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Marketing Innovation Influences on Market and Customer Related Performances: Evidences of Korean Manufacturing Companies

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A B S T R A C T

The marketing related literatures emphasize the key role of marketing for companies performances. However, not much attention has been paid to marketing innovations and their performances. Focusing on 2,149 Korean manufacturing companies, this paper examines the factors that influence companies' marketing innovation decisions and marketing performances by using the Heckman selection model for addressing the sample bias problem. Three key findings have been derived. First, by categorizing market orientation among the three components-customer orientation, competitor orientation, inter-functional coordination, the findings show that customer orientation enhances marketing performance, but does not influence marketing innovation decision. On the other hand, both competitor orientation and inter-functional coordination have positive influences on the marketing innovation decision, but not on marketing performance. Second, marketing innovation activities such as product design, promotion, placement, and price help to enhance marketing performance. Third, the factors that influence marketing innovation decision and their performance are different depending on technological level of an industry. The results suggest that the marketing related activities are more important in high-tech rather than in low-tech industries.

Keywords: Marketing Innovation; Market Orientation; Innovative Capabilities; Government Support; Marketing Performance; Heckman Selection Model

1. Introduction

Many researches on innovation have focused either on the factors that trigger or hinder technological innovation (product and process innovation) within companies, or on the factors that influence technological innovation outcome (e.g., Cohen and Levinthal, 1989, 1990; Elenkov et al., 2005; Hoffman and Hegarty, 1993; Keizer et al., 2002; Yam et al., 2004). Most of them investigated technological innovations related with

products or manufacturing processes of companies, by focusing on the effect of its activities on innovation performance (e.g., Romero and Martínez-Román, 2012) or the type of innovation – radical or incremental – that is influenced by the relevant factors (Laursen and Salter, 2006).

However, non-technological innovation should not be underestimated, although technological innovation plays a more important role in innovation research. Non-technological innovation consists of organizational and marketing innovation (Phillips, 1997). In this research, marketing innovation will be focused on for two reasons. First, marketing is an essential corporate activity that is equally important as the development of new products or processes. Under rapidly changing external circumstances,

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marketing may play a key role for performance (Kumar et al., 2011). Companies try to become better acquainted with consumers and gather market information through them to overcome external ambiguity. Furthermore, they even collect market data from their rivals to sense changes in market development by analyzing the behaviors, strategies and products of their competitors (Narver and Slater, 1990; Shergill and Nargundkar, 2005). Nonetheless, studies related to corporate marketing innovation are difficult to find, compared with the studies on technological innovation. This is mainly due to the undervaluation of marketing in the field of innovation and the insufficient research on the issue.

Second, from the demand-side perspective, marketing can bridge the gap between customers and a company by their responses of new products. This feedback process contributes to product and process development, which leads to the success of new products (OECD, 2005, p. 12). Marketing innovation does not necessarily refer to the creation of something completely new and radical, but it is a useful method of active responding to market demands. Marketing also becomes an essential activity that contributes to company performance by helping companies adjust to the change of market environment. For this reason the management of market-based capabilities became more important for research topic about the value adding activity of a company (Fornell et al., 2006; Gupta et al., 2004).

The aim of this study is to examine two research topics related to marketing innovation of Korean companies. First, the determinant factors that affect companies' marketing innovation decision and their performance are examined and tested. Company performance related with marketing innovation is classified into the market-related performance and the customer-related performance, which is useful for testing the direct effect of independent variables on marketing innovation decision and their related performance. For this purpose, the data from the Korea Innovation survey 2010 were used. To deal with the missing data problem, Heckman selection model is adopted. The marketing innovation (product design, placement, promotion, and pricing) is used as latent variable that helps us to distinguish the factors affecting company's decision to conduct marketing and its performance.

Second, marketing innovation decision and their performance are deeply related with technology level of

an industry. Marketing related activities, including marketing innovation, are generally said to be more heavily stressed in high-tech rather than low-tech industries (Covin et al., 1990). This is one of the reasons why companies in high-tech industries conduct more creative and innovative activities and perform better. We tested "whether this phenomenon also reveals in Korean high-tech and low-tech industries?" by using the OECD classification for high-tech and low-tech industries.

Until now most innovation related researches have been done in developed countries, in line with the fact that most globalized and innovative companies come from developed countries. Our empirical results, contrary to prior researches, provide the specific characteristics of Korean companies' marketing activities and their performance.

The remainder of this study is organized as follows. First, the theoretical contents currently under discussion are reviewed to set up hypotheses. Next, the methodology for hypotheses verification is described. Then, the academic implications and policy considerations based on the verification and analysis of the hypotheses are suggested. Finally, this paper concludes with a discussion of the observed findings.

II. Theories and Hypotheses

A. Marketing innovation and performance

Schumpeter (1934) introduced innovation centrally within the theory of development and emphasized the importance of innovation for competition. He argues that entrepreneurial firms gain rents through innovative actions, and the continuous innovation activity help the firms obtain long term success. After Schumpeter, many scholars have studied the impact of innovation on company performance, but few studies have been carried out in relation to marketing innovation (Augusto and Coelho, 2009; Ren et al., 2010). Ren et al. (2010) suggested the general levels of marketing innovations: product, service, distribution, and sales/promotion. They argued that these factors are interrelated and through the combination of the factors on these levels companies can develop the favored marketing innovation. Apart from this, Deshpandé et al. (1993) and Hurley and Hult (1998) defined marketing

innovation as improvement in product design, placement, promotion, or pricing. OECD defined the marketing innovation as follows:

“A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.” (OECD and Eurostat, 2005: § 172)

In this research marketing innovation is categorized into product design, sales/promotion, distribution, and price according to the definition of OECD. Innovation of product design is defined depending on whether there are any significant changes in design or packaging. Sales/promotion innovation is defined depending on whether there are any drastic changes seen in launching new brands, advertising on media, or PR strategies. Distribution innovation refers the use of sales strategies such as new sales channels. Price refers to the use of new price strategies, such as price discount or differentiation.

Two matters must be considered in the classification of marketing innovation activities. First, it is essential to clarify the difference between product innovation activities and marketing innovation. Because product-related marketing innovation is also a type of marketing innovation activity, the two types must be clearly distinguished from one another. According to OECD's guidelines for Oslo Manual (OECD, 2005, p. 54.), the difference between product and marketing innovation is described as “The main distinguishing factor for product and marketing innovations is a significant change in the product's functions or uses. Goods or services which have significantly improved functional or user characteristics compared to existing products are the results of product innovation. On the other hand, the adoption of a new marketing concept that involves a significant change in the design of an existing product is not considered as a product innovation but a marketing innovation, as long as the functional or user characteristic of the product are not significantly changed.” Thus, we restrict product-related marketing innovation to product design in our analysis.

Second, there must be a clear dividing line between service (product) innovation and marketing innovation. This is difficult as the boundary line differs depending

on the business domain of the company. According to OECD's guidelines (OECD, 2005, p. 54.), the difference between service and marketing innovation is described as follows: “The main distinguishing factor for service innovations and marketing innovations is whether the innovation involves a marketing method or a service (*i.e.* a product).” Service (product) innovation is deeply associated with sales/promotion and placement. Thus, it is important to separate the two innovation activities by asking whether marketing tools were used or the activity was carried out in the service domain. We examine sales/promotion and distribution channel focused on activities that improved in the marketing dimension.

Marketing innovation and other types of innovations are generated through the complex interactions of various factors. The cause and effect of innovation for company performance can be explained from various perspectives - resource-based theories and knowledge based theories. The resource-based view (RBV hereafter) argues that the basis of a company's competitive advantage is not the external environment but rather the resources possessed by a company. The RBV's underlying logic is that the difference in performance of companies is concerned with the companies' heterogeneity of resources. This means that each company has its own resources and a company's ability for combining the resources makes the company unique and competitive. This would make rare, valuable, scarce, inimitable and irreplaceable resources the most essential factors required by companies in securing a competitive advantage (Barney, 1991). Knowledge based theory (Leonard and Sensiper, 1998) argues that a company's competitive advantage is determined by the basic knowledge possessed by a company and the capabilities of human resources in using such knowledge.

The internal resources possessed by a company become the basis of their innovative capability. In this sense, a company with more useful resources will develop greater innovative capability and consequently has better performance. Furthermore, accumulated innovative capabilities serve as company knowledge, and companies that are more proficient in using such knowledge will have greater incentive for innovation.

Many scholars have taken an interest in whether innovation affects company performance. However, few studies have been done in relation to marketing innovation (Augusto and Coelho, 2009; Ren et al., 2010). Marketing innovation is understood commonly as a continual process.

Marketing factors can also be segmented into four general levels, which form the basis for marketing innovation. These levels are those related to product, service, distribution, and sales/promotion (Ren et al., 2010). Deshpandé et al. (1993) and Hurley and Hult (1998) defines marketing innovation as improvements in product design, placement, promotion or pricing.

Company performance has been used in various forms in numerous studies. Indicators for measuring business performance according to innovation activities can be largely classified into financial performance and non-financial performance. In general, financial performance consists of sales volume, business profit rate, stock price and net profits. Non-financial performance includes achievement of corporate goals, larger market share, higher customer satisfaction and enhanced product/service quality. Our aim of the study is investigating the effect of marketing innovation on company performance. In this case, establishing a general type of company performance as a dependent variable could lead to inaccurate measurements. In other words, marketing innovation could be affiliated with only a part of the business process, and accurate relations may not be reflected for factors other than the performance of companies related with marketing innovation. Ray et al. (2004) assert that simply examining the relationship between a company's resources and its overall performance can lead to misleading conclusions with regard to resource-based theory. In some circumstances, adopting the effectiveness of business processes as a dependent variable may be more appropriate than adopting overall company's performance as a dependent variable.

In this paper we divide the marketing performance into customer-related performance (CRP) and market-related performance (MRP) as disaggregated dependent indicators of marketplace performance outcomes (see Ngo and O'Cass, 2012, p. 862). The capabilities, such as innovation and marketing, are essential for companies to realize the potential of market orientation and to achieve superior MRP and CRP outcomes (Moorman and Rust, 1999; Song et al., 2005). Ngo and O'Cass (2012) presented the properties for MRP and CRP measurement: new products and services development, their quality and uniqueness, and new market entrance in the case of MRP and satisfaction, building customer relationship, attracting customers and retaining customers for CRP. This study measured MRP by focusing

on the market; market expansion and the launch of new markets were measured. In the case of CRP, customer satisfaction and response to consumer needs were measured to analyze the effect of marketing innovation (product design, promotion, placement and price). We set fundamental hypotheses of the relationship between marketing innovation and marketing performance.

H1. Marketing innovation activities have positive effects on marketing performance.

H1a. Innovation in product design has a positive effect on marketing performance.

H1b. Innovation in promotion has a positive effect on marketing performance.

H1c. Innovation in placement has a positive effect on marketing performance.

H1d. Innovation in price has a positive effect on marketing performance.

B. Marketing innovation decision factors

In this section, the previous researches that examined the marketing innovation decision factors are reviewed. The hypotheses are developed on the basis of the discussion.

1. Market orientation

Market orientation is considered as an important factor influencing marketing innovation decision and company performance. It can be divided into two perspectives - organizational culture and organizational behavior. The aim of this study is to analyze the effect of market orientation on marketing innovation decision and company performance from a cultural perspective. Narver and Slater (1990) present customer orientation, competitor orientation, and inter-functional coordination as the three core factors that compose market orientation from a cultural perspective. Shergill and Nargundkar (2005) explain these three principal components as follows. Customer orientation refers to the understanding of company's customers. Understanding target customers' preference and characteristics in detail is the foundation for a company to create ones' own value. This value contributes to the company's serving target customers more adequately and in the long run the company can

improve competitive advantage. Competitor orientation starts from a company's trial to understand competitor's strategy and their capability. In this process companies want to know not only the current competitors' strategies but also potential competitors' strategies. Inter-functional coordination is deeply related with customer value. This concept implies the coordination of functional activities within a company contributes to raising the value for target customers.

As market-oriented organizations generally seek new customer needs and the change of market structure, they are apt to be involved in innovation in the course of response to customer needs processes (Naidoo, 2010). In other words, market orientation also can be an important factor for explaining marketing innovation decision. According to Naidoo (2010), market orientation has influence on marketing innovation implementation, and through this process companies gain competitive advantages. Based on these research results, it is expected that market orientation has positive influence on the decision of marketing innovation in Korean companies.

Many scholars have investigated the connection existing between organizational market orientation and company performance, but the results between studies have been inconsistent. Some studies have reported a positive relationship between the two variables (e.g. Narver and Slater, 1990; Pelham, 2000). Kumar et al. (2011) investigated the influence of market orientation on performance based on panel data for a nine-year period from 1997 to 2005. They show that market orientation has a positive effect on business performance both in the short and long run. In contrast, other studies have argued that there is no significant connection between market orientation and company performance (e.g. Hart and Diamantopoulos, 1993; Harris, 2001). Some factors can cause this discrepancy and sample selection bias which can cause misleading results has been given attention. For this reason, the research hypotheses are developed in accordance with the Heckman two-stage model.

H2. The higher the market orientation of a company, the higher the probability of (1) marketing innovation decision; and (2) marketing performance.

H2a. The higher the customer orientation, the higher the probability of (1) marketing innovation decision; and (2) marketing performance.

H2b. The higher the competitor orientation, the higher

the probability of (1) marketing innovation decision; and (2) marketing performance.

H2c. The higher the inter-functional coordination, the higher the probability of (1) marketing innovation decision; and (2) marketing performance.

2. Innovative capability

Innovative capability refers to the ability to exploit knowledge of a company and develop new products. Company resources including company knowledge make up the essential sources of innovative capability. A company's competitive advantage is closely connected not only with possession of resources but also with the process of producing outstanding results through effective arrangement and use of resources (Ketchen et al., 2007; Vorhies et al., 2009). Recent studies give their focuses on knowledge management which endeavors integration of various kinds of company resources. Knowledge exploitation process is not so much distinguished between inside and outside of a company. So the ability of knowledge exploitation is a key value for innovative capability (Khilji et al., 2006; Lane et al., 2006). In terms of product development, innovative capability is seen as a company's ability to develop new products. New product development requires the ability of aligning strategic innovative orientation with behaviors and processes (Wang and Ahmed, 2004). In terms of marketing, however, innovative capability is related with matching inventions with a context of a final market (Cohen and Levinthal, 1990; Khilji et al., 2006). Marketing is connected with the overall processes of corporate activities, and particularly more concentrated on the response to consumers' needs and contacts. Noble (1999) insisted that marketing capabilities are essential to support the differentiation of products through delivering desired benefits to customers. Cooper and Kleinschmidt (2000) divided the R&D process into searching and screening of ideas, development of a business model, R&D, verification, and marketing. They argued that R&D is not completed through simple researches and technology developments, but must accompany commercialization through marketing. From this perspective, marketing innovation is closely linked with innovative capability. The focus of this study was to determine whether innovative capability affects marketing innovation decision and marketing performance of a company. It

is expected that a company with higher innovative capability will be more likely to succeed in various forms of innovation including corporate marketing and achieve better performance.

To measure the innovative capability of a company, many studies use the ability to develop new products, the R&D intensity and the number of registered or applied patents as the main indicators. The most emphasized indicators of innovation capability are R&D effort (Acs and Audretsch, 1990; Hitt et al., 1991) and the number of R&D employees (Scherer, 1965; Schmookler, 1966). Vermeulen et al. (2003) suggest that number of patents, new product announcements and the degree of newness of new products are appropriate indicators for innovation output. The ability to develop new products and the R&D intensity are the variables most commonly used in discussing corporate innovative capability; these variables help improve innovation outcome (George et al., 2001; Stock et al., 2001). In addition, companies acquire innovation results – the possession of new technology or patent registration – through research and development. In this process, companies also improve their ability to absorb and use external knowledge (Cohen and Levinthal, 1990). In summary, most scholars consider new product development ability, R&D intensity and patent registration as the main indicators of innovative capabilities. This study also attempted to measure the innovative capabilities of Korean companies using these three variables.

Companies with high innovative capability may fail to achieve commercialization of developed products if they lack marketing innovation. This would ultimately exert a negative influence on marketing performance. Thus, companies that have high innovative capabilities are more likely to carry out various market-related activities to boost marketing performance. These discussions indicate that companies with high innovative capabilities are more likely to choose marketing innovation activities. This study measured the innovative capabilities of Korean companies based on their launch of innovative products, R&D intensity and number of innovation-related patents to observe the effect on the company's decision of marketing innovation and its performance.

H3. The higher innovative capabilities, the higher probability of (1) marketing innovation decision; and (2) marketing performance.

H3a. The higher capability for new product innovation,

the higher probability of (1) marketing innovation decision; and (2) marketing performance.

H3b. The higher R&D intensity, the higher probability of (1) marketing innovation decision; and (2) marketing performance.

H3c. The larger number of patents registrations, the higher probability of (1) marketing innovation decision; and (2) marketing performance.

3. Government support

Studies conducted on the direct impact relation between marketing innovation decision and government subsidies were not found by the researchers. In reality, government subsidies are provided for corporate marketing activities and are regarded as an important factor for encouraging companies to choose marketing innovation activities. However, the analyses on the relationship between innovation and government subsidies have given the focuses not on innovation decision but on R&D. The increasing importance of technology urges the companies and government to invest in R&D. Subsidy for R&D is a typical governmental intervening behavior that has been lasted for some decades in most developed countries (Hsu et al., 2009). Lerner (1999) investigates the effectiveness of U. S. government subsidy for SMEs and finds that the sponsored SMEs outperform the non-sponsored ones. By studying mid-sized companies in the Netherlands, Keizer et al. (2002) classified factors that influence corporate innovation into internal and external factors for analysis. In the results, the study showed that the external factor of government policy funds significantly influenced the innovation of SMEs.

Korean government also supports the companies in various ways. Since WTO regulation prohibits direct/indirect government subsidy for host country companies, Korean companies cannot gain direct/indirect support from the government. Instead companies can gain governmental support in research area and marketing area. For example, Korea Trade-Investment Promotion Agency, a government organization of Korea, supports companies with various programs as foreign market information support, foreign exhibition support, foreign company credibility information and buyers list, etc. Among the various types of support provided by the government to companies, a marketing support system will help

companies to easily achieve marketing innovation. The following hypotheses were established to analyze the effect of the government marketing support system on marketing innovation decision.

H4. The more use of the government marketing support system, the higher probability of marketing innovation decision.

C. Technology level and innovation performance

The relationship between the technology level of an industry and its innovation performance also takes an important part in innovation research. With regard to marketing innovation, it is ambiguous whether the technology level plays an important role in the decision of marketing innovation and its performance. Do the decision factors for marketing innovation affect the marketing performance more significantly in high technology industries than low ones or *vice versa*?

Moriarty and Kosnik (1989) argued that uncertainty around technology and market is the major difference between high-tech and low-tech markets. According to their norm, high-tech markets are characterized as high technological uncertainty with high market uncertainty. Khandwalla (1976) insisted that high-tech industries are technologically more sophisticated industries than low-tech ones. According to market uncertainty and technological sophistication, management systems and strategies including marketing settings are structured in sophisticated manner, too. Under these circumstances, marketing plays an important role in finding customer needs, directing the technological development, and emphasizing the differences of their products.

Facing an entirely new technological product in high-tech markets, customers may not understand how to use it for satisfying their needs. In a same vein, highly uncertain market situation causes manufacturers to fall in trouble with new technology development or investment decision. These circumstances make a company to hesitate investing in new technologies and developing products. Marketing activity is highly effective method to alleviate the negative effect of the circumstances and gain high performance. Abeele and Christiaens (1986) examined that active marketing strategy is positively correlated with high performance in high-tech market. Product and

promotion is often seen as the central instrument of the high-tech marketing (Grønhaug and Möller, 2005, p. 97), whereas low price is not (Easingwood and Koustelos, 2000). Merits and unique aspects of product may be more heavily stressed in high-tech industries than in low-tech industries (Schoonhoven, 1987).

In sum, marketing innovation activities in high-tech industries are brisker than in low-tech industries and it, in turn, is related with company performance. In this study industries are divided into high-tech and low-tech industries according to OECD classification and the influence of marketing innovation activities on company marketing performance are examined. We expect that marketing innovation activities are more closely correlated with both MRP and CRP in high-tech industries than in low-tech industries. Marketing innovation in price, however, is expected to have opposite effect to other marketing innovation activities. Since price innovation is defined as product price discount, it is more proper method for marketing in low-tech industries rather than in high-tech industries.

Market orientation and innovative capability also have different effects on marketing performances depending on technological level. Customer orientation, competitor orientation, and inter-functional coordination factors are more important for company performance in high-tech industries than low-tech industries and all of the three are innovative capabilities. Customer's awareness of the beneficial aspects of high-tech product is not merely concerned with price reduction but strongly concerned with service advantages and technological advances. Customer support is accepted as an effective means for increasing market share. For example, customers often have fear of buying a new product with sophisticated technologies. Customer support increases the customers' knowledge about the product and consequently may help them out of the fear of buying the high-tech product (Covin et al., 1990). We have two control variables that are already known as significant factors for marketing innovation decision and marketing performance. Revenue of a company is a proxy for the company's size and its age is a proxy for its experiences. All these variables have positive effects on company performance (e.g., Dobrev and Carroll, 2003; Haveman, 1993).

III. Data and Methodology

A. Data

The data we use in our empirical analysis are from the ‘Korean Innovation Survey 2010’ of the manufacturing sector which was collected by the Science and Technology Policy Institute (STEPI). Based on the Oslo manual (3rd Edition) developed by Organization for Economic

Cooperation and Development (OECD), the survey was designed to collect company-level innovation activities data during a 3-year period (2007~2009). The innovation activity survey was restricted to companies with at least 10 employees. These companies operated in industries related with manufacturing according to the Korea Standard Industry Classification (KSIC). The population was composed of 41,485 companies and 3,925 companies

Table 1. The definitions of the variables and the descriptive statistics.

Variables	Definition	Obs	Mean	Std
Marketing Innovation				
Product Design	=1 if the company made the significant innovation in product design	2,149	0.23	0.42
Promotion	=1 if the company launched new brands, introduced new-concept advertising media or PR strategy for promoting products	2,149	0.23	0.42
Placement	=1 if the company introduced new sales strategies such as new sales channels	2,149	0.18	0.39
Price	=1 if the company introduced new pricing methods such as product price discount	2,149	0.19	0.40
Market Orientation				
Customer Orientation	Level of using customer information for innovation activities (0~5 Likert scale)	2,149	2.77	1.69
Competitor Orientation	Level of using competitor information for innovation activities (0~5 Likert scale)	2,149	2.32	1.65
Inter-functional Coordination	=1 if introduced the coordination of functional activities within a company	2,149	0.73	0.86
Innovative Capability				
New Product Capability	=1 if launched innovative products completely different or significantly improved from existing products	2,149	0.69	0.46
R&D Intensity	The ratio of expenditures of a company on research and development to the company's sales	2,149	0.04	0.17
Number of Patent Registration	=ln(number of patent registrations)	2,149	0.87	1.19
Government Support				
Government Support	Level of using government marketing support activities (0~5 Likert scale)	2,149	0.87	1.46
Control				
Revenue	=ln(sales amount)	2,149	9.71	1.89
Age	Number of years since establishment	2,149	19.71	13.83
Performance				
MRP (Market-Related Performance)	Market-related performance, which is the sum of the following two values 1) Effect of expanding or maintaining market share (0~5 Likert scale) 2) Effect of creating new market or customer demand (0~5 Likert scale)	788	6.20	2.17
CRP (Customer-Related Performance)	Customer-related performance, which is the sum of the following two values 1) Effect of increasing customer satisfaction (0~5 Likert scale) 2) Effect of responding to customer needs (0~5 Likerts scale)	788	6.23	2.27

were selected through the stratified sampling method. After excluding missing data, analysis was conducted on 2,149 companies.

The definition of the variables and the descriptive statistics are summarized in Table 1. The following presents the independent variables that have been considered as factors that influence a company's selection of marketing innovation. First, among various discussions carried out in relation to market orientation, this study is based on the concept of market orientation presented by Narver and Slater (1990). We measure the market orientation with three indicators: customers orientation and competitors orientation, which are the level of using customer and competitor information for innovation activities, and inter-functional coordination, which is a binary variable that specifies whether a company introduces the cooperative activities within them. Second, innovative capability was measured by three indicators: the ability to develop new innovative products, R&D intensity, and the number of patent registration. George et al. (2001) and Stock et al. (2001) have presented the ability to develop new innovative products and R&D intensity as important factors in measuring innovative capability. Furthermore, patent registration has been also used as a proxy variable of innovative capability (Vermeulen et al., 2003). As for the ability to develop new innovative products, this study uses a binary variable to measure the launch of products that are completely different or significantly enhanced from the existing products. As for R&D intensity, this study measured each company's ratio of expenditures on research and development against its sale. The number of patent registrations is also used as the third indicator of innovative capability. Third, government support is measured by the level of using government marketing support activities such as export exhibits and PR. Finally, revenue is used as a control variable to apply a company size, and the year of establishment is included for applying a company's experiences and sustainability.

We used product design, promotion, placement, and price as the proxies of marketing innovation activities (Deshpandé et al., 1993; Hurley and Hult, 1998; Ren et al., 2010). Each one is a binary variable specifying whether a company has introduced any of the marketing innovation activities. For the dependent variable 'marketing performance', this study has adopted the results of other researches (see Moorman and Rust, 1999; Ngo

and O'Cass, 2012; Song et al., 2005) to measure companies' marketing performances in two categories: MRP (Market-Related Performance) and CRP (Customer-Related Performance). Each effect of expanding and maintaining market share and creating new market and customer demand was measured on a 0-5 Likert scale, and the values were aggregated together to calculate the MRP. CRP was calculated as the sum of the values of the effects of increasing customer satisfaction and responding to customer needs, each measured on a 0-5 Likert scale.

B. Methodology

Let us use $i=1, 2, \dots, N$ to index companies. The following equation specifies the determinants of marketing performance:

$$\text{Marketing Performance}_i^* = \gamma w_i + u_i$$

Here w_i is a vector of the determinants of marketing innovation such as market orientation, innovative capability, government support, etc. γ is a vector of parameters of interest, and u_i is an error term. Four marketing innovation activities, such as product design, promotion, placement, and price can be used as the proxies for marketing innovation, but it is possible only in the cases where $\text{Marketing Performance}_i^* > 0$. However, many companies do not perform any marketing innovation activities; in our data, 1,361 out of 2,149 companies do not perform any marketing innovation activities. However, because the measurement of company performance was restricted to companies that carried out at least one of the four marketing innovation activities - product design, promotion, placement and price - sample selection bias may be generated. Heckman (1981) argued that sample selection bias can occur if OLS is used for data with restricted distribution of dependent variables. Hence, the equation above cannot be estimated with an OLS equation because this would produce inconsistent results of the α coefficients. Heckman proposed the two-step calculating procedure using the Inverse Mills Ratio (IMR) to consider the selection bias. The probit model that determines marketing innovation is estimated in the first step (selection equation), and OLS is measured with an

explanatory variable including the information on sample selection bias acquired from the selection equation (IMR: Inverse Mills Ratio). The model used in our empirical analysis is as follow

$$z_i^* = \gamma w_i + u_i \quad (1) \text{ Selection Equation}$$

$$y_i = \begin{cases} x_i \beta + \varepsilon_i & \text{if } z_i^* > 0 \\ - & \text{if } z_i^* \leq 0 \end{cases} \quad (2) \text{ Outcome Equation}$$

(1) is the selection equation to analyze the determinants of marketing innovation. z_i^* is a variable to decide whether a company performs marketing innovation activities and w_i is a vector of the determinants of marketing innovation including market orientation, innovative capability, and government support. (2) is the outcome equation to analyze the factors affecting a company's marketing performance. Independent variable x_i refers to the marketing innovation activities (product design, promotion, placement, and price), the determinants of marketing innovation, and the inverse Mill ratio, and the dependent variable y_i refers to a company's marketing innovation performance which is separately measured by MRP (Market-related Performance) and CRP (customer-related performance).

Another matter that must be considered is the issue related with endogeneity. The current research model proposes that marketing innovation will affect market-related and customer-related performance. Thus, marketing innovation may be influenced by the results of these two performances. In this sense, companies that have experienced a positive effect on their company performance through marketing innovation are more likely to carry out marketing innovation activities actively to maximize profits. The potential endogeneity of marketing innovation to market and customer-related performance raises a severe problem for empirical tests of company performance, because it gives a particular reason for the general truism that correlation need not mean causation (Lachenmaier and Wößmann, 2006). In this case, there is a statistical covariance between the independent variable and error term, and a difference is generated between the estimated value and true value. In general, two methods are used to solve any existing endogenous variables. As an ad hoc approach, the first method is establishing a lag between the cause variable and explanatory variable

to solve the problem of endogeneity. Variables that are predetermined in a model can be treated, at least asymptotically, as if they were exogenous in the sense that consistent estimates can be obtained when they appear as regressors (Greene, 2003, p. 382). Another method that is commonly used by other scholars is avoiding endogeneity by developing an instrumental variable. The instrumental variable must have no correlation with the explanatory variable and have an established correlation with the non-explanatory variable. This study uses the ad hoc approach to solve the issue of endogeneity for the following reasons. First, the ad hoc approach is suitable in that marketing innovation precedes MRP and CRP in time according to the composition of the survey items. Second, it is difficult to find a suitable instrumental variable that can subrogate marketing innovation. In addition, because this study carries out an empirical analysis based on survey data already produced by another institution, it is difficult to find an appropriate instrumental variable.

IV. Empirical Results

The marketing performance results of the companies of different sizes and industrial sectors are presented in Table 2. We can see that the small companies are more likely to decide to do marketing innovation activities and have better marketing performance compared to the larger competitors. Table 2 shows additional variations by industrial sectors regarding marketing performance

We conducted the Heckman two-step model to analyze the factors on marketing innovating decision and marketing performance. Note that we use the government support variable to identify the selection equation because this variable does not affect the marketing performance. Thus it can be excluded out of the outcome equation. Table 3 presents the results of the Heckman model. First, we should examine the validity of the model. The estimated IMR (Inverse Mills Ratio) coefficient is statistically significant, implying the existence of selection bias. So we can assert that the Heckman model is more accurate than OLS.

Table 2. Marketing performance by size and industry sector.

	All companies			Marketing innovation (z_i^*) > 0			
	MRP mean	CRP mean	No. of companies	MRP mean	CRP mean	No. of companies	(%)
<i>Size</i>							
Small	3.16	3.17	316	6.62	6.64	151	48%
Medium	2.29	2.25	961	6.37	6.24	346	36%
Large	1.93	2.01	872	5.78	6.01	291	33%
<i>Industry Sector</i>							
10 Food products	3.18	3.31	146	6.20	6.44	75	51%
11 Beverages	2.85	2.91	32	5.69	5.81	16	50%
13 Textiles	1.66	1.57	76	6.30	5.95	20	26%
14 Wearing apparel	3.79	4.08	48	6.28	6.76	29	60%
15 Tanning and dressing of leather	1.94	2.11	35	5.23	5.69	13	37%
16 Wood	1.72	1.53	32	6.11	5.44	9	28%
17 Pulp, papers	1.82	2.03	73	4.93	5.48	27	37%
18 Printing and recorded media	2.15	2.05	39	6.00	5.71	14	36%
19 Coke, hard-coal	2.20	2.07	15	5.50	5.17	6	40%
20 Chemicals	2.60	2.57	153	6.32	6.25	63	41%
21 Pharmaceuticals	3.66	3.23	87	6.63	5.85	48	55%
22 Rubber and plastic products	1.92	1.93	146	6.36	6.39	44	30%
23 Non-metallic mineral products	2.26	2.38	117	6.79	7.15	39	33%
24 Basic metal products	1.54	1.57	104	6.40	6.52	25	24%
25 Fabricated metal products	1.47	1.35	131	6.23	5.71	31	24%
26 Electronic components, Computer, TV	2.28	2.25	155	6.09	6.00	58	37%
27 Medical, Optical, Watches	3.03	3.11	113	6.47	6.64	53	47%
28 Electrical equipment	2.34	2.36	168	6.25	6.29	63	38%
29 Other machinery and equipment	1.85	1.83	176	6.25	6.21	52	30%
30 Motor vehicles, trailers	1.54	1.54	136	6.33	6.33	33	24%
31 Other transport equipment	1.49	1.60	47	6.36	6.82	11	23%
32 Furniture	2.71	3.05	62	5.09	5.73	33	53%
33 Other manufacturing	2.98	2.95	58	6.65	6.58	26	45%
Total			2,149			788	37%

H1 suggests that marketing innovation significantly influence a company's marketing performance. The results of the outcome equation in Table 3 summarize the factors influencing a company's marketing performance (MRP, CRP). In market-related performance (MRP), four types of marketing innovation activities significantly influence MRP with positive coefficients. Therefore, it was verified that product design, promotion, placement, and price significantly influence market-related performance such as expanding market share, or creating new market or customer demand. This shows that it is important for

Korean manufacturing companies to use all of the four types of marketing innovation activities to enhance market-related performance.

In case of customer-related performance (CRP), promotion and price do not have influences on the customer-related performances. Hence, H1b and H1d are supported only partially, because the results suggest that only product design and placement have significantly influences on the customer-related performance with positive coefficients in the Korean manufacturing companies. To summarize, the results show that on MRP

all the four factors (product design, promotion, placement, and price) have significant influences, but on CRP only product design and placement have significant influence.

Considerable differences have been seen in the promotion and price variables, as they do not have influence on CRP. This study provides two implications related to these results. The first implication is associated with the usefulness of the results measured through the Heckman model. If we eliminate companies that did not carry out marketing innovation and conduct OLS analysis only for those that did, it would generate sample selection bias and lead to inaccurate results (Heckman, 1981). To solve the problem of sample selection bias, a selection equation must be first formed to analyze the influence factors of marketing innovation decision. Then the relationship between marketing innovation and performance must be analyzed through the outcome equation.

The second implication is the discussion on why promotion and price factors do not have an influential relationship with CRP. In the field of marketing, promotion and price have been generally regarded as factors that significantly influence the marketing performance. However, these factors have not shown a connection with CRP in this study. A closer investigation is required in relation to this matter, but because this study was carried out based on a previously developed and implemented survey, we were unable to additionally acquire related survey items. To complement this weakness, industries are categorized into the high-techs and low-techs and the results are compared. In separating the high-tech industries from the low-tech industries, the OECD classification and the industries ranked at 261 to 319 in the KSIC (Korean Standard Industrial Classification) as the high-techs and low-techs are used.

H2 was established to verify whether a company's market orientation affects the marketing innovation decision and marketing performance. The results of the selection equation show that competitors orientation and inter-functional coordination significantly affect marketing innovation decisions with positive coefficients. This is consistent with the previous studies which verified a significant relationship between market orientation and the marketing innovation (Naidoo, 2010; Ngo and O'Cass, 2012). However, contrary to the traditional literature, customer orientation does not affect marketing innovation decision. While this finding is counter-intuitive, the

previous studies have suggested that the adoption of customer orientation leads to product imitations rather than innovations (Bennett and Cooper, 1981; Christensen and Bower, 1996; Voss and Voss, 2000). On the other hand, the results of the outcome equation show that only customer orientation significantly affects the marketing performance (MRP, CRP) with a positive coefficient. Hence, H2 is supported only partially, because the results suggest that competitor orientation and inter-functional coordination encourage companies to decide market innovation activities, but those factors are within the limit of the marketing performance. However, customer orientation plays an important role to produce the marketing performance, though it does not affect marketing innovation decision in Korean manufacturing companies.

H3 suggests that a company's innovative capability significantly affects marketing innovation decision and marketing performance. The results of the selection equation show that new product capability and the number of patent registration significantly affect marketing innovation decision with positive coefficients. This is consistent with the previous studies that have studied the relationship between a company's innovative capability and innovation performance (e.g. George et al., 2001; Stock et al., 2001). This result also supports the discussions carried out by the studies that advocated the strategic and proper maintain and use of innovative capabilities (e.g. Cohen and Levinthal, 1990; Cooper and Kleinschmidt, 2000; Khilji et al., 2006; Noble, 1999). Thus, if a company's innovative capability increases, it becomes more likely that the company will decide marketing innovation activities. On the other hand, the results of the outcome equation show that new product capabilities significantly affect the marketing performance with a negative coefficient. Also, R&D intensity and the number of patent registration do not influence the marketing performance. This contradicts to what were suggested by many previous studies, so it may cause a lot of confusion. Many studies have verified that the ability to develop new products and R&D intensity have positive influence on the innovation performance (e.g. George et al., 2001; Stock et al., 2001). R&D investment is a foundation for technology development and improvement. In the course of those activities new goods and processes are developed and ultimately formulate new platforms of knowledge. Though the role of R&D

Table 3. Heckman two-step result.

Variable	MRP (Market-related Performance)	CRP (Customer-related Performance)
Outcome Equation		
Marketing Innovation		
Product Design	0.5035*** (0.1450)	0.7696*** (0.1553)
Promotion	0.4829*** (0.1525)	0.0778 (0.1631)
Placement	0.4348*** (0.1510)	0.3760** (0.1614)
Price	0.4200*** (0.1489)	0.2187 (0.1594)
Market Orientation		
Customer Orientation	0.1262** (0.0641)	0.2050*** (0.0657)
Competitor Orientation	0.0628 (0.0656)	0.0871 (0.0668)
Inter-functional Coordination	-0.2641 (0.2132)	-0.0552 (0.2157)
Innovative Capability		
New Product Capability	-0.7263** (0.3530)	-0.8816** (0.3614)
R&D Intensity	0.4958 (0.5289)	0.3602 (0.5276)
Number of Patent Registration	0.0462 (0.0737)	-0.0356 (0.0741)
Control		
Revenue	0.0787 (0.0592)	0.0943 (0.0599)
Age	-0.0028 (0.0066)	-0.0077 (0.0067)
Selection Equation		
Market Orientation		
Customer Orientation	0.0215 (0.0228)	0.0215 (0.0228)
Competitor Orientation	0.0471** (0.0233)	0.0471** (0.0233)
Inter-functional Coordination	0.4876*** (0.0380)	0.4876*** (0.0380)
Innovative Capability		
New Product Capability	0.6253*** (0.0740)	0.6253*** (0.0740)
R&D Intensity	-0.1487 (0.2411)	-0.1487 (0.2411)
Number of Patent Registration	0.0646** (0.0285)	0.0646** (0.0285)
Government Support		
Government Support	0.1378*** (0.0214)	0.1378*** (0.0214)
Control		
Revenue	-0.0648*** (0.0209)	-0.0648*** (0.0209)
Age	0.0066*** (0.0025)	0.0066*** (0.0025)
IMR (Inverse Mills Ratio)	-1.8157*** (0.5854)	-1.3234** (0.5933)
Number of Observations	2149	2149
Censored Observations	1361	1361
Wald χ^2	74.42***	75.19***

Note. Standard deviation in parenthesis.
*p < 0.10; **p < 0.05; ***p < 0.01.

investment is not limited within development of new technologies and products, it can improve the productivity (Griliches, 2000). Contrary to those results, this study presents that new product capability significantly affects marketing performance with a negative coefficient and R&D intensity has no statistical significance. Some studies have argued that a negative relationship is formed between R&D investment and company performance during certain periods such as an introducing stage of a product (Keller, 1998; Schiff et al., 2002). However, as the samples analyzed in this study are not restricted to the introducing stage, it is difficult to use them as supporting evidences. Besides these studies, Guellec and Potterie (2001) found that business R&D investment has negative effect on productivity for two years. Hwang et al. (2013) found that R&D intensity of SMEs in Korea has negative relationship with company revenue. This result is likely due to the possible time lag between R&D investment and its expected return. Because the data presented in this study is cross-sectional, it holds limitations in its ability to review the time lag.

H4 is that the more use of the government marketing support system, the higher probability of marketing innovation decision. The results of the selection equation suggest that using government marketing support system significantly affects marketing innovation decision with a positive coefficient, which supports H4. As pointed out by Keizer et al. (2002), this study shows that the Korean government's marketing support helps companies to decide marketing innovation activities. There has been controversy in Korea regarding the effectiveness of the government support provided to companies. However, because the marketing support provided by the government for companies positively influences the company's decision of marketing innovation, it can be said that the government's support policy is effective. Additionally, the results shown in Table 3 suggest that the two control variables, revenue and age have significant influences on marketing innovation decision, but not on marketing performance. Age significantly influences marketing innovation decision with a positive coefficient. This means that a company's experience and sustainability are helpful to decide marketing innovation activities. However, revenue significantly affects marketing innovation decision with a negative coefficient. This implies that the smaller companies need the more marketing innovation in Korean.

Table 4 presents the results of the high-tech and low-tech industry sectors. The results of the selection equation show the following differences between the high-tech and the low-tech industries. First, competitor orientation significantly influences the marketing innovation decision with positive coefficients in the low-tech industries, but not significant in the high-tech industry. Second, the number of patent registration significantly influences the marketing innovation decision with positive coefficients in the high-tech industries, but not significant in the low-tech industry. Third, revenue significantly influences the marketing innovation decision with a negative coefficient only in the high-tech industries.

The results of the outcome equation show the following implications. First, customer orientation and competitor orientation have positive influences on marketing performance only in the high-tech industries. It means that, based on the understandings about customers and competitors, customers supports about products might have positive effects on marketing performances in the high-tech industries. Second, in the high-tech industries, product design and promotion significantly influence the marketing performance with positive coefficients. In high-tech industry marketing, product and promotion are often considered as the central means for companies' performance (Grønhaug and Möller, 2005, p. 97).

Third, in the low-tech industries, product design and placement have significant influences the marketing performance with positive coefficients. It means that product and placement are seen as the central means in low-tech marketing. Last but not least, product design has consistently shown significant connections with all the groups and all the performances in the analyzed results. After analyzing the performances of 203 new products, Cooper and Kleinschmidt (1987) stated that product design is the most important determinant in sales success. Also winning of design awards has positive relationship with average profit margin and sales growth (Goodrich, 1994; Roy, 1994). In line with those researches results, this research shows again that product design has a significant positive relationship with company performance around the marketing performance (MRP, CRP), regardless of an industry's technological level.

Table 4. Heckman two-step results by industries (High-tech vs. Low-tech).

Variable	High-tech		Low-tech	
	MRP	CRP	MRP	CRP
Outcome Equation				
Marketing Innovation				
Product Design	0.4706** (0.2391)	0.6268*** (0.2446)	0.4161** (0.1844)	0.7568*** (0.2023)
Promotion	0.8427*** (0.2434)	0.5090** (0.2489)	0.2769 (0.1961)	-0.1909 (0.2151)
Placement	0.2290 (0.2413)	0.2491 (0.2463)	0.5949*** (0.1936)	0.4484** (0.2123)
Price	0.6897*** (0.2428)	0.2652 (0.2484)	0.2800 (0.1886)	0.2389 (0.2068)
Market Orientation				
Customer Orientation	0.1837* (0.1115)	0.2715** (0.1089)	0.1104 (0.0785)	0.1759** (0.0824)
Competitor Orientation	0.1764* (0.1045)	0.1771* (0.1012)	0.0224 (0.0829)	0.0707 (0.0867)
Inter-functional Coordination	-0.1577 (0.2829)	-0.0520 (0.2740)	-0.2996 (0.3051)	-0.0280 (0.3169)
Innovative Capability				
New Product Capability	-0.6020 (0.6802)	-0.8616 (0.6737)	-0.5342 (0.3987)	-0.7000* (0.4183)
R&D Intensity	0.6152 (0.5859)	0.4044 (0.5469)	0.4941 (1.3488)	0.5744 (1.4214)
Number of Patent Registration	-0.0805 (0.1353)	-0.1901 (0.1299)	0.0677 (0.0965)	0.0221 (0.0996)
Control				
Revenue	0.2453** (0.1181)	0.2464** (0.1143)	0.0042 (0.0655)	0.0405 (0.0680)
Age	-0.0150 (0.0130)	-0.0312** (0.0126)	0.0038 (0.0073)	0.0024 (0.0076)
Selection Equation				
Market Orientation				
Customer Orientation	0.0236 (0.0406)	0.0236 (0.0406)	0.0312 (0.0283)	0.0312 (0.0283)
Competitor Orientation	0.0081 (0.0415)	0.0081 (0.0415)	0.0581** (0.0286)	0.0581** (0.0286)
Inter-functional Coordination	0.4755*** (0.0636)	0.4755*** (0.0636)	0.5504*** (0.0492)	0.5504*** (0.0492)
Innovative Capability				
New Product Capability	0.8644*** (0.1497)	0.8644*** (0.1497)	0.5362*** (0.0879)	0.5362*** (0.0879)
R&D Intensity	-0.2137 (0.3079)	-0.2137 (0.3079)	-0.0994 (0.3295)	-0.0994 (0.3295)
Number of Patent Registration	0.1708*** (0.0456)	0.1708*** (0.0456)	0.0560 (0.0397)	0.0560 (0.0397)
Government Support				
Government Support	0.1740*** (0.0333)	0.1740*** (0.0333)	0.1296*** (0.0288)	0.1296*** (0.0288)
Control				
Revenue	-0.1345*** (0.0385)	-0.1345*** (0.0385)	-0.0327 (0.0256)	-0.0327 (0.0256)
Age	0.0051 (0.0052)	0.0051 (0.0052)	0.0041 (0.0030)	0.0041 (0.0030)
IMR (Inverse Mills Ratio)	-1.7436** (0.6985)	-1.7436** (0.6985)	-1.7018** (0.8125)	-1.2006 (0.8477)
Number of Observations	795	795	1354	1354
Censored Observations	525	525	836	836
Wald χ^2	50.41***	48.06***	37.42***	41.81***

Note. Standard deviation in parenthesis.
*p < 0.10; **p < 0.05; ***p < 0.01.

V. Management Implications and Conclusions

This research provides some guidelines for managers involved in marketing activities. First of all, according to analyses of the three different components of market orientation, managers should be aware that the most important factor for a company's performance is customer orientation. Market orientation has sole positive influence on a company's performance. On the other hand, competitor orientation and inter-functional coordination seem to enable the marketing innovation decision, but they don't have significant influences on company performance. Second, our research results also show that managers should well realize the goals their companies want to achieve through marketing innovation. All of the four marketing innovation activities – product design, promotion, placement, and price – have significant positive influences on MRP, though CRP is influenced only by product design and placement. Last but not least, managers should also realize that marketing innovation and performance are deeply connected with technological level of an industry. Marketing related activities including marketing innovation are generally considered more important in the high-tech rather than in the low-tech industries. Therefore, a manufacturing company adopting marketing innovation activities as a strategic approach for its competitive advantage should take into consideration the possibility of a company's performance being different according to the technology level of the industry.

In addition, the effects of government support on the marketing innovation decision are always significantly positive regardless of marketing performance types and technology level. This provides an implication about governmental policies that the governmental marketing support programs help companies to enhance marketing innovation activities in Korean manufacturing industry.

This research looked into the Korean manufacturing companies and used the Heckman selection model to conduct the empirical analyses of the factors that influence the marketing innovation decision and performance of marketing innovation activities. The key findings are as follows:

First, about the question whether market orientation has influence on marketing innovation decision and marketing performance, market orientation was classified

into three components: customer orientation, competitor orientation, and inter-functional coordination. Customer orientation enhanced the marketing performance, but did not influence the possibility of marketing innovation decision. On the other hand, competitor orientation and inter-functional coordination did not have influences on marketing performances, but had positive influence on the possibility of marketing innovation decision. Second, as an innovative capability factor, new product capability influenced the possibility of marketing innovation decision, but decreased the marketing performance significantly. The number of patent registration influenced the possibility of marketing innovation decision. Third, marketing innovation activities-product design, promotion, placement, and price- helped to strengthen the marketing performance. Fourth, in the high-tech industries, marketing innovation activities became more important factors on the marketing performance.

The contributions of this research are as follows:

First, the innovation and performance of the companies in the field of marketing have been examined. Despite the importance of marketing functions, marketing innovation has been relatively less studied than technology innovation. This study will be added to marketing innovation literature. Second, this research expands on the previous literature about market orientation by examining how three different factors of market orientation influence the decisions and performances of marketing related activities. In this study, among three market orientation factors, only customer orientation enhanced the marketing performance. Also, it expands on the previous studies about marketing performance by classifying into market- and customer-related performance. Our results show that the marketing innovation activities have different influences on company's performances according to the marketing performance types. Third, by applying the Heckman selection model, it was possible to distinguish the factors influencing a decision of a company to conduct marketing innovation activities and the factors influencing the marketing performance. The sample bias problem could be solved in this research by using Heckman selection model. Because only the companies implementing marketing innovation answered to marketing performance, OLS regression could produce inconsistent estimations due to the sample bias problem. Fourth, by using the data from the survey on the Korean manufacturing companies, this paper contributes to raising understanding

of the relationship among market orientation, marketing innovation, and marketing performance. While the previous researches focused on European and American companies, this research is on Korean companies. Last but not least, this research contributes to high-tech marketing literature by considering technology levels. About the Korean manufacturing companies, this research shows that marketing related activities will become more important in the high-tech rather than the low-tech industries.

However, this research needs to be carefully interpreted because the cross-sectional data was used. For example, new product capability has significant influence on the marketing performance with a negative coefficient. This result is likely due to the delayed time between R&D investment and its expected return. Thus, it is necessary to analyze the relationship among market orientation, marketing innovation, and marketing performance by using panel data. Second, although the results clearly shows that the marketing innovation activities influencing MRP are different from those influencing CRP, the mechanism behind these results is uncertain because this research is carried out based on the results of the previously developed and completed survey. Therefore, additional researches are required in order to clarify the underlying mechanism between marketing innovation and marketing performance according to performance types or technological levels of industries. Finally, this research focuses on the marketing innovation. Therefore, additional researches are required in order to provide further insights on the interactions between marketing and other factors such as cultural or organizational capabilities.

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