholesaling functions? (scale reversed)	$\alpha = .60$
$\eta_4$ : Degree of ownership integration (Degree to which the manufacturer executes wholesale function by himself) $X_{10}$ : Do you execute wholesaling function by yourself?	$\alpha = -$
$\eta_5$ : Degree of coordination integration (Degree to which the manufacturer coordinates wholesaling capability centrally) $X_{11}$ : Does each wholesaling function match with your marketing decision making? $X_{12}$ : Is each wholesaling function executed according to your intentions?	$\alpha = .80$

within 281 manufacturers: 138 questionnaires were returned, giving a 22.2% respondent rate. 334 were useable observations for analysis (a 17.7% valid respondent rate). The questionnaire is designed for structural equation modeling (SEM). In this research, the SEM fit the psychological process of division managers. The SEM needs multiple scaling, so many measurements were prepared and a combination for each construct was examined. Cronbach's alpha is calculated for each construct to analyze construct reliability (Narver and Slater 1990) (Table 1). While the alpha should be greater than .60 in exploratory research (Bagozzi 1994,

p.18), the alpha of asset specificity is less than .60. Therefore, the results must be interpreted with consideration of the reliability problem.

The structural model in Figure 1 was estimated using maximum-likelihood of the CALIS Procedure in SAS/Stat 9.1. The solution is optimal, and the results are summarized in Table 1. The overall chi-square for the model is 128.5 ( $p < .01$ ), and the model has 48 degrees of freedom. The GFI and AGFI are .94 and .91, respectively. AGFI is more than the recommended level of up to .9 (Bagozzi and Yi 1988). The RMSEA is .07, which indicates a close fit of the data to the model. All parameter estimates of structural and measurement equations (other than that of  $H_3$ ) have the positive/negative sign which was hypothesized, and all are at a satisfactory significant level of at least 5% (Table 2).

Uncertainty has a significant positive effect on wholesaler capability ( $\gamma_{11} = .12$ ,  $p < .01$ ). The result supports  $H_1$  that in an uncertain environment, wholesalers who specified wholesale

**Table 2**  
**Model Estimation Results**

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H <sub>1</sub> : Uncertainty	=>	Wholesaler Capability [ $\gamma_{11}(+)$ ]	$\beta = .12$ ( $p < .01$ )
H <sub>2</sub> : Uncertainty	=>	Asset Specificity [ $\gamma_{21}(+)$ ]	$\beta = .37$ ( $p < .01$ )
H <sub>3</sub> : Uncertainty	=>	Tacitness of Capability [ $\gamma_{31}(+)$ ]	$\beta = -.23$ ( $p < .01$ )
H <sub>4</sub> : Wholesaler Capability	=>	Degree of Ownership Integration [ $\beta_{41}(-)$ ]	$\beta = -.28$ ( $p < .01$ )
H <sub>5</sub> : Asset Specificity	=>	Degree of Ownership Integration [ $\beta_{42}(+)$ ]	$\beta = .60$ ( $p < .01$ )
H <sub>6</sub> : Asset Specificity	=>	Degree of Coordination Integration [ $\beta_{52}(+)$ ]	$\beta = .65$ ( $p < .01$ )
H <sub>7</sub> : Tacitness of Capability	=>	Degree of Coordination Integration [ $\beta_{53}(-)$ ]	$\beta = -.21$ ( $p < .01$ )

Notes: \*: significant at 1% level.  $\chi^2 = 128.5$  (48 degree of freedom),  $p < .0001$ ; Goodness of fit index = .94; Goodness of fit index adjusted by the degree of freedom = .91; Root mean square error of approximation = .07

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function have higher capabilities than manufacturers. It is considered that Hayekian local knowledge is high.

Uncertainty has significant positive effects on asset specificity ( $\gamma_{12}=.37$ ,  $p<.05$ ). The result supports H<sub>2</sub> that in an uncertain environment, to cope with such an environment, manufacturer needs an asset specificity that enables him to perform distribution activity efficiently and effectively.

Uncertainty has negative effects on the tacitness of capability ( $\gamma_{13}= -.23$ ,  $p<.01$ ). The result is statistically significant but has an opposite sign to H<sub>3</sub> that in an uncertain environment where the business conditions are unstable and turbulent, knowledge needed to cope with such an environment would be local, and therefore, it would be difficult for manufacturers who specialized in manufacturing to imitate and learn the wholesaler's knowledge. From this result, it seems that uncertain environments would codify tacit capabilities. In recent marketing channels, postponed marketing systems among channel members have caused a decreased in inventory (e.g. in the convenience store system). To operate the system, close inter-firm coordination based on sharing information systems becomes necessary. Information systems would then codify tacit knowledge. Behind the path of uncertainty and tacitness of capability, there may be meditating factors like entrepreneurship factors.

Wholesaler capability has a negative effect on the degree of ownership integration ( $\beta_{21}= -.28$ ,  $p<.01$ ). The result supports H<sub>4</sub> that activity is executed and owned by the more capable firm; if this is not the case, the firm would incur high costs. To execute wholesale functions, many capabilities are needed (e.g. logistics, settlement, warehousing, credit management, selling). Such capabilities create cost differences between manufacturers and wholesalers. If wholesalers have excellent capabilities, manufacturers would decide to disintegrate wholesale functions and purchase them from wholesalers. This result leads to the assertion that dynamic transaction costs are a factor in determining channel structure design.

Asset specificity has positive effects on the degree of ownership integration ( $\beta_{22}=.60$ ,  $p<.01$ ). The result supports  $H_5$  that high asset specificity leads to vertical integration. This traditional TCA hypothesis is supported and has strong effects on ownership integration (e.g. Anderson 1985). TCA factors of asset specificity can thus be distinguished from DTCA factors. Comparing the estimates between  $H_4$  and  $H_5$ , asset specificity has a larger effect on the degree of ownership integration.

Asset specificity has positive effects on the degree of coordination integration ( $\beta_{23}=.65$ ,  $p<.01$ ). The result supports  $H_6$  that customized wholesale function is needed to coordinate to the manufacturer's intention. If customized wholesale function is coordinated in a decentralized fashion, it should not demonstrate high performance.

Finally, tacitness of capability has negative effects on the degree of coordination integration ( $\beta_{33} = -.21$ ,  $p<.01$ ). The result supports  $H_7$  that the more a capability becomes tacit, the more it disturbs integrated coordination. Manufacturers who lack the capability to execute wholesale functions cannot adequately decide each contingency, which means that the manufacturer would leave these decisions to wholesaler. Comparing the estimates between  $H_6$  and  $H_7$ , asset specificity has larger effects on the degree of coordination integration.

## **CONCLUSION**

Going beyond traditional TCA research, this paper utilizes the concept of DTCA to examine the heterogeneity of firms in the marketing channel. Empirical data shows this DTCA framework to be empirical valid. In the past, marketers have focused on TCA to examine channel structures. The DTCA framework proposed in this paper extends the TCA approach to its next evolutionary level. The results of this research suggests why and how manufacturers decide to integrate wholesale function for product distribution. DTCA factors, wholesaler

capability and tacitness of capability were found to negatively effect manufacturers' perceptions regarding two kinds of integrations. In contrast, the TCA factor asset specificity might effect these perceptions positively.

When manufacturers feel that they are not able to execute wholesale function at an adequate level, they will not choose to vertically integrate wholesaling. In a turbulent environment with high uncertainty, manufacturers would decrease the degree of ownership integration and delegate wholesale functions to wholesalers because manufacturers would not be able to execute these functions well. And, in such an environment, manufacturers would decrease the degree of coordination integration and delegate local wholesaling decision-making to each wholesaler; they would not want to administrate centrally, because manufacturers would not process local information well.

There are a few limitations to consider with regard to the model proposed in this paper. First, as mentioned by previous channel researchers, there are various kinds of channel structures that must be described in the model. Second, more analysis is needed in the way manufacturer-wholesaler cooperative relationship mechanisms are maintained.

There are several important research directions that could follow this paper. First, this research describes channel structures along a continuous scale, which ignores qualitative differences in channel structure. Such a problem could be solved by multi-nominal logit analysis using the channel structure as a discrete choice variable. Secondly, while the subject of this paper is the determinant of manufacturer-wholesaler relationship, it seems valuable to examine the mechanism of maintaining cooperative relationship under a particular structure (e.g. long-term successive relationship). DTCA is not a substitute for TCA, but its complement, and it can greatly contribute to marketing channel research.

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