

Full Length Research Paper

Factors influencing trust and partnership in shipper-carrier relationship: How do these affect electronic trading transactions in South Korea?

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In electronic trading transaction, forming trust is very important in business relations due to its anonymity feature or the many non-face-to-face transactions with numerous and unspecified interested parties. This study centered on the importance of trust and partnership in shipper-carrier relationships for the vitalization of electronic trading transactions in South Korea. Thus, this study aimed to identify the characteristics of cooperative relations between interested parties through trust and partnership, focusing on the carriage contract between shipper and carrier under an environment of electronic trading transactions. Specifically, this study drew determinants influencing the trust and partnership between shipper and carrier in electronic trading transactions through an empirical analysis of Korean trading companies. In terms of transaction cost, there may be an impact of transaction frequency on trust. Marketing literature judges that trust is formed when the seller tries to build up a trust relationship and when man-to-man interaction takes place frequently between the buyer and the seller. Also, in terms of the theory of relational contract, there may be significant impact on the formation of trust such as commercial information interchange and human networks, etc. To sum up, cooperation in transactions is influenced by trust in a carriage contract under electronic trading transaction, and trust is influenced by the frequency of transactions with a specific carrier, the specific carrier's capability to provide service, the specific carrier's sincerity, the specific carrier's reputation and the size of the business.

Key words: Trust, partnership, e-trade, shipper-carrier relationship.

INTRODUCTION

With advancement in information communication technology, the existing trading transactions based on papers have changed into the ones using the Internet as a means. With the digitalization of these trading transactions, the parties to a transaction can do trading

activities without any limitations of time and space, enjoying many economic effects. However, in fact, the characteristics of electronic trading bring about unexpected side effects, as well.

In the traditional market, the parties to a transaction

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check and inspect contract requirements face to face, while in electronic trading, with the characteristics of non-face-to-face transactions, its fundamental purpose, contracts are concluded based on trust in the virtual space. In this respect, it is most important to secure trust in electronic trading transactions. Thus, in the virtual space, the absence of trust acts as a factor deteriorating the participation and interest of the parties to a transaction in electronic trading transactions. Of course, in the traditional transactions, too, trust is considered essential as a system of continuous exchange relations based on uncertain situations. Also, in the initial process of transition to the long-term relation, trust may be a very important factor. Therefore, for the long-term transactions, based on the partnership between the shipper and the carrier in electronic trading transactions, trust should precede.

Therefore, this study set up a research model and hypothesis based on the existing literature about marketing and distribution regarding partnership that can maintain continuous business relations between the shipper and carrier with advancements in information communication technology. It drew determinants that influence the trust and partnership between the shipper and carrier in electronic trading transactions through an empirical analysis of trading companies. However, in this study, carrier was defined as the international complex shipping service providing regular shipping service.

THEORETICAL BACKGROUND

Study of transaction cost theory

Transaction is defined as the process of transferring goods and services among technically separated units (Williamson, 1985), and cost required to operate this process is called transaction cost (John, 1984). That is, transaction cost is incurred by bargaining to sign contract, assembling information and monitoring compliance with agreement. In addition, replacement cost from the change of parties in the transaction is also included. Thus, transaction can be conducted without cost if the purchaser and seller have the same amount of information but actual transactions in the market are not conducted this way. The purchaser must search for information for the transaction and manage negotiation and transaction processes. Cost involved in these activities is called transaction cost (Teo and Yu, 2005).

The fundamental reason why the transaction cost takes place is opportunism. Griesinger (1990) maintained that opportunistic attitude is to conceal information which has serious effect on the transaction or not to perform commitment by providing different information. As a party in transaction conducts opportunistic actions, counterpart in the transaction makes efforts to control the party's opportunistic actions (Williamson, 1981). In addition, not only does transaction cost arise in the process of such

efforts but transaction cost also arises in the case of being unable to control opportunism because of relatively disadvantageous transaction. Williamson (1979) explored two kinds of factors affecting transaction. First was the factor related to human behaviors involved in the transaction for which limited rationality and opportunism were assumed. The second was the factor related to characteristics of transaction for which uniqueness of assets, uncertainty and transaction frequency were assumed. Besides, sometimes additional transaction cost is also incurred in electronic commercial transactions due to characteristics such as uncertainty of products and transaction channel (Liang and Huang, 1998).

Coase, an early researcher on the theory of transaction cost, saw uncertainty as the major cause of transaction cost and took as examples of transaction costs the cost to seek out proper price, negotiation cost during the process of contract and cost from lack of flexibility due to long-term contract. With the increase of transaction cost, opportunity cost for investment relatively increases and management's mistake of being unable to use production factors in optimum time and organizational expansion cause increase in supply price of other production factors (John and Weit, 1988). Meanwhile, transaction frequency means the number of transactions between a party in a transaction and its counterpart. In theory of transaction cost, transaction cost takes place according to transaction frequency, which affects transaction structure (Maltz, 1994). Therefore, if transaction frequency increases, transaction cost can be reduced through long-term contract (Teo and Yu, 2005).

Study of theory of relational contract

In general, there are many factors that put through a transaction in everyday life, but they do not necessarily exist on paper. In other words, a contract may be established by many non-contractual factors in a transaction (MacNeil, 1978). Also, as behavioral factors acting as main factors in maintaining a partnership, the term of a transaction contract, specificity, plan risk and sharing responsibility, interdependence and future cooperation, and human relation, etc. have positive effects on the maintenance of continuous business relations in the long-term (MacNeil, 1978).

In the meantime, partnership with a partner is formed through durability of business relations, information exchange of sales activities, business maintenance, the existence of EDI project, company size, business area of the shipper in deciding partnership (Gardner et al., 1994). Also, what is important in a contractual relationship is how to determine trust with the other party to a transaction and to choose a situation in which trust is formed (McGinnies and Ward, 1980). Here, the choice is based on cognition (trust between individuals), and reliability and dependence is surveyed through a measure for trust in the past. When expectations of reliability and dependence

are met, trust moves to an emotional factor including emotional bond like worry or interest. Thus, since the competency of trust is developed from an economic point of view, in electronic trading transaction, economic effects like the reduction of cost and time can be obtained from the correct delivery of the message. Unlike this, if the competency of trust is lacking, the parties to a transaction should reconfirm the accuracy of transactions and invest in training costs and time in order to promote understanding of the parties, so additional incidental expenses incur.

Study of trust in electronic trading transaction

The issue of trust is raised in an electronic trading transaction because of the economic loss between the parties to a transaction and the infringement of privacy of the company. Electronic trading transaction is a non-face-to-face transaction between the parties, so it is difficult to physically identify the quality of goods due to the remote separation between the parties and the goods. Thus, if a problem occurs in the quality of goods, there are much more possibility of claims and problems of the shipment of goods for the buyers as compared to the traditional business transactions (Jarvenpaa et al., 1999).

In addition, the buyers perceive high risks regarding the problem that it is impossible to check goods directly, time and cost on the carriage, damage on passage, and the possibility of the seller's opportunistic behavior with the exposure of corporate information. Consequently, the perception of these risks weakens the intent of sale of goods via the Internet (Koh et al., 2012), which is a significant limitation to the development of electronic trading transaction.

For this reason, the success of electronic trading transaction particularly depends on the security of trust in the buyer between the parties to a transaction; many companies using electronic trading make tremendous efforts and pay costs to build up a trust relationship with buyers. However, since electronic trading transaction based on the Internet is based on an open system structure, it is difficult to develop and maintain trust in this structure. The Internet was developed so that people could cooperate with each other and share information through electronic media (Bhimani, 1996). In other words, the Internet was not designed for commercial purposes.

The Internet was operated in the trust of a single domain so that remote users could access important information on the machine. Thus, security issues, in general, depended on the etiquette between the parties to a transaction and respect for each other, deemed to be appropriate on the networks. In other words, since there was relatively small number of users of the Internet in an early phase, and most users were researchers or scholars, such operating methods were reasonable.

However, as the Internet developed at an alarming speed, and the composition of the users changed, the

Internet, now, became a universal community consisting of people from the various fields and classes. With these changes in the purpose of use of the Internet and the users, the number of security violation accidents because of malicious or simple attack increased, and the public that used the Internet for commercial purposes came to distrust the security and trust on the Internet.

Like this, trust between the parties to a transaction should be built so that the Internet becomes a viable base for electronic trading transaction. Of course, trust has been seriously treated under the traditional business transaction environment and developed continuously through appropriate policies, procedures and practices for the security of transactions. However, security networks have not yet been built sufficiently in electronic trading transactions via the Internet. In addition, as buyers consider insecure communications and a lack of trust in the seller the main reason for not making business transactions via the Internet, many buyers are reluctant to make transactions through electronic trading due to the problems of trust and safety (Furnell and Karweni, 1999).

As the Internet is rapidly growing, there are changes in the demographic variables of Internet users and the Internet develops as the global community, so the actions of collecting information in an intentional or negative way increases, which results in increased distrust. To prevent the formation of this attitude of distrust in electronic trading transactions, trust and security become more emphasized.

Also, trust in electronic trading transactions is a concept including the seller's ability and motivation in terms of trade that the goods with the quality expected by the buyer can be delivered safely and after-sale services can be implemented in accordance with the sales contract and system reliability in technical aspects. Therefore, trust eliminates fear for the other party's opportunistic behavior and as a result, it reduces transaction cost related to electronic exchange (Ratnasingham, 1998).

In spite of such economic effects, the parties to a transaction are reluctant to use electronic trading transactions because there is a lack of trust between the parties on electronic channels and the Web. In other words, they hesitate to use electronic trading transactions because of concerns about privacy and corporate information spill, and perception of risks of the use and reuse by enterprises and resellers. Therefore, the importance of trust under the Internet environment has a much greater meaning than that in the physical environment, and especially, it is a very important factor that allows the parties to a transaction to use electronic trading transactions with an easy mind.

Study of partnership

In the relational contract theory, a contract is established

by many non-contractual factors, and often, the factors establishing transactions do not appear on papers (MacNeil, 1978). In other words, in business relations, the parties form strategic alliances based on trust to jointly cope with inventory and risk management through information sharing. Like this, the relation needed to share threats, concede to maximize mutual profits for the creation of business results is partnership. With internationalization and globalization, modern enterprises accelerate their business strategies through inter-corporate partnership in a variety of ways and make efforts to secure competitive advantage (Sung, 2010).

The formation of partnership means collaboration and integration (Lambert et al., 1996), which is to remove uncertainties in transactions through continuous formation of relations and to create results for all partners by relational characteristics from supply chain perspective rather than individual companies' interests and through improving efficiency and eliminating risk factors.

Partnership is one type of continuous transaction between companies. It refers to long-term and repeated transactions based on mutual profits by the parties' negotiations or communication exchanges instead of intermittent and short-term business relations, through mutual trust and relations of commitment in continuous and normal business relations. Like this, the cooperation between partners in a carriage contract is an essential factor promoting success of relations, and is an act of seeking the mutual performance through the formation of relations based on the cooperation between carriers and shippers. Thus, as the cooperation between carriers and shippers increases, cost effectiveness can be achieved and the result increases, and cooperative relations formed based on mutual trust in the long-term is shipment partnership. Recently, inter-corporate cooperative relations in supply chain relations have smoothed the flows of all materials and information based on share on business, and inter-corporate cooperative relations is deemed to be business sharing relation based on long-term partnership (Gunnar and Russell, 2008).

In the meantime, there have been various studies of the factors forming partnership; and four factors, such as mutual respect, mutual benefit, communication and long-term transaction have been considered as those forming partnership. A company shares core competencies of the partner company in order to create and maintain its own competitiveness (Lee, 2007). Also, in practice areas, trust plays a positive role in forming successful long-term partnership, and understanding the other company, communication, strategic flexibility, cultural structure and the use of information technology have been suggested as factors of partnership (Kim, 2005).

MacNeil (1981) stated that behavioral factors influencing partnership, such as the term of transaction contract, specificity, sharing of the plan risk and responsibility, interdependence, the future cooperative relations and human relationships influence the long-term business

relations. In addition, in deciding a partnership, models of the formation of cooperation between partners based on the factors such as the durability of business relation, commercial information interchange, plan for the duration of business relation, sharing of risks and responsibilities, control factors of cross-business activities, market area, duration of the project, the presence of EDI project, company size and business area of the shipper (Gardner et al., 1994). McAllister (1995) said that, in order to build the cooperation of business relations, it is necessary to choose who to trust and under what situation to trust. However, at this time, choice is based on cognition, and it is a survey of measure for trust in the past, such as reliability and dependence. If reliability and dependence increases for business relations, trust moves to an emotional bond such as worry and anxiety. Thus, since competent trust develops in the economic foundation, the economic impact like savings for cost and time can be obtained through the accurate delivery of trade information in electronic trading transactions. Unlike this, if there is lacking competency of trust, the parties to a transaction should recheck the accuracy of the transaction and invest time in instruction and training, which causes the incurrence of additional costs.

SETTING RESEARCH MODEL AND HYPOTHESIS

Developing research model

In order to look into the relations of trust and partnership between the parties to a transaction when a carriage contract is concluded under the electronic trading transaction environment, a research model was developed by selecting the factors influencing partnership and those constituting partnership based on the existing theory of TCE and theory of relational contract. First, one of the factors important for the formation of partnership to maintain continuous business relations may attribute to the issue of trust, so trust was chosen as the parameter that forms partnership.

To build trust in a carriage contract under the electronic trading transaction environment, the Web site and size of the company can be a means of establishing good trust. It is because customers can perceive the size of the enterprise and get information about the ability of suppliers and the integrity of the entire corporation. Also, the ability to provide services trusted at a regular fare level, too, can be an important factor of trust. In addition, in order to build trust between the carrier and the shipper, for the shipper, the personal information of the shipping company can be an important factor.

Keen (1997), also, in a study with general consumers, said that the most important obstacle in the Internet marketing is lack of reliability. Consumer's reliability includes the ability of merchants to satisfy the consumer regarding online order as well as honesty of the merchants. Also, Bory and Jemison (1989) said that the initial development of the trust begins from the normal contractual relationship, but as the transaction changes repeatedly and related information is shared between the parties, high trust is formed.

Some divided the trust factor for the other party into objective trust factor and subjective trust factor, and some describe that the objective trust factor in general, is a social indicator like the uniform of the company's employees. The subjective trust factor is described as personal experience, the parties' goals, skills, expectation from the project and the level of trust between members of the

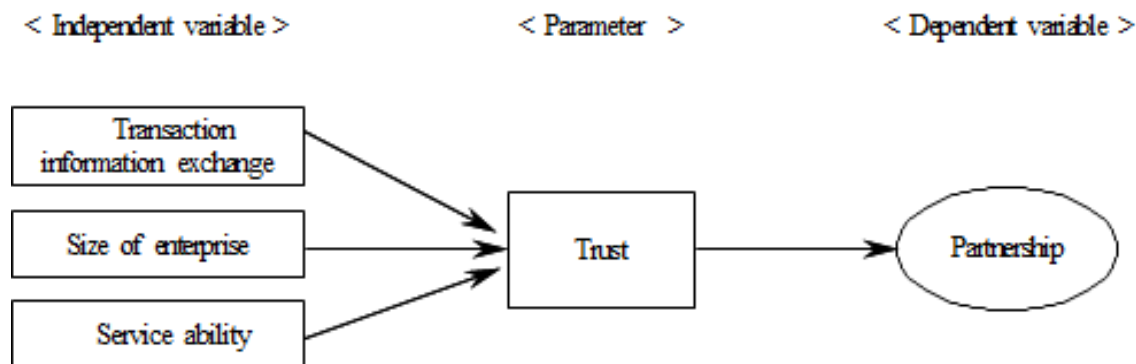


Figure 1. Research model.

other community based on the past experience of trading.

This trust factor may be influenced by transaction frequency in terms of transaction cost. In marketing literature, trust is formed when the seller makes an effort to build a trust relationship and when man-to-man interaction occurs frequently between the buyer and the seller. Also, from the theory of relational contract, commercial information interchange and human networks may have a great impact on the formation of trust.

To sum up, partnership in a carriage contract under the electronic trading transaction is influenced by trust, and trust is influenced by the frequency of transactions with a specific carrier, the specific carrier's capability to provide services, the specific carrier's integrity, the specific carrier's reputation and the size of the enterprise. Thus, the research model to conduct this study was set up as Figure 1.

Hypothesis setting

The measurement variables used in this study were modified for the formation of trust and partnership between the parties interested in a carriage contract in an electronic trading transaction, which had already been verified in existing studies. For this purpose, questionnaire items were modified, and the adequacy of the questionnaire items was evaluated by experts of electronic trading. After modifying inappropriate items, through preliminary examination, the reliability and validity were tested, and improper questions or ambiguous items were removed to complete a survey. Table 1 summarizes the measuring and operational definitions of the variables used in this study. For each question, a 5-point Likert scale was used.

Exchange of trade information and trust

The more the information exchanged between buyers and suppliers, the more the possibility of the parties to a transaction sharing similar norms and values becomes. In other words, shipper and carriers build mutual trust through systematic and accurate information exchange. Doney and Cannon (1997) said that trust is formed when interaction occurs frequently between the buyer and the seller through the construction of an EDI system. Also, Walton and Marucheck (1997) stated that the construction of an EDI system provides good information for the parties to a transaction, which increases the supplier's trust (Doney and Cannon, 1997). In the meantime, the exchange of trade information using the Internet is very helpful for building trust between the parties with low cost and convenient information interchange by resolving the issues of excessive cost due to the EDI and the difficulty in use. Also, transaction information exchange improves the accuracy of

business activities and the reliability of the provider by removing the problem of uncertainty such as renewal and shipment delay through delivering accurate information.

Thus, the shipper's trust in the carrier can improve as the carrier provides the shipper with accurate and rapid shipment information. Therefore, the following hypothesis was set up.

H₁: The carrier's provision of accurate shipment information would have a significant influence on the shipper's trust.

Companies' size and trust

The reliability of a seller is evaluated by the size of the buyer in the traditional marketing path (Doney and Cannon, 1997). Large size of an enterprise means that other buyers trust the company and its business is successfully carried out. Thus, in a carriage contract in electronic trading transactions, too, perceiving that a shipping company is large may be the reason for trust that the company will keep the promise well. Also, large size allows people to perceive that the company may have essential expertise and resources for support systems such as customer support and technical services. The presence of these systems, ultimately, enhances trust (Chow and Holden, 1997).

In addition, based on Jarvenpaa et al. (1999), large size means the ability of risk-taking when an incidental damage occurs in shipment, and accordingly, the company can compensate for the shipper. Also, it can have an ability to control the subsequent carriers, which, in turn, increases trust in the carriers. Therefore, also, in a carriage contract using electronic trading transaction, it would have an influence on trust in the carrier as shown in the existing studies (Leidner, 1999). Therefore, the following hypothesis was set up.

H₂: The perception that the carrier size is great would have a significant influence on trust.

Capability to provide service and trust

Trust is formed based on expectation that the parties to a transaction would do an important and special action to the trustor. For example, when the buyer believes that when the seller has ability and motive to deliver the goods and services with the quality the buyer wants, trust is formed. Thus, through the Web site in an electronic trading transaction, when the information about the carrier's capability to provide services is delivered to the shipper in detail, trust is formed, and an effect on transaction cost can be

Table 1. The main parameters for the empirical analysis.

| Variable | No of items | Operational definition | Related researches |
|-------------------------------|-------------|--|---|
| Exchange of trade information | 4 | Provision period of information Provision frequency of information Internet (EDI) construction Diversity of provision of information | Doney and Cannon (1997) |
| Company size | 3 | Experts' support system Financial capability Systematic networks | Chow and Holden (1997) and Jarvenppaa et al. (2000) |
| Capability to provide service | 5 | Real time provision of information Corporate reputation Resilient capability to provide service Offering a wide range of services Geographic scope of services | Hart and Saunders (1998), Jarvenppaa et al. (2000) and Tan and Thoen (2001) |
| Trust | 5 | Timely shipping Quality of shipment services Consistency of shipment time Agility of dispute resolution Experience of services offered | Lambert et al. (1996) |
| Partnership | 4 | High expectations about relation Voluntary help for difficult situation Solving challenges through negotiations Interdependence | Lambert et al. (1996) |

obtained (Hart and Saunders, 1998).

The carrier's services provided through a Web site include related services such as cargo tracking services, traffic information, reservation information and bill of lading information, etc. However, in terms of hardware, since carriage contracts are concluded on general cargoes on the assumption of the shipment forwarder's ability to provide basic airworthiness, except for project cargoes, the hardware aspect does not have a great impact. Therefore, the following hypothesis was set up.

H₃: The carrier's ability to provide shipment services via Web site would have a significant impact on the shipper's trust.

Trust and partnership

Mayer et al. (1995) define trust as the trustor's voluntary intention toward the other party to a transaction under the expectation of the other party will perform specific behaviors important to the trustor (Mayer et al., 1995). Others define it as the trustor's expectation of the trustee's motives or actions in social psychology or industrial marketing (Jarvenppaa et al., 1999). This trust increases the quality of interactions between both parties of a transaction, increases the level of cooperative relations, and enhances the results positively (Schurr and Ozanne, 1985).

Thus, trust can be said to be a precedence factor for the formation of partnership. The reason why the issue of trust is raised importantly in an electronic trading transaction is that it is difficult to

have belief or conviction that the parties to the transaction would sincerely implement the contract in the electronic virtual space as in the offline market. Therefore, trust that the parties would sincerely fulfill the contract will lead to partnership. Therefore, the following hypothesis was set up.

H₄: The shipper's trust in the carrier on a carriage contract in an electronic trading transaction would have a significant impact on the formation of partnership.

Sampling methods and analysis

Sample selection

As the sample of this study, companies registered and operating in e-Marketplace run by Korea International Trade Association (KFTA) were selected. As of August 2014, the number of companies registered in e-Marketplace was 10,344 and questionnaire survey was conducted on 1,000 companies randomly chosen. A total of 116 questionnaires were collected and among them, 103 questionnaires were utilized for analysis except for 13 questionnaires with low reliability. Duration of the survey was from from November 10 to December 10, 2014.

Methods of analysis of data

In order to look into how appropriately the measuring tool measures

Table 2. Result of reliability of variable factors.

| Variable | No of item | Alpha coefficients | Standardized alpha coefficient |
|-------------------------------|------------|--------------------|--------------------------------|
| Exchange of trade information | 4 | 0.8564 | 0.8584 |
| Company size | 3 | 0.8230 | 0.8249 |
| Capability to provide service | 5 | 0.8605 | 0.8604 |
| Trust | 5 | 0.8114 | 0.8181 |
| Partnership | 4 | 0.9081 | 0.9083 |

the concepts, construct validity was set up, and the construct validity of the research variables was verified by factorial analysis in this study. As a statistical method to verify the validity, principal component analysis and varimax were used. For factor extraction, principal component analysis method was used to minimize the loss of information and reduce the number of factors; the factors with eigen value more than one were extracted; and varimax was conducted to bind the factors appropriately.

In addition, in order to verify the internal consistency between measurement items, it was verified through Cronbach's alpha analysis. Reliability, in general, refers to the possibility of getting the same measurement value when measurement is repeated on the same concept, in other words, a method of increasing internal consistency by excluding the items deteriorating reliability when several items are used for measuring the same concept. In general, if Cronbach's alpha value is over 0.7, the reliability of the measurement tool is pretty good, and if it is over 0.6, it is considered fine. And lastly, in order to look into the relationships among the variables, correlation coefficient was used, and in order to verify the hypotheses among the variables, Structural Equation Modeling (SEM) was conducted using LISRE 8.0.

EMPIRICAL ANALYSIS

Analysis of reliability and validity of variables

To know how appropriately the measuring tool measures the concepts, construct validity was set up and the construct validity of the research variables was verified by factorial analysis. In order to analyze whether the questionnaire items are measured in the same way as the intent of this study before verifying the model, SPSS 18 was used. As a statistical method to verify the validity, principal component analysis and varimax were used. For factor extraction, principal component analysis method was used to minimize the loss of information and reduce the number of factors; the factors with Eigen value more than one were extracted; and varimax was conducted to bind the factors appropriately. As a result of the factorial analysis, they were bound in five factors; factor loading of most of the factors was over 0.6, and the total variance was 68.5%. The specific data on this is shown in Table 3. In addition, in order to verify the internal consistency between measurement items, the reliability was verified using Cronbach's alpha analysis. Reliability, in general, refers to the possibility of getting the same measurement value when measurement is repeated on the same concept, in other words, a method of increasing internal

consistency by excluding the items deteriorating reliability when several items are used for measuring the same concept. In general, if Cronbach's alpha value is over 0.7, the reliability of the measurement tool is pretty good, and if it is over 0.6, it is considered fine (Nunnally and Bernstein, 1994). As shown in Table 2, as a result of verification of reliability of exchange of trade information, company size, capability to provide service, trust and partnership, Cronbach's alpha value of each variable was over 0.7, so it turned out that the reliability was good.

Table 3 shows the result of verification of the validity of variables. As a result of the verification, three factors were extracted from independent variable, and one factor was extracted respectively from parameter and dependent variable. In general, factor loading of 0.4 is considered a variable with validity, and factor loading more than 0.5 is considered a very important variable. Five independent variables such as capability to provide service, geographical scope of services offered, diversity of services offered, company' reputation, real-time provision of information were included in Factor 1, which was named 'capability to provide service.' Eigen value of the capability to provide service factor is 5.520, which explains 48.656% of the total variance.

Four variables such as provision period of information, provision frequency of information, Internet (EDI) construction and diversity of provision of information were included in Factor 2, which was named 'exchange of trade information.' Eigen value of the exchange of trade information factor is 1.531, which explains 10.415% of the total variance.

Three variables such as expert support system, systematic networks and financial capability were included in Factor 3, which was named 'company size.' Eigen value of the company size factor is 1.143, which explains 9.435% of the total variable.

As shown in Table 4, the factor of parameter was named 'trust,' and four variables, including timely shipment, consistency of shipment time, quality of shipment services, experience of services offered and claims, were included in this factor. Eigen value of the trust factor is 2.902, which explains 68.024% of the total variance.

The factor of dependent variables was named 'partnership,' and four variables, including solving challenges through negotiations, high expectations for business relation, interdependence and voluntary help in difficult situation

Table 3. Result of analysis of factors and reliability.

| Questionnaire item | Factor name | | |
|---------------------------------------|-------------------------------|-------------------------------|--------------|
| | Capability to provide service | Exchange of trade information | Company size |
| Capability to provide service | 0.824 | 0.209 | 0.070 |
| Service diversity | 0.743 | 0.331 | 0.145 |
| Reputation of company | 0.691 | 0.118 | 0.432 |
| Geographical scope | 0.662 | 0.214 | 0.242 |
| Real time information | 0.639 | 0.231 | 0.274 |
| Provision frequency of information | 0.172 | 0.843 | 0.255 |
| Provision period of information | 0.303 | 0.792 | 0.010 |
| Internet (EDI) construction | 0.271 | 0.784 | 0.245 |
| Diversity of provision of information | 0.242 | 0.732 | 0.245 |
| Expert support system | 0.124 | 0.184 | 0.835 |
| Systematic networks | 0.280 | 0.256 | 0.818 |
| Financial capability | 0.353 | 0.153 | 0.744 |
| Eigen value | 5.520 | 1.531 | 1.143 |
| Distributed description rate (%) | 48.656 | 10.415 | 9.435 |
| Cumulative rate (%) | 48.656 | 59.071 | 68.506 |

Table 4. Result of factorial analysis of parameter and dependent variables.

| Variable name | Factor 1 | |
|--------------------|---|--------|
| Parameter | Consistency of shipment time | 0.754 |
| | Quality of shipment services | 0.857 |
| | Timely shipment = Shipment processing speed | 0.763 |
| | Experience of service | 0.842 |
| | Claims | 0.757 |
| | Eigen value | 2.902 |
| | Variance explanation rate (%) | 68.024 |
| Dependent variable | Solving challenges through negotiations | 0.942 |
| | Voluntary help for difficult situation | 0.865 |
| | Interdependence | 0.846 |
| | High expectations about business relation | 0.753 |
| | Eigen value | 1.832 |
| | Variance explanation rate (%) | 75.636 |

difficult situation were included in the factor. Eigen value of the partnership factor is 1.832, which explains 75.636% of the total variance.

As a result of an analysis of the correlations between constructs prior to a model analysis using LISREL, it turned out that a positive (+) relation was formed with the package. The results of goodness-of-fit test are factors influencing trust at significance level of 0.01 (Table 5).

Hypothesis testing and interpretation

Evaluation of suitability of research model

In order to verify the hypothesis of the model, this study used structural equation model which utilized LISREL 8.0 presented in Table 6. With goodness-of-fit index of

120.107 ($p=0.102$) and degree of freedom of 46, $\chi^2/df=2.61$ which is used as one of absolute fit indexes satisfied recommended guideline. P value, value of significance level, also turned out to be statistically significant at 0.01. In addition, goodness-of-fit indexes, AGFI=0.852, GFI=0.903, RMR=0.048 and NFI=0.659 satisfied recommended guideline. Therefore, this study model can be seen as a proper one to explain the relationship among information exchange, scale of companies, capability to provide service, trust and transaction cooperation.

Hypothesis testing

As a result of a test on hypotheses, as for the impact of

Table 5. Result of analysis of the correlations among factors.

| Factors name | Exchange of trade information | Companies' size | Service ability | Trust | Partnership |
|-------------------------------|-------------------------------|-----------------|-----------------|--------|-------------|
| Exchange of trade information | 1.000 | 0.479* | 0.387* | 0.384* | 0.359* |
| Companies' size | - | 1.000 | 0.480* | 0.430* | 0.456* |
| Service ability | - | - | 1.000 | 0.493* | 0.503* |
| Trust | - | - | - | 1.000 | 0.432* |
| Partnership | - | - | - | - | 1.000 |

Table 6. Suitability of research model.

| Parameter | Absolute fit index | | | Incremental fit index | | Parsimonious fit index |
|-----------|---------------------|--------------|-------|-----------------------|-------|------------------------|
| | χ^2 (p,df) | χ^2 /df | GFI | RMR | NFI | AGFI |
| Criteria | - | ≤3.0 | ≥0.9 | ≤0.10 | ≥0.9 | ≥0.8 |
| Results | 120.017 (0.102, 46) | 2.61 | 0.903 | 0.048 | 0.659 | 0.852 |

Table 7. Result of analysis of research model.

| Hypothesis | Path-coefficient | t-value | Significance level (p) | Hypothesis testing |
|--|------------------|---------|------------------------|--------------------|
| H1 Trust ← exchange of trade information | 0.17* | 2.80 | 0.001 | Adopted |
| H2 Trust ← company size | 0.26* | 2.52 | 0.004 | Adopted |
| H3 Trust ← capability to provide service | 0.46* | 4.89 | 0.000 | Adopted |
| H4 Partnership ← trust | 0.33* | 3.07 | 0.000 | Adopted |

the information the carrier provides the shipper on trust, path-coefficient was 0.17; t value, 2.80; and H1 "The carrier's provision of accurate shipment information would have a significant impact on the shipper's trust" was adopted at significance level of 0.01.

As for the impact of the carrier size on trust, path-coefficient was 0.26; t value, 2.52; and H2 "The perception that the carrier size is great would have a significant influence on trust" was adopted at significance level of 0.01.

As for the impact of the carrier's capability to provide services in electronic trading transactions, path-coefficient was 0.46; t value, 4.89; and H3 "The carrier's ability to provide shipment services via the Internet would have a significant impact on the shipper's trust" was adopted at significance level of 0.01.

Lastly, as for the impact of the shipper's trust in the carrier on partnership, path-coefficient was 0.33; t value, 3.07; and H4 "The shipper's trust in the carrier on a carriage contract in an electronic trading transaction would have a significant impact on the formation of partnership" was adopted at significance level of 0.01 (Table 7).

IMPLICATIONS OF RESEARCH

This study set up a research model and hypothesis on the above background and conducted a survey with shippers. Based on the analysis results of the study, the following implications were derived.

First, as a carrier provides a shipper with shipment-related information continuously, the shipper's reliability in the carrier increases. Thus, the carrier can maintain the partnership of shipment by keeping a close relationship with the shipper and providing with various and exact information about shipment quickly and continuously. The long-term orientation in the relationship between organizations (Nurmi et al., 2011) reconfirms the importance of information exchange (Ganesan, 1994), including ties.

Second, most Korean shipment companies are small-sized shipment forwarders except several large companies. However, shippers tend to consider the larger the shipment company, the better the expert support system, financial stability and systematic network become. This is consistent with the discussion that the size of organizations affected by the environment affects financial

performance (Simerly and Li, 2000). Thus, large carriers should provide more proactive and expert advice or information about their financial status. Considering the fact that the customers of firms unexpectedly do not know their abilities (Barker, 2008), this effort is even more important. On the other hand, relatively smaller carriers should excavate their own differentiated strategies (Pelham, 2000) or blue ocean areas in the subdivided shipment market (Kim et al., 2008) and make efforts to expand their size based on their reputation.

Third, carriers' capability to provide services is of most importance. In addition to providing conventional services, such as delivery date and quality, as basic services, it is needed to improve the ability to provide additional services (Chen et al., 2009). It is reported that the use of electronic information gradually plays an important role in such differentiation (Yazdanifard et al., 2012). Thus, carriers should be able to provide required information in real-time using electronic information and provide resilient and diverse shipment services using electronic virtual space (Peñaloza et al., 2007). The ability of carriers is consistent with the situation where the reputation and image of firms is linked to performance, which is used in the market of general consumer goods. Similarly, an indirect marketing effect can be obtained in the trading transactions between organizations by providing a good corporate image to a number of unspecified shippers (Blombäck, 2005).

Lastly, unlike the traditional business transactions, in electronic trading carriage contracts, concluded in a non-face-to-face way on the virtual space, trust is of most importance (Ratnasingam, 2005). Trust in shipment can be evaluated by the speed and accuracy of shipment, the quality of the overall services perceived by the shipper, the speed of resolution of claims, and past experience, etc. These factors act most importantly if carriage contracts are concluded in electronic trading transactions. And the formation of the partnership between interested parties with high mutual trust can change it to a long-term carriage contract. Therefore, under the electronic trading environment, in order to promote the partnership between the parties to a carriage contract, trust can be evaluated as the most important factor (Samiee, 2008).

Conclusion

Advancements in information communication technology have changed the traditional business transactions by papers into ones by electronic documents. In these electronic trading transactions, trust relationships in business relations are very important because of the unique characteristic of the mode of transactions, that is, anonymous or non-face-to-face transactions with many and unspecified interested parties.

This study attempted to identify the characteristics of the cooperative relations between interested parties

focusing on the carriage contracts between shippers and carriers under the electronic trading transaction environment through trust and partnership. However, since there are insufficient preceding studies, this study modified and applied the existing research on marketing and distribution to the partnership between the parties interested in carriage contracts.

Unlike in irregular liners, carriage contracts in regular liners, typically, are concluded repeatedly on a yearly basis. Thus, the term, partnership in a regular carriage contract, too, means the repeated conclusion of the carriage contract for a certain period. Therefore, it is necessary for the carrier to establish an alternative strategy for the repeated conclusion of a carriage contract for a certain period through investigating the shipper's awareness.

Conflict of interest

The author has not declared any conflict of interest

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