

# **Markets, Resources, and Their Interplay: A Multi-Level Random Coefficient Model Approach**

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## **ABSTRACT**

Looking at the micro behaviors of firms, this study analyzes the roles of markets and resources and examines how these factors influence sales performance and decisions regarding market selection. This approach addresses how resources factors, coordinated with markets, affect sales performances differently across product segments by using the multi-level random coefficient model. It suggests the importance of developing a business strategy for different product segments and geographic markets. Empirical findings from high-end South Korean cosmetics markets examine the importance of market similarity and learning capability in sales performance and the importance of operating costs and organizational complexity in market selection.

*Keywords:* multi-level random coefficient model, learning capability; market similarity;

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## INTRODUCTION

Large firms and multinational enterprises typically serve several product segments (categories) and geographic markets, and their performances vary in each product segment and geographic market over time. Formulating and implementing strategy takes place not only at the level of the diversified firm as a whole but also at the level of the strategic business units (SBUs) comprising the firm (Gupta and Govindarrajan, 1984; Hambrick, 1980; Hofer and Schendel, 1978). Although the composition of a firm's business portfolio may exert considerable influence on its performance, a firm's overall success will almost certainly be affected by the effectiveness of its business relative to the effectiveness of its rivals (Stimpert and Duhaime, 1997). Whereas firm-level strategy deals with the question of which businesses to compete in, business-level strategy is concerned with the question of "how should a business position itself among its rivals to achieve its goals?" (Schendel and Hofer, 1979). Thus, market selection is a firm-level strategic decision, and its SBUs implement the chosen strategy. Existing literature in strategic management has reported that business unit effects explain a majority (about 40%) of the variance of profitability (Misangyi, Elms, Greckhamer, and Lepine, 2006; Chang and Singh, 2000; McGahan and Porter, 1997; Roquebert, Phillips, and Westfall, 1996; Rumelt, 1991).<sup>1</sup>

Two distinct theories in strategy literature explain the above question. The first theory is based on industrial organization (IO) economics and specifically considers external market orientation in order to explain differences in performance. The resource-based view (RBV) of the firm is the second theory that emphasizes the firm's resources and capabilities in addressing differences in performance. IO economics and RBV clearly point to different sources of competitive advantage for firms (Roquebert et al. 1996); thus, the two streams hardly find a confluence point (Henderson and Mitchell 1997; McGahan and Porter 1997). Makhija (2003), for example, separates and examines the two effects by using the highly unique case of privatized firms in the Czech Republic.

Even though Melman (1983) and Hayes and Abernathy (1980) argue that an emphasis on

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<sup>1</sup> Corporate and industry effects explain about 20%; see the survey article of Bowman and Helfat (2001) for this point.

business-unit effectiveness is deeply ingrained in management practices, researchers have not carefully looked at the SBU itself. Researchers have underlined business units (or subsidiaries) as the relevant unit of analysis (Ray, Barney, and Muhanna, 2004; Birkinshaw, 1997; Dess, Gupta, Hennart, and Hill, 1995; Gupta, 1987) and have analyzed the subsidiaries as actors who develop and transfer their subsidiary-specific advantage within a firm (Rugman and Verbeke, 2001). Ray et al. (2004) emphasize employing SBU-level performance as a dependent variable to test the RBV theory and the effectiveness of business strategy. Dess et al. (1995) summarize important research issues at international, corporate, and SBU levels of strategy literature and suggest the research on SBU level strategy and the nature of corporate-SBU interaction. Each business unit relies on different market structures and has different resources. Therefore, it is important to consider markets and resources at the SBU level when analyzing the performance and strategy. This study closely looks at the micro-level behaviors of firms and considers the effects of markets and resources on performance and market selection decisions. This study also proposes an answer to the question: “Is there any interplay between markets and resources?”

Scholars of strategic management have analyzed the firm’s heterogeneity underlying competitive advantage as it relates to the degree and nature of its product and geographic diversification. In comparison to the large amount of research on geographic diversification in this area, few studies—except for those in new product development—have analyzed product diversification at the SBU level. Few research, particularly in international business, have analyzed geographic and product diversification together at the firm level. Geringer, Beamish, and daCosta (1989), Tallman and Li (1996), Delios and Beamish (1999), and Qian (2002) have examined the relationship between performance, multinationality (geographic diversification), and product diversification together.<sup>2</sup>

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<sup>2</sup> Geringer, Beamish, and daCosta (1989) found the product and geographic scopes of firm are significant determinants of its performance. In geographic diversification, Delios and Beamish (1999) and Qian (2002) found positive effect on performance for Japanese firms and small- and medium-sized U.S firms respectively, while Tallman and Li (1996) did not find the effects for large U.S firms. In product diversification, Tallman and Li (1996) and Qian (2002) found the inverted-U shape relationship between product diversification and performance, but Delios and Beamish (1999) did not find a valid relationship between them.

Numerous studies have examined the importance of markets and resources in the decision of a firm to diversify. However, most of these studies do not investigate the performance of the SBU. Instead, existing literature examines the relationship between diversification and firm performance. Exceptions to this include Govindarajan (1986), Gupta (1987), Govindarajan and Fisher (1990), Henderson and Cockburn (1994), Schroeder, Bates, and Junttila (2002), Ray et al. (2004), and Misangyi et al. (2006). Govindarajan (1986) proposed several hypotheses regarding the relationship between decentralization and the effectiveness of SBUs, and Gupta (1987) and Govindarajan and Fisher (1990) analyzed the relationship. Henderson and Cockburn (1994) examine the effects of a firm's architectural competence on its development ability to new product. Schroeder et al. (2002) studied a firm's manufacturing ability and effectiveness. Misangyi et al. (2006) investigated how business unit-, firm-, and industry-level specific strategic factors explain performance.<sup>3</sup>

This study, indeed, fills a critical gap in the strategy literature by integrating the roles of markets and resources and by examining how these factors influence sales performance and market selection decisions. This approach has the advantage of addressing how market factors, interacting with resources, affect sales performances differently across product segments. The major contributions of this research as follows: 1) it disentangles markets and resources and examines their heterogeneous interplay across business segments; 2) it narrows the learning capability and competitions at the SBU level where field battles happen; 3) it explicitly divides the learning capabilities into feedback effects and spillover effects; and 4) it analyzes not parts of players or parts of markets but entire players, product segments, and geographic markets in a country by using an appropriate empirical technique: a two-step method with a multi-level random coefficient model. These contributions suggest that firms have to develop and implement different diversification and expansion strategies in separate markets while continuing to develop an overall firm strategy.

The remainder of the study is organized as follows: The next section briefly reviews the relevant

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<sup>3</sup> However, as Misangyi et al. (2006) note in their article, the purpose of their analysis is not hypothesis testing but instead examining how the Hierarchical Linear Modeling (HLM) works for assessing strategic factors.

literature in IO economics and RBV with an emphasis on market similarity and learning capability.

Hypotheses are derived from the theoretical basis of the literature reviews. I then describe the data and the methods to be used in examining the hypotheses before presenting the results and evaluating the empirical research model. The conclusion sums up the study and outlines directions for future research.

## **THEORY AND HYPOTHESES**

### **Outside of the Firm: Market Characteristics and Competition**

Although several schools of thought in IO economics have slightly divergent opinions on business strategy, IO economics generally focuses on the aspects of the market in which the firm competes. The firm can influence the behavior of rival firms, and thus the market environment, through a business strategy (Shapiro, 1989). The market environment can be exogenous and stable (Bain/Mason) or dynamic (Schumpeter/Stigler). The literature on IO economics examines the economic characteristics of firms within an industry in order to explain industry dynamics. The structure–conduct–performance paradigm suggests that the structure of the industry influences the strategic behaviors of a firm, which in turn influences its performance. IO economics focuses on the market structures and characteristics that affect the performance of firms rather than the heterogeneities across firms.

Favorable market characteristics are attractive to firms and SBUs in their market selection decision because the characteristics may guarantee good performance, which will in turn cover fixed costs and reach the economies of scale and scope. Firms and business units select the market that has the most favorable market characteristics, and they maximize their sales as well as enjoy a positioning advantage in the market. Market characteristics are the fundamental determinants of demand. The estimation of demand has been a key part of many recent studies examining questions of market power, mergers, innovation, and the valuation of new brands in differentiated product industries (Nevo, 2000).

Campbell and Hopenhayn (2005) find a positive relationship between market size and

dispersion in the size of establishments in six industries and further suggest that establishment-level observations from the retail trade sector can strengthen their finding while Bresnahan and Reiss (1991) infer the rigor of price competition in local oligopoly markets by measuring the relationship between market size and number of producers. Additionally, geo-demographic characteristics have an important role in the literature on empirical IO economics and marketing (see, among others, Toivanen and Waterson, 2005; Goldberg 1995; Hoch, Kim, Montgomery, and Rossi, 1995; Slama and Tashchian, 1985).

The traditional Bain/Mason paradigm of IO offers a systematic model of strategic management for assessing competition within an industry. An important branch of IO research is so-called “oligopoly theory,” or the study of the outcome of competitive interaction in markets in which one firm’s action affects its rivals. Oligopoly theory seeks to specify the link between industry structure and firm-to-firm rivalry (Porter, 1981). The firm reacts best following another firm’s action, and business strategy in IO economics is the outcome of systematic interaction between firms in the market.

Competition and rivalry play key roles in IO economics, which is typically based on the profit maximization hypothesis (Tirole, 1992, p.34). Firms seek monopoly status in order to maximize their expected profits by exercising their market power. This incentive motivates firms to develop business strategies such as product differentiation (Dixit and Stiglitz, 1977; Hotelling, 1929), R&D (Reinganum, 1983; Schumpeter, 1943), horizontal integration (Sherer, 1980), exporting (Bagwell, 1991), collusion (Bain, 1956; Chamberlin, 1933), and so forth.<sup>4</sup> Competitive market conditions hinder a firm’s entry into the market because they reduce the firm’s power and revenue (sales) in the market. Intra-organizational competition (e.g., cannibalization) also affects market selection decisions. Firms decide their SBU-level strategies simultaneously. The less preferred products would be cannibalized by the demand for the more preferred products (Moorthy and Png, 1992; Moorthy, 1984). Thus a firm extends its territories only when it gives positive net benefits. As effects of market characteristics and competition have been profoundly examined elsewhere, I use market factors as control variables.

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<sup>4</sup> Tirole (1988) points out that “Bain’s (1956) original concern with market concentration was based on an intuitive view that high concentration is necessary (if not sufficient) for collusive outcomes.”

### **Inside the Firm: Resources and Learning Capability**

In the RBV approach, the firm's ultimate objective, in general, is to bring in above-normal returns (Barney, 1986; Wernerfelt, 1984). Thus, in RBV, the firm is a seeker of unique, or otherwise costly-to-replicate, inputs (Conner, 1991). These inputs include all firm-specific resources and relationships: capabilities, organizational process, firm attributes, knowledge, and information (Barney, 1991). Tradable (or purchasable) inputs are not firm-specific resources. RBV focuses on the attributes of actual resources that are likely to be rare, imperfectly imitable, or imperfectly substitutable. Accordingly, RBV is a complement to IO economics emphasizing industry structure and strategic positioning (Eisenhardt and Martin, 2002; Henderson and Cockburn, 1994; Porter, 1979).

#### ***Market similarity***

An organization's knowledge of the economic and cultural characteristics of a new market is a valuable resource. The importance of near-market knowledge has been emphasized in organizational learning research (see among others, Slater and Navar, 1995; Prahalad and Hamel, 1994; Levitt and March, 1988). Consumers in similar markets will be highly responsive to products that have been designed in response to needs that approximate their own. At the same time, managers will prefer similar markets in order to minimize unexpected response to an established marketing mix (Davidson, 1983).

Literature in international strategic management empirically supports positive relationships between market similarity and market selection (Kim and Hwang, 1992; Hill, Hwang and Kim, 1990; Kogut and Singh, 1988; Johanson and Vahlne, 1977; Weinstein, 1977). Golder (2000) finds that the knowledge can be generated particularly in foreign markets in which the firm already operates. Recent studies by Rugman (2005) and his coauthors find that most large multinational enterprises expand their geographic territories to near markets and generate most of their sales and assets in near markets.

Market similarity refers to the degree of likeness, and I define it as an inverse of Euclidian distance between the characteristic of a market and the characteristics of a weighted average of the

markets that a business unit  $k$  has operated:

$$(II-1) \quad \text{Similarity}_{i,J,t}^k = \frac{1}{\left[ \text{Market}_{i,t} - \left\{ \frac{\sum_J (\text{Sales}_{j,t}^k \times \text{Market}_{j,t}^k)}{\sum_J \text{Sales}_{j,t}^k} \right\} \right]^2},$$

where  $k$  is a business unit,  $i$  is a market in which  $k$  wants to operate,  $J$  is a set of markets in which  $k$  has entered,  $j$  is a subset of  $J$ , and  $t$  is time. I use the standardized value of logarithm transformation of similarity in the regression. In a similar vein, Mitra and Golder (2002) define similarity and refer it to near market knowledge. Thus market similarity can be interpreted by a continuous measure of geographic relatedness compared to Rumelt's (1974, 1982) product relatedness. Rumelt (1974, 1982) and Geringer et al. (1989) found that firms developing related diversification strategies in products had the higher level of performance compared to firms developing unrelated diversification strategies. Specifically, I test the following hypothesis regarding the role of market similarity in performance:

***Hypothesis 1:*** *The more experience a firm has serving similar and related geographic markets, the more it can increase its performance in a new market.*

### ***Learning capability***

Many studies in organizational learning have shown the importance of learning capability and have proposed definitions of learning capability (Decarolis and Deeds, 1999; Kim, 1998; Leonard-Barton, 1992; Cohen and Levinthal, 1990; Dierickx and Cool, 1989). Learning capability is the capacity to assimilate knowledge for innovation and imitation<sup>5</sup> and the ability to learn faster than one's competitors may be the only sustainable competitive advantage (DeGeus, 1988). Learning capability has developed to dynamic capability within RBV context (Zollo and Winter, 2002; Eisenhardt and Martin 2000; Teece, Pisano and Shuen, 1997).

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<sup>5</sup> The purpose of this study is not to define or propose the accumulation process of learning capability, and therefore I use general and simple definition of learning capability here.

Dynamic capabilities are the antecedent organizational and strategic routines by which managers alter their resource base—by acquiring and shedding resources, integrating them, and recombining them—in order to generate new value-creating strategies (Grant, 1996; Pisano, 1994). As such they are the drivers behind the creation, evolution, and recombination of other resources into new sources of competitive advantage (Teece et al., 1997; Henderson and Cockburn, 1994). Because I analyze path-dependent learning capability in organizational routines across time in this study, I focus on the learning capability within dynamic capability by following the definition of Zollo and Winter (2002, p.340): “*A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness.*” Eisenhart and Martin (2000) also emphasize that dynamic capability evolves in a unique path shaped by learning mechanisms.

Organizational learning is valuable to a firm’s customers in this context because it focuses on understanding and effectively satisfying their expressed and latent needs through new products, services, and ways of doing business (Day, 1994; Slater and Narver, 1995). This should directly result in superior outcomes such as greater success for new products, superior customer retention, higher customer-defined quality, and, ultimately, superior growth and/or profitability.

Multi-business and multi-market firms have several paths toward absorbing knowledge into the organization. First, an organization learns from its previous activity and performance in the same geographic market and creates new capabilities. I define this path of learning as a feedback effect. Second, learning from other geographic markets also creates new capabilities. I define this path of learning as a spillover effect. Following traditional organization theory (March and Simon, 1958), I assume that both feedback and spillover effects exist at the SBU (intra-organizational learning) and the firm level (inter-organizational learning). Holmqvist (2003) argues that the learning process occurs both within and between organizations.

An SBU learns from other SBUs in its parent firm and from its own experience. In sales units, sales skills are an important knowledge-based resource (Menguc and Barker, 2005), and a strong

relationship exists between retail salespeople's knowledge structures and their performance (Sharma, Levy, and Kumar, 2000; Sujan, Weitz, and Kumar, 1994). Thus, the learning capabilities of sales business units increase the sales performance of the business units. Learning tends to be local and opportunities for learning will be "close in" to previous activities and transaction and production specific (Teece, 1988). Accordingly,

***Hypothesis 2:** Learning capabilities (feedback and spillovers effects) are positively related with performance.*

***Hypothesis 3:** Intra-organizational capability is more important than inter-organizational capability at the SBU-level.*

### **Inside and Outside: Interplay between Markets and Resources**

Technological capabilities, external and internal interactive capability, and marketing capability are related to product development (Verona, 1999). Leonard-Barton (1992) illustrates how resources such as knowledge, skill, technical system, and managerial systems are important to a manager for generating product development skills and core capabilities. Indeed, firms can serve multi-segments only when they have the resources and capabilities to develop and introduce their products in new market segments or to develop new products.

A sizable existing literature has examined the corporate performance by corporate level strategy and SBU level strategy. Product diversification is a corporate level strategy, while geographic diversification is a SBU level strategy according to the industry structure (Christensen and Montgomery, 1981; Gupta, 1987). Geringer et al. (1989) tested the joint effects of product diversification and geographic diversification on corporate performance, but they could not find statistically significant results. Govindarajan and Fisher (1990) found a statistically significant interactive effect of corporate resource and SBU strategy on SBU performance. The results testing corporate strategy and corporate performance are inconclusive because corporate performance is an indirect measure outcome of corporate

strategy. Golden (1992) examined the moderating role of corporate-SBU relationship on SBU performance. Dess et al. (1995) suggested SBU-level performance as a direct measure of corporate and SBU strategy by using a multi-level approach.

Market segmentation and product differentiation are a firm's strategy to hold a monopoly in the market (Chamberlin, 1965). Product segmentation is also a response to consumers whose preferences are different from existing consumers and have a higher willingness to pay for the differentiated products. Therefore, consumers' reactions to product segments are different within a geographic location. Li, Sun, and Wilcox (2003) model and test a variety of customers' purchase patterns by assuming that different products are designed to meet the requirements for customers at different stages of their demand maturity in a large consumer bank. If a firm that has limited resources to develop products partly covers the markets, its performance should therefore be lower than the performance of multi-business firms in a competitive environment. Dynamic capability stresses exploiting existing internal and external firm specific competences in order to address changing environments (Teece et al. 1997), the interactions between markets and resources affect performance. Thus multi-business firms can match their products to consumer's preference and enjoy their positioning advantages. As a result, a firm's market segment strategy and its performance depend on market characteristics. Hence, I hypothesize:

***Hypothesis 4:** The effects of market characteristics on performance are heterogeneous across product segments.*

## **Market Selection**

Firms or SBUs only enter new markets when they make positive profits from the market. Firms systematically make strategic decision based on the expected performance of their decision (Shaver, 1998). If a firm does not predict positive profits from the new market, the firm will postpone entry or select another market where it can generate higher profits. This is a fundamental characteristic of real option theory. As a result of this phenomenon, market and resource factors directly affect the performance of an SBU in a specific market and the predicted performance therefore affects the firm's decision to enter.

Creation of new knowledge depends on existing products as well as path dependent knowledge and capabilities (Helfat and Raubitchek, 2000). The system of knowledge and the portfolio of products provide real options for future product sequences (Brown and Eisenhardt, 1997). Learning capability supports the sequential entry decision of firms both in product segments (Helfat and Raubitchek, 2000) and in geographic markets (Song, 2002).

### ***Operating costs***

If firms maximize their profit, they will enter a market when they make positive net profits and exit or postpone the entry when they make negative profits. It is important to note that the benefits of learning and experience are already considered in sales performance. Positive profits may be guaranteed when operating costs are less than the revenue of the market. Operating costs in a field sales unit include wages for sales staffs, rent for the store, and other miscellaneous costs. Since a business unit's expansion within a national market is strategically less important and less risky than a firm's expansion into a foreign market, explicit costs are important determinants of market entry decision at the business-unit level more so than at the firm level.

In general, most of the entry literature in IO economics uses wages and rent as control variables, but RBV literature often ignores these explicit costs. However, few authors in strategic management consider the direct cost of entry (see Gruca and Sudharshan, 1995; Lambkin, 1988). The operating costs at the SBU level have the same theoretical background as the transaction costs (e.g., economic risks, institutional instability, and so forth) in the entry literature of international business at the firm level. Hence,

***Hypothesis 5: High expected operating costs in a new market deter a firm's expansion into that market.***

### ***Organizational complexities***

Most of the market entry literature analyzes the effects of market characteristics and resources on the

initial entry mode, but this study examines the effects of entry mode on market expansion strategy. A market expansion decision is determined at the firm level rather than at the SBU level because a firm has to coordinate its resources and capabilities. In general, vertical integration raises costs due to bureaucracy (Mahoney, 1992; Hill and Hoskinsson, 1987), control and coordination costs (D'Aveni and Ilinitch, 1992), strategic inflexibility (Harrigan, 1983), and so forth. Likewise, a multi-business firm has information costs between its SBUs as well as between the head office and the SBUs (Hill and Hoskinsson, 1987). The environmental uncertainty of new markets increases the information processing of an organization. Furthermore, vertically or horizontally integrated organizations will need coordination within the organization. Govindarajan and Fisher (1990) note that the coordination costs at the corporate level firm and the costs of reduced flexibility at the individual SBU level are the major costs of resource sharing in multi-business firms. These are the implicit costs of a complex organization.

A multi-business firm has more alternatives in decision making than a single-business firm. Thus the multi-business firm has higher opportunity costs than the single-business firm and it requires high returns from the new business. The performance of multi-business firm would be better than that of single business firm. However, after controlling performance differences, the higher coordination costs and opportunity costs make a multi-business firm more risk-averse when deciding to expand into new product and geographic markets. As a result, higher implicit costs and opportunity costs impede the timely decision of market expansion. Therefore,

***Hypothesis 6:** In a market expansion decision, complex organizations are more conservative than compact organizations.*

## **DATA AND SPECIFICATION**

### **Data**

This study is the first attempt to analyze market selection and performance in both product segments and

geographic markets as well as to examine market similarities and learning effects at the brand-store level. The sample consists of monthly sales data at the brand-store level from January 1999 to December 2005 in the South Korean high-end cosmetics market. Fifty-four firms have introduced 70 brands during this period and they have sold through 12 retailers in 58 department stores across 42 cities and towns.<sup>6</sup> The total number of stores is 1,170 and the total number of observations is 51,813. Sales data comes from each department store and a large multi-brand cosmetics firm has gathered and maintained the data. A manager from the firm has generously provided me with the data.

I have divided the 70 brands into six product segments after interviewing three marketing managers and six store-sales managers from cosmetics firms: skincare, clinical skincare, makeup, perfume, bath and toiletries, and men's cosmetics. Some firms have multiple brands in the same product segments: for example, Estée Lauder Company has Mac and Bobbi Brown brands in the makeup segment and L'Oréal has Lancôme and Helena Rubinstein brands in the skincare segment. Nine marketing and sales managers agreed with my classifications.

Figure 1 shows the total monthly sales and total number of stores. The total market size was US\$16 million at the beginning of the period and US\$113 million at the end of the period (1,000 Korean won = 1 US dollar). The market has grown quickly—by approximately 33 percent every year. High seasonal sales exist for the Christmas holiday season (in December) and graduation and admission periods of school (in February and March). The numbers of stores have also increased, particularly after year 2000 when Korea began recovering from its economic crisis.

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Insert Figure 1 about here  
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The number of competitors is measured using sales data. I separate intra-organizational competition and inter-organizational competition both at the SBU and firm levels in the same geographic market: *intra-brand competition*, *intra-firm competition*, *intra-segment competition*, and *inter-segment competition*. This allows me to distinguish cannibalization, i.e., *intra-brand competition* and *intra-firm*

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<sup>6</sup> Among 54 firms, 10 firms are Korean firms and the others are foreign firms.

*competition*, and competition, i.e., *intra-segment competition* and *inter-segment competition*, effects. On average, there are less than two own-brand stores, two stores of the same parent firm excluding own-brand stores, ten stores within the same product segment excluding own-brand stores, and 16 stores outside of the segment on average. Lagged brand- and firm-level sales (e.g., sales performance in the previous month) are employed as proxies of the paths of experience to estimate the learning capabilities. Firm-level sales exclude own brand-level sales.

Demographic and geographic data including population, average income, average gender ratio, and average age for residents, and average wage for a salesperson in a large retail store come from several databases in the Korea National Statistical Office. Separately declared land values from the Korea Association of Property Appraisers are employed as a proxy for the rent of store. These values are announced by the Korean Ministry of Construction and Transportation. Market similarities for age, gender, and income were measured by using equation (II-1) in the previous section.

Advertisements crucially affect sales performance, yet advertisement expenditures at the SBU level are not reported. I measure the numbers of monthly advertisement pages for each brand in three top-selling high-end beauty magazines in South Korea: *Haute*, *Neighbor*, and *Noblesse*. More than 75 percent of the brands have at least one advertisement during the sample period in the three magazines, and those brands make up 99.5 percent of total sales. Since I gather the data from three different magazines, I presume that the proxy for advertisement expenditure is not biased to certain firms or brands. Table 1 shows the definition of each variable and correlation matrixes are reported in Appendixes A and B.

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Insert Table 1 about here  
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## **Empirical Strategy**

The empirical model is similar to probit/logit type entry models (see, amongst others, Toivanen and Waterson, 2005; King and Tucci, 2002; Swaminathan, 1998; Goldberg, 1995; Bresnahan and Reiss, 1991), but my specification is more precise and theoretically consistent with the entry decision model than

aforementioned literature.<sup>7</sup> Firms diversify their business units into new markets when the new markets produce expected profits. Otherwise, firms will postpone entry into these markets. Three dynamic factors affect the timing of entry and expansion: competition, market knowledge (similarity), and learning capability. Competition makes firms penetrate new markets early, while market knowledge and learning capability may guarantee better opportunity by reducing the entry costs of firms in future product and market sequencing. Market knowledge and learning capability provide real options to firms (Helfat and Raubitchek, 2000; Kogut and Kulatilaka, 1997).

Existing entry mode literature in strategic management and marketing, as well as IO economics, does not, in general, use the two-step approach (limited information maximum likelihood model) because the performance data at the SBU level are hardly attainable. The exception is the seminal research of Shaver (1998). Shaver (1998) considered the endogeneity between the performance and the entry mode of foreign firms in the U.S. and employed two-step estimation with Heckman's (1979) method. He used a firm's survival as a dependent variable in the performance model rather than the real performance of the firm. Indeed Shaver (1998) did note the disadvantages of binary dependent variable, and he modified the disadvantages by controlling self-selection problem and by using predicted probability of survival as a proxy for the performance measure. However, the binary survival data cannot be better than the real performance data as a dependent variable in the performance estimation.

In the first step, I estimate demand in order to find the predicted sales of each store. The demand equation (performance equation) of this research is similar to Goldberg (1995), but complete monthly store-level data allowed me to circumvent the strict assumption of purchasing behavior. Moreover, this study is interested in the effects of markets and resources on performance rather than on individual purchasing behavior (cf. Goldberg, 1995). In the second step, I analyze the market selection decision into

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<sup>7</sup> King and Tucci (2002) nicely analyze the incumbents' entry into new niche markets by using simultaneous choice model for sales and entry. They analyze the effects of experience on entry decision, and find that production and sales experience significantly decide entry decision as well as sales performance at the firm level. Their sales data do not distinguish the sales from existing markets versus new markets or the market characteristics between them.

new product segments and new geographic markets using the predicted sales of each business unit from the first step with several firm-level control variables.

Beside the theoretically consistent two-step method explained above, there are three additional reasons that the two-step approach is preferable to the conventional logit/probit model (full information maximum likelihood model). First, the samples in the sales performance regression and the market selection regression are drawn from different populations. The sample in the sales performance regression is drawn from stores that entered in markets, while the sample in the market selection regression includes stores that did not enter in the markets. Second, the types of dependent variables in the sales performance model and the market selection model are different (continuous vs. binary). Third, maximizing the separate log-likelihood may be straightforward.<sup>8</sup>

### Specification

A business unit  $k$  enters in (geographic) market  $i$  at time  $t$ , if

$$(II-2) \quad E(\Pi_{it}^k) - F_{it} \geq 0,$$

where  $\Pi_{it}^k$  is the business unit  $k$ 's profits in market  $i$  at time  $t$  when it enter the market.  $F_{it}$  is the monthly fixed costs of the store including salespersons' wages and monthly rent of the store.

Equation (II-2) can be rewritten as follows,

(II-3)

$$E \left[ P_{it}^k \left\{ D_{it}^k \left( \overbrace{X_{it}^k}^{\text{market, characteristics}}, \overbrace{\left( \overbrace{Intra_{it}^k}^{\text{cannibalization}}, \overbrace{Segment_{it}^k, Total_{it}^k}^{\text{competition}}, \overbrace{S_{it}^k}^{\text{market similarity}} \right)}^{\text{competition effects}}, h \left( \overbrace{Intra_{it}^k}^{\text{spillovers}}, \overbrace{Intra_{it}^k}^{\text{feedback}}, \overbrace{Inter_{it}^k}^{\text{spillovers}}, \overbrace{Inter_{it}^k}^{\text{feedback}} \right) \right) \right\} \right] \geq F_{it} \left( \overbrace{Y_{it}^k}^{\text{market specific}} \right).$$

$\underbrace{\hspace{15em}}_{\Pi_{it}^k}$

$P_{it}^k$  is a variable profit per unit of sales, and  $D_{it}^k(\cdot)$  is a demand. The demand function includes factors explained in the hypotheses.

<sup>8</sup> See Greene (2003) for further discussion on this issue.

Take the log transformation to equation (II-3), and I get

$$(II-4) \quad Z_{it}^k(\cdot) = \ln P_{it}^k + \ln \hat{D}_{it}^k(\cdot) - \ln F_{it}(Y_{it}) \geq 0 .$$

The firm's entry decision for business unit  $k$  in market  $i$  at time  $t$  is

$$(II-5) \quad \begin{cases} \text{Enter} & Z(\cdot) \geq 0 \\ \text{Do not enter} & Z(\cdot) < 0 \end{cases} .$$

Estimating sales is the key of equation (II-4). Equation (II-5) can be estimated by a probit/logit equation. Existing research shows the importance of segment and market specific unobserved characteristics in estimating demand. I assume that unobserved characteristics occur in a multi-level (nested) sequence. I consider a two-level approach: geographic market level (level 1) and product segment level (level 2): see Figure 2.

The nested structure of unobserved characteristics is more realistic than non-nested structure. Recently, multi-level models have been employed to solve empirical problems in management literature (Misangyi *et al*, 2006; Arregle, Hébert, and Beamish, 2006; Ramamurti, 2000; Pan and Tse, 2000; Naumann and Bennett, 2000), while this technique has been widely used and developed in economics, education, medical science, and so forth.<sup>9</sup> Arregle et al. (2006), in particular, argue the advantages of multi-level methods in market entry studies.

Brand characteristics probably affect the performance in each geographic market. However, geographic characteristics cannot affect the product characteristics because firms do not customize their products for each geographic market (town).<sup>10</sup> This statistical approach has its roots in Fuller and Battese (1973).

<sup>9</sup> Ramamurti (2000) and Pan and Tse (2000) propose conceptual frameworks for multi-level models, but they do not test the models empirically.

<sup>10</sup> This is true for the high-end products market because the standardization of brand and product is very important in order to maintain brand and product equity. In particular, the high-end cosmetics market in Korea is dominated by foreign firms, which do not produce customized products for any location within Korea or for the Korean market.

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Insert Figure 2 about here  
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Though most of the entry literature in strategic management has used fixed effects for location-specific and firm-specific factors, the random effects model is more efficient than the fixed effects model if the sampled cross-sectional units are drawn from a large population (Greene, 2003, p.293). It is possible that the random effects model shows inconsistent estimates because of strict assumption. Since a fixed effects model is an unbiased, but not efficient, estimator, it is important to compare the results from the random effects model with the results from the fixed effects model.

I use an unconditional means model (random effects model) and a two-level conditional means model (random coefficients model). The random coefficients model is an extension of the random effects model. The random coefficients model allows parameter variation across cross-sectional units (e.g., segment in this study), while the fixed effects and random effects model allow considerable flexibility but do not have an entirely plausible assumption (Greene, 2003, p.318). Dickson and Ginter (1987) define market segmentation as a state of demand heterogeneity. Intuitively, the effects of market factors on performance are different across product segments, and the random coefficients model explicitly allows for these variations. My approach can test the non-linear nature of coefficients and consider interactions between levels. These characteristics provide the methodological advantages compared to the existing HLM models used in Misangyi et al. (2006) and Arregle et al. (2006).

## **EMPIRICAL FINDINGS**

### **Sales Performance**

First I use a typical fixed effects model to analyze the effects of markets and resources on performance at the brand-store level. In Table 2, I present three specifications that show how market characteristics, learning capability, and market similarity affect performance at the store level. The three specifications include month, year, and segment fixed effects to control for seasonality, macro-economic variations, and

heterogeneities across the segments. The goodness of fit of the model increases in relation to the variables representing organizational resources. The third column includes entire market characteristic variables and organizational resources and explains about 68 percent of the sales performance of stores.

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Insert Table 2 about here  
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As expected, market size strongly affects sales: *main population*, *surrounding population*, and *business population* significantly increase the sales of cosmetics store. Positive and significant *income*, *age*, and *gender* variables follow my expectation: richer, elder women buy high-end cosmetics products more than poorer, younger women. *Own-brand competition* is negative and significant: cannibalization exists within the brand in the same location, but intra-firm competition increases sales. The cosmetics firms in the Korean market properly position their segments, and this reflects that my segment classification is well-defined. Firms diversify and introduce products that do not compete with one another, but it is impossible to circumvent the competition of similar or equal products in the same location. *Inter-organizational*, *intra-segment*, and *inter-segment competition* variables significantly reduce sales.

Learning capabilities are positive and significant, and the results demonstrate that the benefits of learning from intra-business units (*brand-level feedback* and *spillover effects*) are much greater than learning from other business units (*firm-level feedback* and *spillover effects*). Learning processes are intrinsically social and collective and learning requires common codes of communication and coordinated search procedures. Thus, learning from near, relevant organizations is more effective than learning from far-away, irrelevant organizations. Even though entry into a market can cannibalize a firm's own sales, it increases learning capability. The net effects of own stores in the same town should be positive: they increase the market power rather than cannibalizing each other. The alternative is for the firm to exit the market.

The results of market similarity variables partly support the importance of near market experience. *Age similarity* is significant and negative, while *gender similarity* and *income similarity*

follows my prediction. However, numerous prior studies find that previous experience provides a competitive advantage in new markets at the firm level (King and Tucci, 2002; Klepper and Simons, 2000). To explore this further, it is necessary to use appropriate specifications. Overall market factors explain about 45 percent and resources explain an additional 23 percent.

In Table 3, I include unobserved location and segment characteristics as fixed effects (first column) and random effects (second and third columns). Adding location-fixed effects does not change results significantly. *Age similarity* is positive and marginally significant while *surrounding population* and *gender* are negative. A negative surrounding population may not be true: large surrounding population may increase the demand of a product. A negative *gender* coefficient is also counter-intuitive because it means that a large male population increases cosmetics sales. It is probably true for men's cosmetics segments, but overall it should not be true.

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Insert Table 3 and Table 3-1 about here  
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In the second column of Table 3, I report the results of segment-location random effects model. As discussed in the previous section, the random effects model can be a more efficient method in comparison to the fixed effects model. The results of the random effects model are consistent with those of the fixed effects model, and the results are actually better than those of the fixed effects model: negative *surrounding population* is insignificant. The large sample gives consistent estimators in the random effects model. Hausman's specification test, which suggests the better specification between two alternatives (e.g., the random effects model and the fixed effects model), is not defined because of negative variances in test statistics. Thus, the random effects model cannot be rejected.

Finally, I report the results of two-level segment-location random coefficient model in the third column of Table 3. I allow heterogeneities in the parameters of market characteristics across product segments with stochastic variations: the ability of the coefficients of market characteristics to vary with measured covariates. In other words, market characteristics affect the performance of products across and within product segments in various ways. The results are consistent with previous models, and

*surrounding population* retains positive effects, but insignificant.

Table 3-1 reports the random coefficients. The mean values of *income*, *age*, and *gender* represent the overall effects of market characteristics. These are also the slopes of segment 6: men's cosmetics. To find the effect of *income* characteristics in segment 1, the interaction effect between *segment 1* and *income* should be added to the mean value of income:  $-0.0245 + 0.2621 = 0.2376$ . Likewise, I can calculate the heterogeneous effects of market characteristics across product segments. Higher income increases sales in clinical skincare products (segment 2) while younger people consume more makeup and perfume products.

The random coefficients model also solves the puzzling effects of *gender* characteristics. A large female population increases sales in makeup and perfume, and toiletry products, but significantly decreases sales in men's cosmetics. In addition, a likelihood ratio test rejects the no parameter variation and I can conclude that the two-level segment-location random coefficients model is the best specification among six models in Table 2 and Table 3. In sum, I find the evidence in support of all hypotheses for markets, resources, and interaction between market characteristics and product segments. Producing and distributing products in multiple segments is a resource of the firm because only innovative firms or large firms can make and maintain several business units. The results also find strong evidence of the importance of market similarity and learning capability in the performance of the SBU. SBUs can do better when they have experience in similar markets.

### **Market Selection**

In Table 4, I report the results of market selection regression. Under the assumption of rational choice, the predicted sales from sales performance regression are employed. Higher wages and rent will deter entry into a new market because these costs increase the minimum sales that give positive profits. In the first column of Table 4, I include *predicted sales*, *wages*, and *rent*. The probit regression shows that these three variables explain more than the 85 percent of the variance. The predicted sales come from the large number of control variables in the sales performance regression. Higher predicted sales increase the

probability of entry while higher rent decrease the probability of entry. *Wage* is positive and significant. in this specification. It is probably because a SBU can hire qualified and skilled workers in the location where wage and rent are high.

In the second column of Table 4, I add two firm-level control variables: multi-business firm and organizational structure. *Multi-business firm* is a dummy variable, which equals one if a firm has products in multiple segments—otherwise the variable is zero. I generate four dummy variables for representing entry modes: *Korean firm*, *foreign direct investment (FDI)*, *joint-venturing (JV) firm*, and *sales agent*. The organizational structure dummies represent organizational complexity and specialization on the distribution of products at the firm level, which affect the expansion decision.

The results show that a single firm more likely expands in Korea than a multi-business firm.<sup>11</sup> Firms using FDI or JV as an entry mode more likely expand its stores in the Korean market compared to Korean firms and sales agents. Korean firms have a more rigid structure than other types of foreign firms and sales agents. Thus their decisions should be more conservative than others. Moreover, the purpose of FDI and JVs are market seeking, as a typology of Dunning (1993), and increasing sales particularly in the Korean cosmetics market. Most of the foreign cosmetics companies do not have manufacturing units in South Korea. Therefore, FDI and JV firms should be more aggressive in market expansion than the other types of firms. Likewise, multi-business firms are more rigid and conservative in decision structure because they have more alternatives in the market. The performance of the SBU of a multi-business firm is better than the SBU of a single-business firm due to the large amount of available resources. However, multi-business firms are not likely to expand in the market after taking control of those resources (i.e., learning capability and the experience discussed in this study). Overall, all hypotheses are confirmed.

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 Insert Table 4 about here  
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I report results from a typical probit regression (e.g., non-two step approach) in Appendix C, and

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<sup>11</sup> The *sales agents* variable is not included in the probit regression equation because of multicollinearity problem. The coefficient of *sales Agent* is 0.

the results support that the two-step estimation may be better methodology than a typical (non-two step) probit regression method. Signs of many variables are counterintuitive and counter theoretical (see the third column of Appendix C): *surrounding population*, *business population*, *income*, *brand-level spillover effects*, and *firm-level feedback effects* are negatively related to the entry decision. In addition, the coefficients of those variables are unstable across specifications. These problems likely come from misspecification and endogeneity problems, while the two-step method is consistent with theory.

## **DISCUSSION AND CONCLUSION**

This study attempts to elaborate on the confluence of two theories by using five years of micro-data from monthly sales at the brand-store level in the high-end cosmetics market of South Korea. The empirical results support the main argument based on IO economics and the RBV of performance and market selection at the sales business units level. Overall, statistical findings from dynamic panel data analysis show the importance of market characteristics, market structure, market similarity, and learning capability in sales performance. The importance of operating costs and organizational complexity in market selection decisions is also confirmed in the empirical estimation. I examine, in particular, the heterogeneous effects (elasticities) of market characteristics across product segments.

In the sales performance model, favorable market characteristics raise sales performance, while competitive market structures decrease sales performance. The near-market experience significantly increases sales capability, and it is particularly true for sales units in standardized product markets. Learning at the SBU level and at the firm level has a significant effect on the performance of SBU: there exist both feedback effects and spillovers effects. Learning from relevant organizations is more effective than learning from irrelevant organizations in market performance. Significant learning effects support the sequential diversification decision of a firm (Helfat and Raubitschek, 2000). Real option theory also supports such decisions in strategy (Bowman and Hurry, 1993). In the market selection model, I analyze explicit operating costs and organizational complexity. Higher costs and inflexibility of strategic choice

impede a timely decision by the firm.

In contrast to the empirical methodologies in existing research, I use a two-step method: estimating sales in the first step and examining market selection in the second step by using predicted sales estimated from step one. This method is consistent with underlying theory and reduces statistical problems. I also compare results from the two-step method with results from the typical (non-two step) method and confirm that the two-step method produces theoretically consistent coefficients compared to the typical method.

The findings and limitations of this study provide several opportunities for future research. This study can be extended by finding other interactions between the market and resources and new interactions between the SBU and the firm. For example, the interaction between competition and learning capability or the interaction between learning capability and organizational complexity can be examined in an organizational capability perspective. Bartlett and Ghoshal (1993) propose that certain flexible processes and shared values will replace the role of vertical structure in modern organizations and Tsai (2002) finds that centralization impedes knowledge flow among SBUs. On the other hand, centralization is likely to have a positive effect on intra-firm knowledge sharing by enhancing coordination and integration toward the interdependency (Egelhoff, 1988). Intra-organizational competition will retard learning capability, while inter-organizational competition will accelerate it. Intra-segment heterogeneity across firms could be an interesting extension of this research by using a three-level random coefficients model. Studies of other industries and in other countries may generalize the findings of this research. Furthermore, extensions to the international market using macro-view will complement this research.

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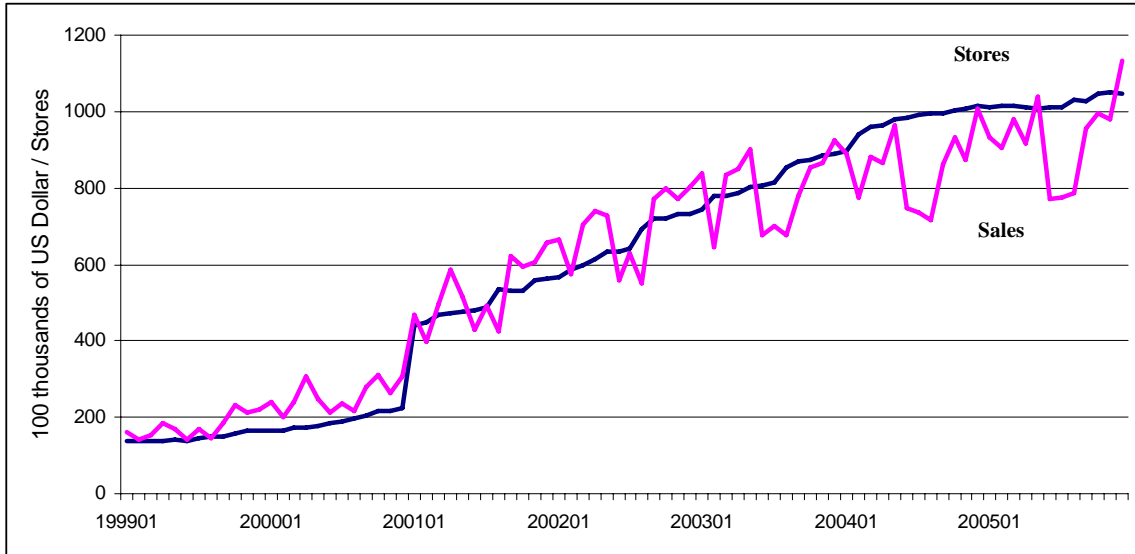
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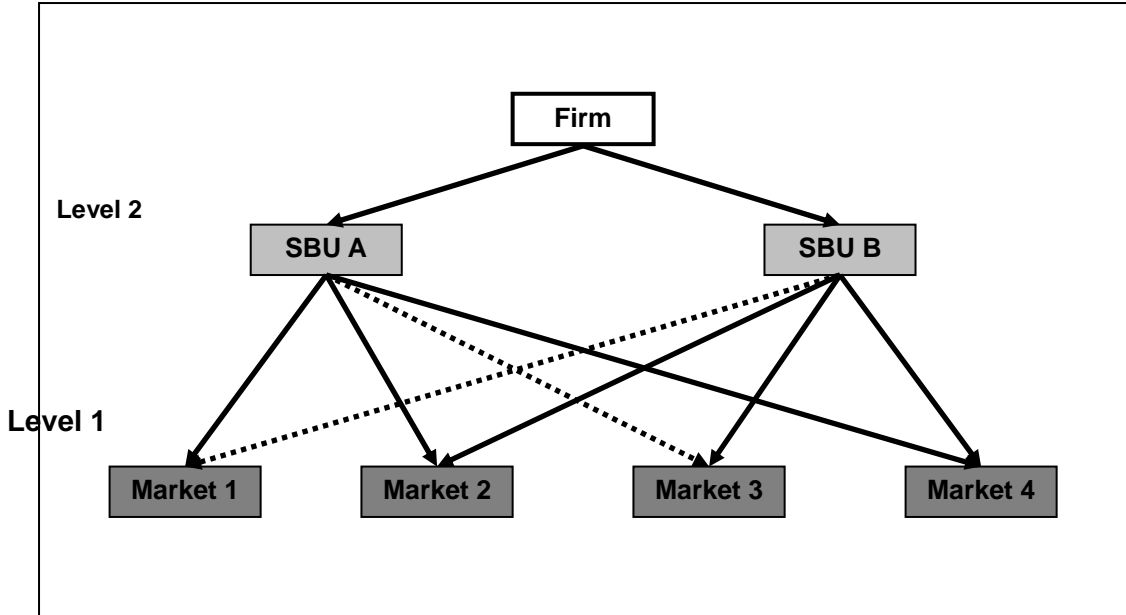
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**FIGURE 1.**  
Total Sales and Total Numbers of Stores in the South Korean High-end Cosmetics Market  
1999 - 2005



**FIGURE 2.** Nested Structure of Demand Characteristics



**TABLE 1.** Description of Explanatory Variables

<i>Variable</i>	<i>Description</i>	<i>Predicted Sign</i>
<u><i>Sales Performance Model</i></u>		
<i>Main Population</i>	Log of the residential population of host town in each year.	+
<i>Surrounding Population</i>	Log of the surrounding towns' residential population in each year.	+
<i>Business Population</i>	Log of number of workers in host town in each year.	+
<i>Income</i>	Log of per capita local tax in each year.	?
<i>Age</i>	Log of the average age of host town in each year.	?
<i>Gender</i>	Log of the percent ratio of female population with respect to total in host town in each year.	?
<i>Own Brand Competition</i>	Total number of stores of the same brand in the host town excluding own store.	?
<i>Intra Firm Competition</i>	Total number of stores of the same firm in the host town excluding own brand.	?
<i>Intra Segment Competition</i>	Total number of competitors' stores in the same product segment in the host town.	-
<i>Inter Segment Competition</i>	Total number of competitors' stores in the host town excluding own product segment.	-
<i>Advertisement</i>	Total number of advertising pages in top three popular magazines for each month.	+
<i>Brand Level Feedback Effect</i>	Lagged log of the sales of own store.	+
<i>Brand Level Spillover Effect</i>	Lagged log of the total sales of brand excluding the sales of own store.	+
<i>Firm Level Feedback Effect</i>	Lagged log of the total sales of firm in host town.	+
<i>Firm Level Spillover Effect</i>	Lagged log of the total sales of firm excluding the sales of host town.	+
<i>Age Similarity</i>	Standardized value of the log of the inverse of Euclidean distance between the <i>Age</i> of host town and the mean of <i>Ages</i> of towns the brand served: see equation (1).	+
<i>Gender Similarity</i>	Standardized value of the log of the inverse of Euclidean distance between <i>Gender</i> of host town and the mean of <i>Genders</i> of towns the brand served: see equation (1).	+
<i>Income Similarity</i>	Standardized value of log of the inverse of Euclidean distance between the <i>Income</i> of host town and the mean of <i>Incomes</i> of towns the brand served: see equation (1).	+
<u><i>Market Selection Model</i></u>		
<i>Predicted Sales</i>	Log of the predicted sales from Sales Performance Model.	+
<i>Rent</i>	Log of the real estate price per m <sup>2</sup> of store in each year.	-
<i>Wage</i>	Log of the monthly salary of employees working for large store in the service industry of the host town in each year.	-
<i>Multi-business Firm</i>	Dummy variable.	-
<i>Korean Firm</i>	Dummy variable.	-
<i>Foreign Direct Investment</i>	Dummy variable.	-
<i>Joint-Venturing Firm</i>	Dummy variable.	?
<i>Sales Agents</i>	Dummy variable.	+

**TABLE 2.** Sales Performance Regressions (Demand Estimation)

	(1)	(2)	(3)
<i>Intercept</i>	-46.4963** (1.0141)	-33.4610** (0.8733)	-29.1939** (0.8852)
<i>Main Population</i>	0.3070** (0.0091)	0.1823** (0.0070)	0.2201** (0.0079)
<i>Surrounding Population</i>	-0.0277** (0.0077)	0.0191** (0.0062)	0.0159** (0.0061)
<i>Business Population</i>	0.0796** (0.0087)	0.0907** (0.0068)	0.1023** (0.0071)
<i>Income</i>	0.2489** (0.0083)	0.1646** (0.0068)	0.1822** (0.0070)
<i>Age</i>	4.3177** (0.0831)	2.6122** (0.0673)	2.7011** (0.0731)
<i>Gender</i>	8.0786** (0.2612)	5.9641** (0.2132)	4.6166** (0.2206)
<i>Own Brand Competition (Cannibalization)</i>	0.0123* (0.0051)	-0.0769** (0.0057)	-0.0710** (0.0062)
<i>Intra Firm Competition (Cannibalization)</i>	0.0298** (0.0009)	0.0076** (0.0010)	0.0087** (0.0010)
<i>Intra Segment Competition</i>	-0.0138** (0.0005)	-0.0066** (0.0004)	-0.0061** (0.0005)
<i>Inter Segment Competition</i>	-0.0079** (0.0004)	-0.0038** (0.0003)	-0.0037** (0.0003)
<i>Advertisement</i>	0.0896** (0.0009)	0.0523** (0.0010)	0.0514** (0.0011)
<i>Brand Level Feedback Effect</i>		0.3117** (0.0061)	0.3046** (0.0061)
<i>Brand Level Spillover Effect</i>		0.0578** (0.0061)	0.0693** (0.0071)
<i>Firm Level Feedback Effect</i>		0.0133** (0.0013)	0.0106** (0.0013)
<i>Firm Level Spillover Effect</i>		0.0157* (0.0065)	0.0173** (0.0065)
<i>Age Similarity</i>			-0.0012** (0.0036)
<i>Gender Similarity</i>			0.0547** (0.0029)
<i>Income Similarity</i>			0.0086** (0.0037)
<i>R<sup>2</sup></i>	0.4530	0.6754	0.6786

Notes: N=51,568. Heteroskedasticity robust ordinary least squares estimation. Month-Year-Segment fixed effects are estimated but not report here. Values in parentheses are robust standard errors. † $P < 0.1$ ; \* $P < 0.05$ ; \*\* $P < 0.01$ .

**TABLE 3.** Fixed Effects, Random Effects, and Two-Level Random Coefficient Model

	(1)	(2)	(3) Two-Level Segment-Location Random Coefficient Model
	<i>Segment-Location Fixed Effects Model</i>	<i>Segment-Location Random Effects Model</i>	
<i>Intercept</i>	-7.7819 (6.4440)	-7.0541* (2.4048)	-8.5255** (1.7351)
<i>Main Population</i>	0.5273** (0.1062)	0.3586** (0.0777)	0.2772** (0.0507)
<i>Surrounding Population</i>	-0.0376† (0.0217)	-0.0082 (0.0186)	0.0156 (0.0161)
<i>Business Population</i>	0.1571** (0.0463)	0.1651** (0.0413)	0.1367** (0.0343)
<i>Income</i>	0.1236** (0.0385)	0.1423** (0.0359)	
<i>Age</i>	1.2734* (0.4971)	0.9961* (0.4093)	See Table 3-A (Mean Value)
<i>Gender</i>	-0.6713 (2.8753)	0.3990 (2.6263)	
<i>Own Brand Competition (Cannibalization)</i>	-0.0126** (0.0045)	-0.0135* (0.0048)	-0.0150† (0.0051)
<i>Intra Firm Competition (Cannibalization)</i>	0.0110** (0.0008)	0.0110** (0.0008)	0.0085** (0.0009)
<i>Intra Segment Competition</i>	-0.0061** (0.0005)	-0.0061** (0.0005)	-0.0064** (0.0009)
<i>Inter Segment Competition</i>	-0.0027** (0.0003)	-0.0028** (0.0002)	-0.0034** (0.0003)
<i>Advertisement</i>	0.0516** (0.0007)	0.0516** (0.0007)	0.0511** (0.0007)
<i>Brand Level Feedback Effect</i>	0.2667** (0.0022)	0.2671** (0.0022)	0.2577** (0.0022)
<i>Brand Level Spillover Effect</i>	0.0921** (0.0032)	0.0921** (0.0032)	0.0934** (0.0033)
<i>Firm Level Feedback Effect</i>	0.0068** (0.0010)	0.0069** (0.0010)	0.0091** (0.0010)
<i>Firm Level Spillover Effect</i>	0.0184** (0.0032)	0.0184** (0.0032)	0.0179** (0.0033)
<i>Age Similarity</i>	0.0069† (0.0036)	0.0068** (0.0036)	0.0084* (0.0036)
<i>Gender Similarity</i>	0.0433** (0.0012)	0.0430** (0.0031)	0.0421** (0.0032)
<i>Income Similarity</i>	0.0433** (0.0031)	0.0301* (0.0031)	0.0271** (0.0031)
<i>AIC</i>	68,217	68,244	67,177
<i>Log Likelihood</i>	-34,107	-34,119	-33,585
<i>Test Statistics</i>		Hausman test is undefined. Do not reject "Random Effects"	LR test Reject "No Parameter Variation"

Notes: Restricted Maximum Likelihood Estimation Method. Month-Year fixed effects are estimated but not report here. † $P < 0.1$ ; \* $P < 0.05$ ; \*\* $P < 0.01$ .

**TABLE 3-1.** Random Coefficient: Continued from Column 3 of Table 3

	<i>Mean Value</i>	<i>Segment 1 – Skincare</i>	<i>Segment 2 – Clinical Skincare</i>	<i>Segment 3 – Makeup</i>	<i>Segment 4 – Perfume</i>	<i>Interaction Segment 5 – Toiletries</i>
<i>Income</i>	0.2707** (0.0619)	-0.0513 (0.0646)	0.1334† (0.0756)	-0.1118 (0.0685)	-0.1730* (0.0689)	-0.2830** (0.0839)
<i>Age</i>	2.8216** (0.7807)	-0.4159 (0.8744)	-0.6264 (0.9580)	-3.7679** (0.9138)	-2.7831** (0.9115)	-2.5802* (1.0556)
<i>Gender</i>	-9.1425* (4.4345)	5.1412 (4.1765)	5.4675 (4.9537)	28.4550** (4.5477)	21.5842** (4.5207)	21.0023** (5.8085)

Notes: Segment 6 (Men's) has a mean value with a zero-slope random coefficient; see note in Table 3.

**TABLE 4.** Market Selection Regressions

	(1)	(2)
<i>Intercept</i>	-16.1786** (0.1731)	-16.2168** (0.1774)
<i>Predicted Sales</i>	2.4372** (0.0188)	2.4369** (0.0188)
<i>Wage</i>	1.1679** (0.0477)	1.1829** (0.0490)
<i>Rent</i>	-0.1213** (0.0091)	-0.1222** (0.0092)
<i>Multi-business Firm</i>		-0.3893** (0.0162)
<i>Korean Firm</i>		-0.2898** (0.0413)
<i>Foreign Direct Investment (Subsidiaries)</i>		0.3348** (0.0211)
<i>Joint-Venturing Firm</i>		0.2924** (0.1774)
<i>Log Likelihood</i>	-19,213	-18,872
<i>Pseudo - R<sup>2</sup></i>	0.8655	0.8679

Notes: Probit model. † $P < 0.1$ ; \* $P < 0.05$ ; \*\* $P < 0.01$ . Heteroskedasticity robust standard errors are in parentheses. Pooled regression (i.e., fixed effects are not employed).

**APPENDIX A. Sales Performance Summary Statistics and Correlation Matrix**

<i>Variable</i>	<i>Mean (S.D)</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>	<i>17</i>	<i>18</i>
<i>1. Sales</i>	6.5030 (0.8616)																		
<i>2. Main Population</i>	12.7224 (0.5728)	-0.01																	
<i>3. Surrounding Population</i>	14.2268 (0.4258)	0.13	-0.06																
<i>4. Bus. Population</i>	11.9943 (0.6527)	0.18	0.22	0.33															
<i>5. Income</i>	2.2694 (0.7573)	0.19	-0.23	0.40	0.75														
<i>6. Age</i>	3.5284 (0.0591)	0.10	-0.65	0.35	-0.06	0.30													
<i>7. Gender</i>	3.9155 (0.0131)	0.16	0.08	0.32	0.27	0.34	0.19												
<i>8. Own Brand Competition</i>	1.5774 (0.8981)	0.21	-0.07	0.37	0.57	0.62	0.18	0.38											
<i>9. Intra Firm Competition</i>	2.2714 (3.9309)	0.09	0.03	0.21	0.35	0.36	0.11	0.27	0.37										
<i>10. Intra Segment Competition</i>	9.7558 (10.0985)	0.25	-0.03	0.31	0.38	0.47	0.24	0.35	0.52	0.08									
<i>11. Inter Segment Competition</i>	15.9058 (15.6800)	0.01	-0.06	0.35	0.52	0.61	0.27	0.45	0.54	0.31	0.42								
<i>12. Advertisement</i>	2.6276 (3.6549)	0.44	-0.01	-0.04	-0.03	-0.05	-0.06	-0.05	0.09	-0.20	0.12	-0.14							
<i>13. Brand Level Feedback Effect</i>	6.4105 (1.2597)	0.71	-0.01	0.09	0.13	0.15	0.10	0.12	0.17	0.08	0.18	0.02	0.30						
<i>14. Brand Level Spillover Effect</i>	9.7859 (1.6147)	0.47	0.01	-0.11	-0.09	-0.11	-0.04	-0.11	0.15	-0.01	0.10	-0.16	0.39	-0.51					
<i>15. Firm Level Feedback Effect</i>	5.0760 (3.9219)	0.20	-0.08	0.22	0.32	-0.40	0.17	0.28	0.53	0.57	0.20	0.33	-0.08	0.20	0.13				
<i>16. Firm Level Spillover Effect</i>	10.5999 (1.6521)	0.33	0.04	-0.07	-0.05	-0.07	-0.01	-0.05	0.09	0.39	-0.06	-0.07	0.17	0.38	0.71	0.50			
<i>17. Age Similarity</i>	0.1555 (1.0625)	-0.00	0.27	0.21	0.26	0.12	0.03	0.12	0.10	0.07	0.11	0.12	-0.03	-0.02	-0.36	0.01	-0.25		
<i>18. Gender Similarity</i>	0.2239 (1.0295)	0.01	-0.24	0.01	-0.27	-0.15	0.20	0.17	-0.17	-0.09	-0.09	-0.08	-0.03	-0.01	-0.24	-0.01	-0.15	0.07	
<i>19. Income Similarity</i>	0.1220 (1.0958)	-0.07	0.06	0.06	-0.03	-0.01	-0.08	0.05	-0.03	-0.05	-0.05	-0.03	-0.01	-0.08	-0.40	-0.06	-0.31	0.52	0.23

Note. N = 51,568.

**APPENDIX B.** Market Selection Summary Statistics and Correlation Matrix

<i>Variable</i>	<i>Mean (S.D)</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
<i>1. Entry</i>	0.1567 (0.3635)								
<i>2. Predicted Sales</i>	2.0316 (2.0311)	0.8333							
<i>3. Wage</i>	2.7544 (0.2029)	0.2081	0.2739						
<i>4. Rent</i>	3.5433 (0.2029)	0.1337	0.1751	0.4931					
<i>5. Multi- Business Firm</i>	0.3962 (0.4891)	0.2006	0.3152	-0.0014	-0.0022				
<i>6. Korean Firm</i>	0.1450 (0.3521)	-0.0422	-0.0862	0.0004	0.0022	-0.3336			
<i>7. Foreign Direct Investment</i>	0.4520 (0.4977)	0.2683	0.3720	-0.0021	-0.0029	0.6600	-0.3740		
<i>8. Joint-Venturing Firm</i>	0.0562 (0.2304)	-0.0502	-0.0594	-0.0004	-0.0030	0.0507	-0.1005	-0.2217	
<i>9. Sales Agent</i>	0.3467 (0.4759)	-0.2250	-0.2964	0.0022	0.0029	-0.4678	-0.3001	-0.6617	-0.1779

**APPENDIX C.**

Market Selection Regression: Results from General (Non-Two Step) Probit Regressions

	(1)	(2)	(3)
<i>Intercept</i>	-49.4088** (1.8358)	-7.0377† (4.2087)	30.3361** (5.0856)
<i>Main Population</i>	0.3998** (0.0158)	-0.0277 (0.0594)	0.1605* (0.0644)
<i>Surrounding Population</i>	-0.4099** (0.0103)	-0.2977** (0.0364)	-0.2666** (0.0402)
<i>Business Population</i>	-0.5212** (0.0136)	-0.4165** (0.0501)	-0.4742** (0.0533)
<i>Income</i>	0.0118 (0.0011)	-0.2125** (0.0625)	-0.1229† (0.0635)
<i>Age</i>	1.7083** (0.1010)	-0.4447 (0.3874)	-0.6240 (0.4278)
<i>Gender</i>	11.6810** (0.4404)	3.6603** (1.0944)	-6.0526** (1.3228)
<i>Own Brand Competition (Cannibalization)</i>	2.3814** (0.0172)	1.9494** (0.0523)	2.0036** (0.0519)
<i>Intra Firm Competition (Cannibalization)</i>	-0.0447** (0.0033)	0.0319** (0.0077)	0.0390** (0.0071)
<i>Intra Segment Competition</i>	-0.0511** (0.0016)	-0.0193** (0.0035)	-0.0200** (0.0036)
<i>Inter Segment Competition</i>	-0.0152** (0.0008)	0.0002 (0.0018)	0.0002 (0.0018)
<i>Advertisement</i>	0.0260** (0.0020)	0.0099 (0.0068)	0.0156* (0.0070)
<i>Brand Level Feedback Effect</i>		0.8808** (0.0144)	0.8836** (0.0141)
<i>Brand Level Spillover Effect</i>		-0.0201** (0.0059)	-0.0861** (0.0070)
<i>Firm Level Feedback Effect</i>		-0.2453** (0.0136)	-0.2487** (0.0129)
<i>Firm Level Spillover Effect</i>		0.0260** (0.0260)	0.0484** (0.0083)
<i>Age Similarity</i>			0.0293 (0.0183)
<i>Gender Similarity</i>			0.3084** (0.0124)
<i>Income Similarity</i>			-0.0117 (0.0149)
<i>Wage</i>	0.0414** (0.0041)	0.2016 (0.1993)	-0.1747 (0.2145)
<i>Rent</i>	0.0065** (0.0007)	-0.0609* (0.0267)	-0.0858** (0.0287)
<i>Multi-business Firm</i>	0.0181** (0.0014)	0.2844** (0.0500)	0.2667** (0.0535)
<i>Korean Firm</i>	0.0157** (0.0098)	0.1276* (0.0555)	0.0815 (0.0695)
<i>Foreign Direct Investment (Subsidiaries)</i>	0.0567** (0.0013)	0.3369** (0.0530)	0.3289** (0.0586)
<i>Joint-Venturing Firm</i>	0.0036* (0.0014)	0.0024 (0.0800)	0.0478 (0.0858)
<i>Pseudo - R<sup>2</sup></i>	0.7119	0.9706	0.9731

Notes: Restricted Maximum Likelihood Estimation Method. Month-Year fixed effects are estimated but not report here. † $P < 0.1$ ; \* $P < 0.05$ ; \*\* $P < 0.01$ .