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"The Effect of New Product Introduction on Shareholder Value: Evidence from the Korean Market"_학술논문

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The Effect of New Product Introduction on Shareholder Value
: Evidence from the Korean Market

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The objective of this research is to investigate the impact of new product introduction on shareholder value. Based on the date from South Korean manufacturing industries such as automotive, cosmetics, confectionary, pharmaceutical, and dairy, we identify the association between new product introduction and firm value. In addition, by using the three-level Hierarchical Linear Model(HLM), we confirm that the association between new product introduction and firm value varies across industries and firms. Under HLM, while industry concentration and customer satisfaction have positive role in explaining the main effect, when industry hererogeneity is controlled, marketing expenses appear to be negatively associated with firm value. Moreover, based on new product types, whether they are "Pure New Products" or "Derivative New Product(new products by modifying or upgrading existing products)," there is a difference in its contribution to the firm value: the contribution of derivative new products to the firm value is higher. This phenomenon may be explained as a result of lower marketing expenses to launch derivative new products compare with pure new products.

Keywords: New Product Introduction, Shareholder Value, Tobin's q, Marketing-Finance Interface, Hierarchical Linear Model(HLM)

I. Introduction

As Paul Anderson stated in "*The Marketing Management/Finance Interface,*" marketing managers tend to frequently focus on sales growth and market share (1979), while they easily neglect the impact of marketing decisions on other variables such as inventory levels, working capital needs, financing costs, debt-to-equity ratios, and stock prices. Assuming that such factors are purely the responsibility of finance is to be guilty of a kind of marketing myopia (Levitt 1960). On the other hand, financial accounting rarely captures intangible assets such as customers and brands, which make up a substantial portion of a firm's value.

Responding to this issue, marketing researchers have recognized the importance of marketing metrics generating customer value and linkages between these marketing metrics and firm performance. Accordingly, a variety of research has empirically

examined the linkages between marketing metrics (e.g., customer satisfaction, customer loyalty, customer acquisition, customer lifetime value, customer equity, brand loyalty, brand equity) and firm performance (e.g., profitability, stock price, Tobin's q, return on assets, return on investment, abnormal earnings, cash flows) (e.g., Fischer and Himme 2016; Gupta, Lehmann, and Stuart 2004; Gupta and Zeithaml 2006; Lehmann 2004; Rust, Lemon, and Zeithaml. 2004; Srinivasan and Hanssens 2009; Voss and Mohan 2016). Compared to these numerous empirical studies on the linkages between marketing metrics and firm financial performance in the marketing-finance literature, empirical research on the linkage between another important market-based metric, such as new product introduction and firm financial performance, has been very limited. To increase a firm's revenues and profits, many firms have continued to introduce their new products into the marketplace (Lamb, Hair, and McDaniel 2015). However, it is very difficult for marketers to make a new product be successful in the marketplace during the first few years. For example, for recent decades, only about 25% of consumer packaged and retail products survive in the marketplace during their first year (Schneider and Hall 2011). To avoid this frustration, many firms have invested in their new product development and introduction processes. For instance, Intel spent $11.5 billion, Microsoft spent $11.4 billion, Amazon spent $9.3 billion, Johnson & Johnson spent $8.5 billion, Pfizer spent $8.4 billion, GM spent $7.4 billion, and Apple spent $6 billion on their R&D in 2015 (Top 20 Companies with the Highest Spending, 2016). According to the *Wall Street Journal*, to revitalize the U.S. manufacturing

industry, it is necessary to spend more on applied research in order to bring new products to the market (2016). Likewise, many companies have allocated enormous resources and money to introduce new products successfully. However, it is not clearly proven whether these new products contribute to increasing firm profitability. The reason for this uncertainty is that some firms leverage their investment with success in new product introduction, while other firms experience failure due to excess expenditures in terms of aggressive research and development (R&D), selling, general and administrative (SG&A) expenditures, and cannibalization caused by product overlaps among new products and existing products (Bayus, Jain, and Rao 1997; Chaney, Devinney, and Winer 1991). Further, the relationship between new product introduction and firm performance may vary depending on the nature of the industry, including the scale of investment concerning new product introduction, the product life cycle, the degree of competition, and the product unit price. To shed light on this gap, our empirical study aims 1) to investigate the impact of new product introduction on shareholder value; 2) to illustrate how marketing variables, such as customer satisfaction, marketing expenditure, and market competition, work as explanatory variables to explain the relationship between new product introduction and shareholder value; 3) to compare the phenomena from different manufacturing industries (automotive, confectionary, cosmetics, pharmaceutical, and dairy).

II. Theoretical Background and Hypotheses Development

2.1 New Product Introduction and Firm Performance

For most firms, successful new products are "engines of growth" (Cohen, Eliashberg, and Ho 1997). Many marketing theories and frameworks, including the product life cycle and GE (General Electric)/BCG (Boston Consulting Group) matrices, emphasize the role of new products for firms' future cash flows (Chaney, Devinney, and Winer 1991). In addition, Arthur D. Little claims that innovative companies achieve the highest shareholder returns (Jonash and Sommerlatte 1999). Cooper states that new products are vital to the success and continued prosperity of firms (1998). At the same time, however, the failure rate of new products is high, which ranges from 33% to over 60% and this figure has not improved in the past few decades (Boulding, Morgan, and Staelin 1997; McMath and Forbes 1998; Wind 1982). In addition, even commercially successful new products may not financially bring much benefit to a firm because of high development and launch costs, followed by the quick imitation of competitors (Bayus, Jain, and Rao 1997; Chaney, Devinney, and Winer 1991). Likewise, it is not clearly proven how the introduction of new products influences firm value. Research concerning the performance of new products has mainly focused on the revenue and profit of new products, such as the research conducted by Mahajan and Wind (1992), as well as Bayus, Erickson, and Jacobson (2003).

Compared with the effects of price promotions, top-line performance from new products takes considerable time to realize, and new product introduction has a persistent effect on revenues (Nijs *et al*. 2001; Pauwels, Hanssens, and Siddarth 2002).

As top-line growth influences a firm's cash flow, bottom-line financial performance benefits from new product introduction through increased demand, increased profit margin, and lower customer acquisition and retention costs (Bayus, Erickson, and Jacobson 2003). Geroski, Machin, and Van Reenen (1993) find that a new product can have a temporary effect on a firm's financial position because of the specific product innovation, or it can have a permanent effect if it transforms competitive capabilities. However, there are several other factors that trade off the effects caused by top-line performance growth with considerable research and development costs, product costs, and marketing costs (Sherman and Hoffer 1971). To understand the relationship between new product introduction and firm value, a closer empirical examination is necessary. Following the reasons above, we state the following hypothesis:

> *Hypothesis 1. There is a positive relation between new product introduction and firm value.*

In previous research conducted by Bayus, Erickson, and Jacobson (2003), they investigated the relationship between new product introduction and financial performance. However, they did not explain how marketing variables work. Pauwels *et*

al. (2004) argue that successful new product introduction can increase a brand's equity and can make promotions redundant, while the prolonged absence of successful new product introduction may force a company to use promotional incentives to "move the product." Therefore, in order to explain the relationship between new product introduction and firm value, marketing variables may play important roles. Blattberg and Neslin (1990) find that sales promotions are effective demand boosters, and sales promotions are relatively easy to implement; moreover, they tend to have immediate effects on sales volumes. Pauwels *et al*. (2004) also note that sales promotions have short-term effects on the top-line, bottom-line, and stock price. Not only sales promotions, but also advertising has effects on firm performance as a causal link between advertising and sales, an idea which has been suggested by several studies, including Koyck (1954) model. In addition, similar to sales promotion, advertisements also have an impact on the bottom line because heavy advertising, which dilutes the initial stage profits, is required at the initial stage of product introduction. Based on the literature review, we posit that marketing activities such as sales promotion and advertising influence the relationship between new product introduction and shareholder value. In addition, as higher customer retention indicates a more stable customer base, which guarantees a relatively predictable source of future revenue with returning customers (Anderson and Sullivan 1993; Narayandas 1998), firms with a higher market share obtain more premiums in firm valuation.

Damodaran (2002) also makes much of the value of specific intangible assets, such as the customer base. Similarly, customer satisfaction can be another mechanism in linking new product introduction and firm performance.

We expect variation in the association between new product introduction and firm value across industries. Both industry and customer factors are likely to dampen or amplify the effect, such as the degree of competition (Kohli and Jaworski 1990; Slater and Narver 1994). Empirically, Andersen, Fornell, and Mazvancheryl (2004) prove that the degree of competition in an industry has an impact on the relationship between customer satisfaction and shareholder value by using the degree of industry concentration as a proxy. A similar logic holds for new product introduction. The degree of concentration should affect the association between new product introduction and shareholder value, as the degree of concentration affects the firm strategy, customer behavior, and the degree to which new product introduction affects firm value. Following the reasoning above, we state the following hypothesis:

> *Hypothesis 2. Marketing variables, such as 1) marketing expenditure, 2) customer satisfaction, and 3) market competition work in explaining the relationship between new product introduction and shareholder value.*

2.2 Metric for Firm Performance: Tobin's q

Most research on firm performance has relied

on accounting-based measures, such as the operating margin (Bolton 1998; Rust, Zahorik, and Keiningham 1994, 1995), return on investment (ROI) (Anderson, Fornell, and Lehmann 1994; Anderson, Fornell, and Rust 1997; Buzzell and Gale 1987), return on asset (ROA), (Bayus, Erickson, and Jacobson 2003), sales (Dekimpe and Hanssens 1995), price (Boulding and Staelin 1995), and cost (Boulding and Staelin 1993). In the study of Bayus, Erickson, and Jacobson (2003), which is most directly related to this research, the effect of new product introduction on ROA, profit rate persistence, and asset growth was investigated by using data in the U.S. personal computer industry. Their results show that new product introduction increases the profit rate and firm size, which are caused by decreased SG&A rather than increased sales, while it has no effect on profit rate persistence. As for SG&A, it may have a relationship with new product introduction. However, SG&A is not a solid index in explaining the actions and reactions of new product introduction. Considering an existing company's annual report and operating system, it is difficult to solely separate the expenditures concerning new product introduction because the development period for new products spread over multiple financial years. In addition, regardless of new product introduction, SG&A expenditures may increase or decrease, depending on the activities of competitors, changes in company policies, and the consumption cycles caused by economic conditions. Concerning ratios and measures such as ROI and ROA, they contain little or no information about future value or

future earnings of a firm, while they have advantages in comparing firms across and within industries (Geyskens, Gielens, and Dekimpe 2002). In addition, ROI may be easier to manipulate than capital market data, given that they are sensitive to accounting conventions and tax laws (Andersen, Fornell, and Mazvancheryl 2004). With respect to capital market-based measures of firm performance, stock price can be a measure of long-term performance reflecting future financial performance. According to efficient market theory, stock prices include all information about expected future earnings (Fama 1970). For this reason, stock returns can be another candidate to consider. However, stock prices are a volatile index, which changes every single second, and stock returns are not risk adjusted. A forward-looking, capital market-based measure of firm value is Tobin's q (Tobin 1969). A firm's q is the ratio of its market value to the current replacement cost of its assets as follows:

Tobin's q = (Market value of equity + book value of debt) / Total assets
= (share price x number of shares outstanding + total value of preferred stock + long-term debt + short-term debt) / Total assets   (1)

Simply, a firm that creates a market value that is greater than the replacement cost of its assets, which has a Tobin's q greater than 1, is considered as using its resources more effectively and as creating higher shareholder value (Lewellen and Badrinath 1997). Based on the supposition that the securities market efficiently evaluates the firm's expected future revenue in determining firm

value, Tobin's q has gained wide acceptance as a measure of a firm's economic performance. Since the q is based on the stock price of a firm, it is a more forward -looking measure than historical financial performance, such as ROI and ROE. In addition, Tobin's q is also adjusted for market risk and makes it comparable across firms in different industries, as it is less affected by accounting conventions (Andersen, Fornell, and Mazvancheryl 2004). Because of these advantages, Tobin's q has been widely used in the field of industrial organization and financial economics.

2.3 Types of New Product Introduction

While Bayus, Erickson, and Jacobson(2003) treatd all new product types as same in their research, Kleinschmidt and Cooper (1991) define three categories of new products as 1) new-to-the-market and new-to-the firm products (i.e., new-to-the world products); 2) new-to-the firm but <u>not</u> new-to-the-market; and 3) revisions-to-the firm and <u>not</u> new-to-the market. Micheal, Rochford, and Wotruba (2003) note that different types of new products face different competitive environments. However, this categorization may bring arguments as to the originality of the products. For this reason, we divide new product introduction in two categories: "Pure New Products" and "Derivative New Products (extensions or modifications of existing products)," in that the two types require different levels of R&D investment and starting brand power.

> *Hypothesis 3.* "Pure New Products" and "Derivative New Products (extensions or

modifications of existing products)" yield different effects on shareholder value.

Ⅲ. Empirical Model

In addition to providing a measure of the value of a firm, the usefulness of Tobin's q lies in its ability to trace the sources of the value. Following the work of Lindenberg and Ross (1981), Andersen, Fornell, and Mazvancheryl (2004) decompose Tobin's q as a function of the firm's market Value, , M_t, normalized with respect to the replacement cost of the firm's physical assets:

$$q = M_t/M_k = f(M_k, M_c, M_n, M_d)/M_k \qquad (2)$$

where

M_k: replacement cost of the firm's assets, which is equal to the value of the firm's tangible assets

M_c: company specific rents

M_n: monopoly rents attributable either to a monopoly position or to entry barriers

M_d: part of the total value of the firm attributed to company-specific factors that contribute to firm value

Company-specific factors that lead to firm value are captured by the firm's new product introduction. To focus on the relationship between new product introduction (NPI) and firm value, we use conventional controls to account for rents that are due to monopoly factors, M_n, and to firm-specific factors, M_c (Simon and Sullivan 1993). To control for monopoly factors, we employ industry concentration (ICON) as a moderator (Gale 1972; Smirlock, Gilligan, and Marshall 1984). To capture the effect of firm-specific factors, we include the firm's

marketing expenditure (MKTG) and customer satisfaction (CS).). To empirically estimate the effect of new product introduction on firm value and performance, for each firm i at time t, we use the following model.

$$q_{it} = \alpha_o + \beta_1 NPI_{it} + \beta_2 MKTG_{it} + \beta_3 CS_{it} + \beta_4 ICON_{it} + \varepsilon_{it} \quad (3)$$

where

q_{it}: Tobin's q value of firm i at time t

NPI_{it}: firm i's number of new products introduced at time t

$MKTG_{it}$: marketing expenditure of firm i at time t

CS_{it}: firm i's customer satisfaction level at time t

$ICON_{it}$: concentration level of firm i's industry

3.1 Heterogeneity in the Association between New Product Introduction and Tobin's q

The preceding model focuses on each firm's association between new product introduction and firm value. However, we believe that heterogeneity within and across industries is interesting. A hierarchical or multilevel regression model is increasingly important in the analysis of complex data (Gelman *et al*. 2004). The Hierarchical Linear Model (HLM) provides a conceptual and statistical mechanism for investigating and drawing conclusions regarding relationships that cross levels of analysis. HLM allows researchers to examine the relationship

between variables that span different levels of analysis.

We specify our HLM as follows:

Level 1 (within firms)

$$q_{ijt} = \gamma_{0ij} + \gamma_{1ij} NPI_{ijt} + e_{ijt}, \text{where } e_{ijt} \sim N(0, \sigma^2) \quad (4)$$

Equation 4, the level 1 or within-firm equation, estimates the association between Tobin's q and new product introduction (NPI) for a given firm. The level 1 dependent variable, q_{it}, represents Tobin's q for firm j in industry i during period t. The first term on the right-hand side of Equation 4, γ_{0ij}, represents the firm-specific constant or fixed effect. New product introduction, NPI_{ijt}, is an independent variable. The association between new product introduction and firm value for firm j in industry i is estimated by the coefficient, γ_{1ij}.

Level 2 (within industries)

$$\gamma_{0ij} = \gamma_{00i} + \gamma_{01i} MKTG_{ij} + \gamma_{02i} CS_{ij} + u_{0ij}, \text{where } u_{0ij} \sim N(0, \tau_0) \quad (5a)$$

$$\gamma_{1ij} = \gamma_{10i} + u_{1ij}, \text{where } u_{1ij} \sim N(0, \tau_1) \quad (5b)$$

Equations 5a and 5b, level 2 of HLM, represent variation between firms within each industry. For Equation 5a, the first within-industry equation, we modeled the firm-specific effect for firm j in industry i, γ_{0ij}, as a function of the industry-specific fixed effect, γ_{00i}, and firm-specific controls, which are marketing expenditure (MKTG) and customer satisfaction (CS). The error term, u_{0ij}, captures the unique firm-specific effect for firm j. Equation 5b models within-industry heterogeneity in the association between new product introduction and the

firm, γ_{1ij}. The first term, γ_{10i}, represents the mean industry coefficient for the association, and the second term, u_{1ij}, is an error term.

Level 3 (between industries)

$$\gamma_{00i} = \gamma_{000} + \gamma_{001}ICON_i + v_{00i}, \text{where } v_{00i} \sim N(0, \tau_{00}) \text{ (6a)}$$

$$\gamma_{01i} = \gamma_{010} + v_{01i}, \text{where } v_{01i} \sim N(0, \tau_{01}) \text{ (6b)}$$

$$\gamma_{02i} = \gamma_{020} + v_{02i}, \text{where } v_{02i} \sim N(0, \tau_{02}) \text{ (6c)}$$

$$\gamma_{10i} = \gamma_{100} + v_{10i}, \text{where } v_{10i} \sim N(0, \tau_{10}) \text{ (6d)}$$

Concerning level 3, Equation 6a captures heterogeneity across industries by incorporating cross-industry variation in fixed effects and the association between new product introduction and firm value into the model. We model the industry-specific fixed effect for industry i, γ_{00i}.

Equations 6b and 6c model industry variation in the effect of firm-specific variables (marketing expenditure and customer satisfaction). We model industry differences in the association between new product introduction and firm value in Equation 6d.

3.2 Data

Each industry has different strategies and investment plans because there are differences in its product life cycle and span, its scale of research and development cost, firm size, degree of technological innovation, patent protections, the number of players in the market and their competitive dynamics, and unit price for each product. Based on these unique characteristics of each industry, the effect of new product introduction on firm value may vary, depending on the industry. Among diverse manufacturing industries in South Korea, as there may exist debates in separating each product category's firm value, assets and profits within a firm having diversified products, we selected the following five unique industries with a single product category--automotive, confectionary, cosmetics, pharmaceutical, and dairy industries. The five above-mentioned industries have unique characteristics. For example, the confectionary and dairy industries introduce new products mostly by applying existing products and by copying competitors' products to meet consumers' propensity of pursuing variety seeking, while cosmetics and pharmaceutical companies have longer-term effects from new product introduction, with patent protection and clinical experiments. In the case of the auto industry, many new products are introduced by modifying existing products, and pure new car models are introduced less frequently.

<Table 1> Comparisons of Each Industry

Industry	R&D for New Product	Unit Price	New Products per Year
Auto	Very high	High	Very low
Confectionary	Very low	Low	High
Cosmetics	Mid-High	Mid	Very high
Pharmaceutical	High	Mid	Mid
Dairy	Low	Low	Low

In the marketing-finance interface literature, HLM is used to explain heterogeneity in product categories, stores, individual preferences, firms, and industries (e.g., Andersen, Fornell, and Mazvancheryl 2004; Gruca and Rego 2005). In

this research, by using HLM, it is possible to compare the impact of new product introduction on firm performance in the above-mentioned manufacturing industries.Stock prices and financial data from the balance sheet (BS) for the estimation of Tobin's q and the profit and loss statement (PL) for marketing expenditure were collected from financial markets, such as the South Korean Stock Exchange, the South Korean Financial Supervisory Service, and financial data providers such as Bloomberg.

Regarding each company's data for new product introduction each year, we used the database of trademark registrations from the South Korea Institute of Patent Information, which is a government organization under the influence of the South Korean Intellectual Property Office.

As a measure of customer satisfaction for each time period, we use the South Korean Customer Satisfaction Index (KCSI). In addition, we measure industry concentration by using the Herfindahl-Hirschman Index (HHI), which is the sum of the squared market share of the companies in the industry (Hirschman 1964).

While our dependent variable, Tobin's q, is based on the year-end performance, the independent variables (e.g., new product introductions and marketing expenditures) are based on the summation of the efforts/ investments/costs during the given year.

IV. Empirical Results

4.1 Linear Additive Model

Covering five industries, we have a total of 76 usable observations for 12 companies. The means and standard deviations for the full dataset are shown in Table 2, and correlations for the variables used in the analysis are given in Table 3. NPI represents all types of new product introduction, NPA represents "Pure New Products," and NPB represents "Derivative New Products," which are new products introduced by changing or upgrading some parts/traits of existing products, as explained in the earlier theoretical background section.

\<Table 2\> Means and Standard Deviations for Full Dataset

	Q	NPI	NPA	NPB	MKTG (Won TN)	CS	ICON
Mean	0.9	103.5	89.1	14.4	0.2	53.7	0.2
Standard deviation	0.3	185.3	156.8	29.9	0.2	5.8	0.1

\<Table 3\> Correlations for Variables

	Q	NPI	NPA	NPB	MKTG	CS	ICON
Q	1.00	0.50***	0.50***	0.49***	0.14	0.32***	0.14
NPI	0.50***	1.00	0.99***	0.96***	-0.13	0.26**	-0.14
NPA	0.50***	0.99***	1.00	0.94***	-0.14	0.27**	-0.15
NPB	0.49***	0.96***	0.94***	1.00	-0.08	0.22*	-0.08
MKTG	0.14	-0.13	-0.14	-0.08	1.00	0.10	0.75***
CS	0.32***	0.26**	0.27**	0.22*	0.10	1.00	-0.21*
ICON	0.14	-0.14	-0.15	-0.08	0.75***	-0.21*	1.00

Note: * significant at 10%, ** significant at 5%, and *** significant at 1%.

While they are not theoretically correlated, marketing expenditure (MKTG) and industry concentration (ICON) show a high correlation. To avoid problems of multicollinearity, we estimated the models excluding one of the variables.

<Table 4> Summary of Estimation Results

	α0	βNPI	βNPA	βNPB	βMKTG	βCS	βICON	R^2
Model 1	0.308	0.001***			0.279*	0.009*		0.32
Model 2	-0.009	0.001***				0.013**	0.814***	0.36
Model 3	0.315		0.001***		0.286*	0.009*		0.32
Model 4	-0.007		0.001***			0.013**	0.828***	0.36
Model 5	0.247			0.004***	0.234	0.011**		0.31
Model 6	-0.037			0.004***		0.014***	0.733**	0.34

Note: * significant at 10%, ** significant at 5%, and *** significant at 1%.

The findings for our first hypothesis are summarized in Table 4. As seen in Table 4, the association between new product introduction (NPA, NPB and NPI) and firm value measured by Tobin's q is positive and significant. In addition, there is a difference between two new product types, "Pure New Products (NPA)" and "Derivative New Products (NPB)": NPB yields four times higher effect on shareholder value than NPA.

4.2 Hierarchical Linear Model

Based on the intra-class correlation (ICC), among the variance of Tobin's q, 42% of the variance exists between companies, and 5% comes from the industry level. The findings are consistent with those of Rumelt (1991), where about 50% of the variance in the rate of return comes from the firm level, and 10% comes from the industry level.

A summary of the estimation results appears in Table 5. We find that the association between New Product Introduction and Tobin's q (H1) is 0.001 for NPI and NPA, and 0.005 for NPB, compared with 0.001 for NPI and NPA, and 0.004 for NPB in the preceding analysis (Table 4). When we separate out the industry-level variance, we identify that the coefficient for customer satisfaction remains positive and significant, and that for marketing expenditure (MKTG), when industry heterogeneity is controlled, appears to be negatively associated with firm value for NPI and NPA, while it is insignificant for NPB. As shown in Table 7, we also estimate the model using industry concentration as a moderator of the association between New Product Introduction (NPI and NPA) and Tobin's q, as it is proven in the previous work of Anderson, Fornell, and Mazvancheryl (2004). Therefore, through this result, we prove our H2, in which the marketing variables: 1) marketing expenditure, 2) customer satisfaction, and 3) market competition, work together in explaining the relationship between new product introduction and shareholder value. Here, a firm's marketing expenditure (MKTG) and customer satisfaction (CS) capture the effect of firm-specific factors, and industry concentration (ICON) controls for monopoly factors. Regarding our H3, we confirm an important phenomenon that the contribution of "Derivative New

<Table 5> Assessing Industry and Firm Heterogeneity
in the Association between New Product Introduction and Tobin's Q

Variables		Parameter	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept		γ_{000}	0.8128***	0.6858***	0.8123***	0.6828***	0.8268***	0.8130***
New prod.	NPI	γ_{100}	0.0008***	0.0010***				
	NPA				0.0009***	0.0012***		
	NPB						0.0046***	0.0062***
MKTG		γ_{010}	-1.0193	-1.0690*	-1.0434	-1.0818*	-0.9154	-1.0131
CS		γ_{020}	0.0327*	0.0293*	0.0329*	0.0296*	0.0343*	0.0315*
ICON		γ_{001}	0.6599*	0.6686*	0.6847*	0.6825*	0.5321	0.5854
NP x ICON		γ_{101}		-0.0049*		-0.0055*		-0.0342*

Note: * significant at 10%, ** significant at 5%, and *** significant at 1%.

Products (NPB)" to firm value is higher than that of "Pure New Products (NPA)." This phenomenon may explain the lower marketing costs to launch the derivative new products compared with pure new products.

V. Discussion

5.1 Summary of Findings, Conclusions, and Implications

In this research, we empirically identify a positive association between new product introduction (in forms of all new products, Pure New Products, and Derivative New Products) and Tobin's q. Given the overall estimate of the association between new product introduction and Tobin's q of 0.001 for all new products (NPI) and pure new products (NPA) and 0.004 for derivative

new products (NPB), a single new product introduction may cause a 0.1~0.4% change in Tobin's q, shareholder value. In addition, there is a difference in terms of the contribution to firm value, based on the type of new products, as the derivative new products yield a higher contribution to firm value.

As we have discussed in the theoretical background and hypotheses development section, there have been many controversies regarding the impact of new product introduction on firm value. Our study contributes to the marketing theory and practice by providing empirical evidence for the positive association between new product introduction and shareholder value, as well as the different effect, based on new product type (pure new products or derivative new products).

Moreover, this research provides important managerial implications. Marketing managers can judge how much R&D and marketing investment

can be justified for their pure new products and derivative new products considering their expected contributions to shareholder value. In particular, they should keep in mind that 1) the contribution of derivative new products to firm value is higher and 2) marketing investment for pure new products has negative impacts on shareholder value, while derivative new products do not. In addition, when managers have alternatives for new product introduction, such as a pure new product over multiple modified new products or a pure new product over a modified new product, the conclusion from this research can serve as a guideline.

5.2 Limitations and Directions for Future Research

Although our study significantly contributes to the existing body of the marketing-finance literature by offering several important empirical results and managerial insights, there are a few limitations in our research. First, these limitations mainly stem from the datasets utilized in our empirical study. Specifically, we utilize the Korean Customer Satisfaction Index database, which incorporates data on only large companies in the marketplace. In addition, firm financial and industry-level data are only available for public companies listed in the stock market. As we use the datasets from South Korea, the empirical findings and implications drawn from the findings may be limited to large companies and their industries in South Korea. We remain these issues

for future study, which may utilize U.S. data containing more firms and industries, with its larger economic and geographical scale, such as the ACSI (American Customer Satisfaction Index) dataset and the corresponding company- and industry-level data from the COMPUSTAT and HOOVERS databases. In addition, future study may investigate this issue with medium- or small-sized firms if there exits possible data access. Second, the empirical results and corresponding implications will become more interesting if future research compares multiple countries concerning the association between new product introduction and Tobin's q. Finally, it may be fruitful if future studies can examine the effects of new product introductions on an abnormal stock return to assure robustness of our empirical results.

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신제품 출시가 기업 가치에 미치는 효과에 관한 연구
- 한국 시장에 대한 시사점 -

강문영*, 배영한**

ABSTRACT

이 연구의 목적은 신제품의 출시가 기업 가치에 미치는 효과를 알아보는 것이다. 자동차, 화장품, 제과, 제약 및 유업에 걸친 한국의 제조업 데이터를 사용하여, 본 연구는 신제품의 출시와 Tobin's Q로 측정되는 기업 가치 사이에는 긍정적인 관계가 존재함을 밝혔다. 또한, 3단계 위계적 선형모형(HLM)을 사용하여, 신제품 출시와 기업 가치 사이의 관계를 다양한 산업 및 기업 수준에서 확인하였다. 위계적 선형모형(HLM)에서 산업 집중도와 고객 만족도는 주요 효과를 설명하는데 긍정적인 역할을 하는 반면, 산업 간 이질성이 통제되면, 마케팅 비용은 기업 가치에 부정적인 효과를 나타낸다. 무엇보다 흥미로운 점은, "순수 신상품"인지 기존 상품을 수정하거나 업그레이드 한 "파생 신상품"인지 신상품의 유형에 따라 기업 가치에 미치는 영향이 다르다는 사실이 발견되었다. 파생 신상품이 기업 가치에 대한 공헌이 크고, 이러한 현상은 순수 신상품과 비교하여 파생 신상품의 출시 관련 상대적으로 낮은 마케팅 비용을 통해 설명할 수 있다.

주제어: 신제품 출시, 기업가치, Tobin's q, 마케팅-재무 인터페이스, 위계적 선형모형(HLM)

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