The Effects of Foreign-based Competition on Diversification Strategy and Firm Performance

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The intensifying global competition since the late 20th century mostly comes in a form of increasing import to the domestic firms. We label foreign competition in the form of imports foreign-based competition. That is, foreign-based competition refers to the competition from foreign firms in the form of imports of foreign produced goods.

This research was conducted with the following objectives: to empirically test the effects of the foreign-based competition in an industry on a firm's decision of the diversification strategy and to provide a theoretically integrative framework including the determinants and results of the diversification strategy. The research model builds upon the structure-conduct-performance behavior. The structure is the foreign-based competition and the conduct is the business and international diversification in this study.

However, not every firm in an industry which is under same industrial structure behaves equally. Therefore, three moderating variables are added to the model. They are industrial attractiveness, technology-related assets and marketing-related assets.

Accordingly, the ten hypotheses were suggested. First of all, the foreign-based competition is expected to affect the degree of business diversification negatively but the degree of international diversification positively. However, the relationships may change due to some moderating effects. If the core business of a firm is more attractive and the firm is endowed with technology-related and marketing-related assets, the negative effect of the foreign-based competition is more stronger. On the other hand, the relationship between the foreign-based competition and the degree of international diversification is more positive when the core business industry of the firm is less attractive and the firms have more technology-related and marketing-related assets. In addition, the business and international diversification are expected to have the nonlinear and inverted U-shaped relationships with the firm performance.

The hypotheses were tested for a sample of 180 manufacturing firms publicly listed in the Korean Stock Exchange in September 2006 and the 540 pooling data of the sample were used from 2003 to 2005.

As the results of path analysis, H2, H2a and H2c were supported. Also, the results of regression analysis evidenced the H3, that is, the inverted U-shaped relationship between the degree of business diversification and the firm performance.

To summarize the implication from the research results, first of all, Korean manufacturing firms cope with the intensifying foreign-based competition in their core business through diversifying internationally.

Second, the less attractive their core business industry, the higher the degree of both business diversification

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and international diversification against the foreign-based competition. In addition, technology-related asset is a necessary condition for business diversification strategy while marketing-related asset is for both business diversification and international diversification when faced with the foreign-based competition. Finally, the nonlinear and inverted U-shaped relationship between the degree of business diversification and firm performance was supported.

Despite the implication, we can suggest the guideline for future studies. The better results can be obtained with multidimensional indices for business and international diversification and in consideration of the differences by industries. We hope the model and methods presented in this paper can contribute to subsequent theoretical and empirical research on these issues.

Key words: foreign-based competition, diversification, performance

I. Introduction

The diversification strategy has been the main topic for over 30 years in the field of strategic management. Korean scholars have also conducted the research on the diversification, but lots of them were for the business groups, *chaebols*. This seems to reflect the Korean recognition that diversification is the strategy chosen by *chaebols* just to increase the group size. In addition, most of the research has focused on the relationship between diversification strategy and the performance, and, to make matters worse, the results were not conclusive. Furthermore, although the research about determinants affecting diversification decision of firms can give some academic and practical implications, there has not been enough research.

The increasing pressure of global competition since the late 20th century has been considered as the critical change and threat in business. This intensifying global competition mostly comes in a form of increasing import to the domestic firms. We label foreign competition in the form of imports *foreign-based competition* (Bowen and Wiersema, 2005). Although there has been the potential assumption that this intensifying foreign-based competition would influence the firm's decision about diversification strategy, neither logically built model nor empirically tested research does exist in Korea. However, it is necessary to analyze the effects of the competition on the diversification strategy and the results of the strategy.

In sum, this research is conducted with the following objectives: to empirically test the effects of the foreign-based competition in an industry on a firms' decision of the diversification strategy and to provide a theoretically integrative framework including the determinants and results of the diversifi-

cation strategy.

This paper consists of six sections.

Next section provides more detailed definition of foreign-based competition and reviews the prior literature on diversification. In the third section, we build a research model, based on the reviewed previous research and our logic. We also verbalize the series of hypotheses from the research model. In the fourth section, the procedure of sampling is explained. We also define the variables and describe the measurement of the variables. The fifth section briefs the overall methods for testing the hypotheses. Then, the results of the statistical analyses are presented. The last section discusses the implication of the research results in the academic and practical way. The suggestions for future study are also presented.

II. Literature Review

2.1 Foreign-based competition

Foreign-based competition refers to the competition from foreign firms in the form of imports of foreign produced goods (Bowen and Wiersema, 2005). To put it another way, it is the competition caused by foreign firms which export their products to a country's domestic market.

Though there are a variety of criteria to classify the types of competition, this study divides the competition according to the foreign firms' entry modes in a country's market, i.e., either export or local production. Therefore, the competition can be classified into two types; the competition in the form of imports of products foreign competitors manufacture in foreign locations and the competition with foreign-owned subsidiaries which produce and sell the goods in a country's domestic market. The former is the foreign-based competition while the latter is labeled the domestic-based competition (Bowen and Wiersema, 2008).

We focus on the former not the latter. Also, this study means the competition Korean firms are faced with due to export of foreign firms' foreign-produced goods into Korea by the term, foreign-based competition. It is worth noting that the term doesn't mean the place where the competition occurs. Rather, it tells whether the competitors manufacture in foreign countries or Korea.

According to Bowen and Wiersema (2008), the foreign-based competition has a much stronger and more disruptive impact on the domestic market condition than the domestic-based one. It may be because the foreign firms entering the market in the form of export are exposed to the lower level of risk than those in the form of foreign direct investment and they also possess their

country-specific advantages as well as the firm-specific advantages.

Conceptually, the foreign-based competition is similar to import penetration. To emphasize the meaning of competition, however, we adopt the term, foreign-based competition instead of the import penetration.

2.2 Business diversification and performance

The relationship between business diversification and performance is one of the most researched subject. There are two groups of scholars. One focuses on the performance implication of the related vs. unrelated diversification as shown in 〈Table 1〉 while the other examines the effect of the level of diversification on firm performance. The latter shows the two main streams again: the linear and the curvilinear relationship.

The researchers who suggest the linear model usually underline the benefits of business diversification, especially market power advantages and internal market efficiencies. The early studies argue that diversified firms can generate and utilize the market power advantages by using various mechanisms which single-business firms cannot generally access (Caves, 1981). For instance, they may be able to drive existing competitors away and prevent entry of future potential competitors through predatory pricing. The possible short-term financial loss can be covered owing to cross-subsidization.

For single-business firms, the basic source of capital is external and it is difficult for them to invest from cross-subsidization. On the other hand, as diversifiers can depend on both external sources and internal resources, they enjoy flexibility in capital accumulation (Lang and Stulz, 1994). In addition, they can transfer the financial resources between businesses of a portfolio which leads to increase in efficiency and decrease in risk. The internal efficiency from diversification is also possible because the firms can exploit the firm-specific assets which wouldn't otherwise be exchanged due to transaction costs or other kinds of imperfection (Markides, 1992).

Despite the benefits from business diversification mentioned above, the studies fail to confirm the linear and positive relationship between business diversification and performance. Researchers have also recognized that the diversification doesn't always lead to improvement in performance and began to suggest the curvilinear models.

They also accept the benefits of diversification that single-business firms cannot enjoy, i.e., resources sharing, economies of scale, reputation and so forth. However, they criticize the earlier studies for ignoring the costs accompanied with business diversification and sometimes surpassing the benefits. The higher level of business diver-

〈Table 1〉 Representative empirical studies of the relationship between diversification and firm performance

Researchers	Sample	Results
Rumelt (1974)	500 industrial companies	Dominant-constrained and related-constrained companies are most profitable.
Berry (1975)	460 industrial companies	Growth of assets is negatively related to change in two-digit SIC index of diversity.
Christensen and Montgomery (1981)	128 Fortune 500 firms	Dominant-constrained, dominant-linked, and related-constrained firms are most profitable.
Bettis (1981)	80 Fortune 500 firms	Related-constrained firms are more profitable than unrelated.
Itami *et al.* (1982)	112 large Japanese firms	Dominant-constrained firms earned higher ROI with lower earnings variability.
Lecraw (1984)	200 large Canadian manufacturing firms	ROE is significantly higher for related-diversified and vertically integrated firms.
Palepu (1985)	30 food products companies	Related diversifiers earned higher return on sales than unrelated diversifiers.
Buhner (1986)	40 large, diversified German firms	Weak positive correlations between risk-adjusted equity returns and both product and geographical diversity
Varadarajan and Ramanujam (1987)	225 companies	Related diversifiers earned significantly higher ROE and ROI than unrelated diversifiers.

* Source: summarized and adjusted from Grant, Jammine and Thomas, "Diversity, diversification, and profitability among British manufacturing companies, 1972-84", *Academy of Management Journal*, 31 (4), pp. 773-774.

sification causes substantial conflicts among executives, information processing costs, coordination costs, organizational inefficiency etc. Therefore, they argue the existence of optimal level and show the inverted U-shaped relationship.

There is the other form of curvilinear relationship, which is the intermediate model suggested by a few researchers. They question the implicit assumption of the inverted-U model that the related diversifiers surely outperform the unrelated ones. The benefits of the related diversification are achieved only if the firm perfectly exploits the relatedness. Markides and Williamson (1994) also point out this by the term "exaggerated relatedness". In addition, Nayaar (1992) argue that coordination, interaction, integration costs are necessary to take advantage of the relatedness of the related diversification. Moreover, the unrelated diversifiers can obtain their own advantages and reduce the risk as some losses in a business unit can be offset by profits in another business.

This is possible because they operate multiple businesses in different industries. Consequently, the total positive effect of the degree of business diversification declines beyond a certain point but still remains positive. That is, the marginal benefit from business diversification is a decreasing function.

2.3 International diversification and performance

The development in studies on the relationship between international diversification and performance seems similar to that in studies on the performance implications of business diversification. The linear model suggested in early studies begin to lose the persuasive power upon the argument of the possible curvilinear relationship.

The linear and positive model is based on the benefits that multinationality provides. The geographically diversified firms are able to transfer and share the resources, capabilities and core competences. They can also exploit the difference in factor markets and access the location-specific endowed factors by conducting the diverse value-creating activities internally in different country markets (Kogut and Chang, 1991). In addition, they can achieve the scale of economies regarding manufacturing, R&D or marketing (Tallman and Li, 1996) and diversify the risk across the markets. Multinationality often plays a role of an advantage in itself. In other words, learning and experience from various markets can be accumulated and transferred. These benefits make sense but the studies do not consider the costs of internationalization.

As the tests of the linear model fail to show consistent results, researchers suggest the possibility of the curvilinear relationship. That is, if the benefits and costs of international diversification are jointly considered, there seems to be a point where the relationship changes from the positive to the negative or vice versa.

The U-shaped model emphasizes the liability of newness and that of foreignness most firms meet in entry into a new foreign market. Such firms are difficult to avoid the disadvantage just because they are new and not local. Therefore, the international diversification seems to be negative on firm performance. However, the liability may diminish and can be overcome as time goes by. Moreover, the firms can adapt to local environment and transfer and successfully utilize their own assets. That is, the relationship changes to the positive after a threshold.

On the other hand, researchers who argue the inverted U-shaped model focus on the costs accompanied with international diversification which is beyond a moderate degree while accepting the various benefits. Managers may feel difficult to make reasonable decisions with their existing knowledge and

experience if the firm is diversified too much. Then, their demands for information are increased and the various forms of inefficiencies and costs emerge. Also, they should take a risk of higher uncertainty and complexity which are generally attributed to economic, social or legal differences among the country markets. Finally, they argue the costs surpass the benefits of international diversification over an optimal point. This inverted U-shaped relationship is often supported in several empirical studies.

〈Table 2〉 shows the summary of representative studies on the relationship.

〈Table 2〉 Representative studies on the relationship between international diversification and performance

Researchers	Sample	Measurement of international diversification	Measurement of performance	Empirical results
Grant, Jammine and Thomas (1988)	304 large British manufacturing companies	the proportion of a firm's foreign revenue	ROA	linear and positive
Kim, Hwang and Burgers (1993)	125 US multinationals listed in the 1982 Forbes survey	sales-based entropy index	risk adjusted ROA	
Delios and Beamish (1999)	399 publicly listed Japanese manufacturing firms	the number of FDIs a firm had made by 1996; the number of countries where FDI had occurred	a composite performance construct using ROA, ROS, ROE	
Lu and Beamish (2001)	164 Japanese small and medium-sized enterprises (SMEs)	number of FDIs in which the parent firm has 10 percent or greater equity share; number of countries in which the firm has FDIs	ROA, ROS	U-shaped
Capar and Kotabe (2003)	81 major German service firms	FSTS	ROS	
Hitt, Hoskisson and Kim (1997)	295 manufacturing firms drawn from S&P's COMPUSTAT	sales-based entropy index	ROA	inverted U-shaped
Li and Qian (2005)	167 US firms on the Fortune 500 list	multidimensional index combining FATA, FSTS and FETE; sales-based entropy index	ROA, ROS	

III. Model and Hypotheses

The model building in this research starts from the structure-conduct-performance framework. The structure limits the scope of alternatives and constraints with which firms in the industry are faced. This framework suggests that the properties of industrial structure, which firms cannot control, define how long the firms in that industry can enjoy the above-average returns.

Hence, we built the basic framework of the research like 〈Figure 1〉.

However, not every firm in an industry which is under same industrial structure behaves equally. These differences should be explained by the differences of how proprietary resources they have, how efficiently they use the resources, whether they have core competences, which ownership structure they have, etc. In other words, a firm's behavior is affected by not only external but also internal environment.

In addition, we focus on the core business industry which records the highest ratio of sales among businesses in a firm. This is because the unfavorably changing conditions in a firm's core business industry are more likely to prompt the firm to behave more strategically than those in a firm's non-core business industry.

Consequently, the final model is built like 〈Figure 2〉.

3.1 Foreign-based competition and business diversification

A change of competitive condition caused by intensifying foreign-based competition may force a firm to spend more resources on information-processing, monitoring and coordinating. This pressure involves the increased cost of managing a multi-business firm (Jones and Hill, 1988). Moreover, as the foreign-based competition is more disruptive than domestic competition, it requires existing firms to respond rapidly and strongly (Bowen and Wiresema, 2005).

Lawrence and Lorsch (1967) argue that the more diversified a firm, the more different the dispositions among managers. In turn, it needs more efforts for collaboration and coordination. Tallman and Li (1996) also argue that product diversification results in the dispersion of managerial attention. Hence,

〈Figure 1〉 The basic framework of the research model

it takes more time to process information and to make decisions, and the activities of the firm become less efficient than before. That is, the dispersion of managerial attention incurs the higher cost of internal governance, which might deteriorate the firm performance.

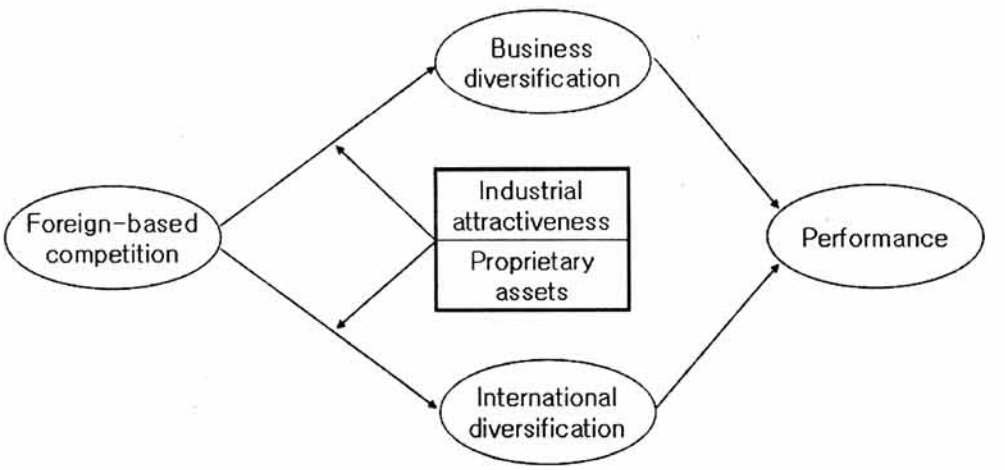
Consequently, the intensified foreign-based competition requires managerial inputs much more, but the competencies that a firm owns are limited and not easily improved. Especially, multi-business firms are at a disadvantage attributed to their innate inefficiency.

Core business is the most profitable, so it is a more important business than any others which a firm operates. Therefore, if foreign-based competition within an industry in which the firm's core business is situated grows in intensity, the firm should move against it by restructuring its business-portfolio.

Given that managerial resources are limited, the attention devoted to non-core businesses might cause the opportunity cost of keeping it away from the core business (Bowen and Wiersema, 2005). Hence, it is expected that the firm will decide to make the managerial resources focused on the core business and reduce its degree of business diversification.

H1: The degree of business diversification will be negatively related to the intensity of foreign-based competition.

The firm's decision to lower the degree of business diversification in response to the foreign-based competition might be influenced by the industrial attractiveness which can be operationalized as industrial profitability and growth rates (Bowen and Wiersema,



〈Figure 2〉 The final research model

2005).

Some research on diversification reports that the level of the diversification is negatively related to industrial profitability (e.g., Rumelt, 1982; Dess, Ireland and Hitt, 1990; Delios and Beamish, 1999). Indeed, Montgomery (1985) found that firms with the high degree of product diversification tend to be in less attractive market places. Stimpert and Duhaime (1997) argue that, when a firm operates in an industry which has low profitability and less opportunities for growth, the firm tends to expand by entering a new business. It implies that the business diversification is a means of escaping from the unprofitable industry and seeking a new profit-maker.

Along the same line with previous research, it is expected that industrial attractiveness can affect the negative relationship between the foreign-based competition and the degree of business diversification. If the core business of a firm is situated in an attractive industry, the opportunity cost of keeping the managerial resources in non-core businesses will be raised. Hence, the firm has more propensities to lower the level of business diversification and focus on the core business in response to the foreign-based competition.

H1a: The more attractive the core business industry of the firm is, the more negative the relationship between the intensity of foreign-based competition and the degree of business diversification will be.

Proprietary assets are also expected to affect the relationship between the foreign-based competition and the degree of business diversification. Proprietary assets are differentiable from those of other firms, can be transferred across host countries, and don't depreciate (Caves, 1996). They are important determinants to decide business diversification. For business diversification strategy to contribute to improving performance, the firm should have its own assets that can be exploited across the businesses.

Jeon (1996) examined determinants of diversification for the 30 Korean business groups from 1987 to 1993. He showed that the degree of firm diversification was positively related to the amount of total assets and the level of advertising intensity. Hong (1998) also reported the higher the advertising intensity of firm, the higher level of firm diversification in the cases of 30 Korean business groups. It implies that assets or advertising capability may be the key source for firm diversification.

For a firm which has already established the asset-based barriers, the pressure to improve the operational efficiency and, hence, to defeat the foreign-based competitors might be relieved. Furthermore, they may dare to

diversify with their surplus assets. On the other hand, a firm which has not established enough proprietary assets will be forced to more rapidly respond to the changes in the competitive condition. The lack of assets also prompts the firm to focus on their core business away from non-core businesses. The firm would decide to focus the managerial attention on the core business and, consequently, reduce the degree of business diversification (Bowen and Wiersema, 2005).

H1b: For the firm with less technology-related assets, the relationship between the intensity of foreign-based competition and the degree of business diversification will be more negative.

H1c: For the firm with less marketing-related assets, the relationship between the intensity of foreign-based competition and the degree of business diversification will be more negative.

3.2 Foreign-based competition and international diversification

The theory of multinationals argues that international diversification strategy provides a firm with larger market size, more market opportunities, and access to less expensive inputs and less price-sensitive markets (Hitt, Ireland, and Hoskisson, 2005). On the contrary, the lower level of international diversification limits the market opportunities and the potential for growth.

The intensified foreign-based competition implies that the domestic market doesn't offer location advantages to the existing firms any more. Therefore, they should find new markets in order to sell their products, improve the efficiency, or seek sources for less expensive inputs. Expansion into multinational markets can be interpreted as self-rescue measures for the firm faced with the intensified competitive condition at the home market.

The intensified foreign-based competition forces the existing domestic firms to develop superior technology and improve overall efficiency. It means that the firms should increase investment. However, given that the markets are limited to the domestic, they cannot disperse the cost of R&D or promotion. Hence, managers decide to diversify internationally and then the investment can be amortized on the basis of larger foreign markets. It also means that the firms can diversify risk because a failure in a country market can be offset by success in another country market.

Provided that the business involved with the more competitive condition is core to the firm, it should move against the competition more strongly with the international diver-

sification strategy. In sum, the positive relationship can be expected between the foreign-based competition and the level of international diversification.

H2: The degree of international diversification will be positively related to the intensity of foreign-based competition.

The positive relationship between the foreign-based competition and the degree of international diversification can be moderated by the industrial attractiveness.

Industry organization economics suggests that industry structure and profitability can affect firm's choice of strategies that managers devise to change the industrial condition into favorable one (Seth and Thomas, 1994). Furthermore, Christensen and Montgomery (1981) argue that firms within less profitable markets tend to implement higher level of diversification strategy.

Prior research implies that if the industry into which the firm's core business is categorized begins to lose the potential for profit and growth in the domestic market, the managers seek new marketplaces to operate the core business. On the other hand, if the industrial condition is still favorable to firms, the pressure to respond to the foreign-based competition will be relieved.

Consequently, once foreign-based competition in the core business industry becomes intensified and, additionally, the industry begins to lose the attractiveness, the firm's propensity to expand into new marketplaces will be stronger.

H2a: The less attractive the core business industry of the firm is, the more positive the relationship between the intensity of foreign-based competition and the degree of international diversification will be.

Proprietary assets of a firm might also influence the relationship between foreign-based competition and the degree of international diversification.

Some studies show that a firm's multinational activity is positively related to its proprietary asset (e.g., Caves, 1971). Therefore, the proprietary assets can be interpreted as one of determinants for multinational expansion. The potential for exploiting proprietary assets is an incentive for geographic expansion into new marketplaces. The assets originally established for the core business on the basis of domestic markets can be sources for competitive advantages in another country market. A firm with such assets can leverage some of its own capabilities in new markets, although it needs to adapt to new local factors.

Hence, it is expected that a firm with more proprietary assets is more likely to

decide to implement international diversification strategy, rather than a firm lacking in them, to cope with the intensified foreign-based competition in the core business industry.

H2b: For the firm with more technology-related assets, the relationship between the intensity of foreign-based competition and the degree of international diversification will be more positive.

H2c: For the firm with more marketing-related assets, the relationship between the intensity of foreign-based competition and the degree of international diversification will be more positive.

3.3 Business diversification and firm performance

Business diversification refers to expansion into new business markets which a firm has not experienced. Most literatures on strategic management state that business diversification provides a firm with economies of scope. That is, the firm can leverage its strategic resources and competences across different business lines and this leads to lower cost and greater performance.

Some empirical studies have supported the positive relationship between business diversification and firm performance. Montgomery (1985) researched the relationship between diversification, market structure and firm performance, using regression analysis. For a sample with 128 firms of 500 firms listed in the Fortune, she found that highly diversified firms had higher profitability than less diversified firms. Kim (1998) also found that the performance of firms implementing high degree of product diversification is better than that of firms with low levels of the diversification, using a sample of 98 manufacturing firms in Korea.

However, research results were not always positive. Delios and Beamish (1999) found no significant relationship between degree of product diversification and performance levels for the sample with 399 Japanese manufacturing firms. Geringer, Tallman and Olsen (2000) suggest that the diversification into fields which do not utilize its strategic resources will not add to rents. They also argue that the business diversification which does not take advantage of its own assets may be costly and reduce performance. In addition, the significantly negative relationship was found between diversification and profitability measured by ROA and ROS in the Kang(2005)'s research which examined for the sample with 217 Korean firms listed on the Korean Stock Exchange from 1993 to 2002.

These discrepancies across studies may result from unlike measure or methods or

from underlying non-linearity in the relationship between diversification and performance (J. M. Geringer, S. Tallman and D. M. Olsen, 2000, p. 54).

Tallman and Li (1996) suggest that firms in early stage of the diversification tend to focus on related diversification and, hence, they have more chances for synergy effects. The superior performance of related diversification has been empirically evidenced (e.g. Geringer *et al.*, 1989; Rumelt, 1974; Hong, 1998). From these results, it can be expected that the increasing performance for firms in the early stage of business diversification.

Delios and Beamish (1999) found that high levels of product diversification reduced the investments in R&D (only for low product diversification sample) and marketing (for full sample) which are necessary functions to develop new capabilities. It implies that firms implementing product diversification strategy can leverage the existing competences across different product lines, which means achievement of scope economies. However, in the subsample of high product diversification firms the expenditures on R&D increased according to the degree of product diversification. It can be interpreted as insufficient exploitation of existing technologies and increasing needs for development of new technologies for the highly diversified firms.

Business diversification is accompanied with costs and benefits simultaneously. However, the amounts of costs and benefits vary with the degree of a firm's business diversification. Given the recent studies that suggest the nonlinear effect on firm performance, the inverted U-shaped relationship between the degree of business diversification and firm performance. To elaborate, the firm performance gets improved at the initial stage owing to the economies of scope and cross-subsidization but it turns to minus as the complexity and uncertainty increases and finally the marginal costs surpass the marginal benefits due to the too high degree of business diversification.

In sum, it is hypothesized that the moderate degree of business diversification yields high performance while too high degree of business diversification hampers the performance. In other words, the relationship should be non-linear and inverted U-shaped.

H3: Firm performance will vary negatively with the square of degree of business diversification.

3.4 International diversification and firm performance

In the rapidly changing competitive condition, it is one of the most important decisions for firms where to locate their facilities, assets, or even human resources.

Among strategies associated with this is the international diversification strategy. With the strategy, firms can achieve benefits such as larger market size, economies of scale, location advantage, and learning effects.

Internationally diversified firms can also achieve flexibility and bargaining power attributed to multinational network and learning and gain competitive advantage by utilizing market imperfection in transactions across country borders. The firms with great core competences developed in the home country are also likely to successfully apply such competences to international market to enhance their profitability.

From the benefits described above, it makes sense that internationally diversified firms outperform the others. However, the results of previous empirical studies were not conclusive. While some research evidences the positive linear relationship between international diversification and performance (e.g., Grant, 1987; Kim, Hwang, and Burgers, 1993), others failed to show the significant relationship (e.g., Geringer, Beamish, and daCosta, 1989).

Moreover, several studies found the non-linear and U-shaped relationship (e.g., Qian, 1997; Capar and Kotabe, 2003) or the non-linear and inverted U-shaped relationship (e.g., Geringer, Beamish, and daCosta, 1989; Gomes and Ramaswamy, 1999; Hitt, Hoskisson, and Kim, 1997). These imply that there is a threshold where the effect of international diversification on firm performance changes from the positive to the negative or from the negative to the positive. Kim and Ban (2006) also found the potential possibility for the non-linear relationship, even though they didn't find any significant relationship between the degree of international diversification strategy and performance.

These results seem to reflect potential problems accompanied with the management of multinational firms. Increasing the geographic dispersion might raise the transaction cost and managerial information-processing demand. Firms with high degree of international diversification (i.e., multinationality) are also faced with more uncertainty and complexity (Kim and Ban, 2006) because the considerable differences in environment raise risk involved with allocation of resources across multiple markets. To make matters worse, the risk is not easy to hedge. Consequently, the complexity and uncertainty bring about increasing transaction cost and force managers to process lots of information.

These disadvantages of international diversification offset the advantages and, at a certain point, the cost exceeds the benefits. That is, moderate degree of international diversification provides the benefits in excess of the cost, but too high degree offsets the benefits by the cost. Accordingly, given the simultaneous influences and dynamic

changes of the cost and benefits, the relationship between international diversification and firm performance is nonlinear and inverted U-shaped.

H4: Firm performance will vary negatively with the square of degree of international diversification.

Ⅳ. Methodology

4.1 Sample

The sample consists of the manufacturing firms publicly listed in the Korean Stock Exchange in September 2006. Among the 454 firms, ones for administration were eliminated. In addition, the sample should include only firms which have been listing since 2003 and firms of which all the data for this research are available. Next, we also eliminated firms smaller than the median value of firm size in consideration of the stronger tendencies for larger firms to diversify. The final sample consisted of 180 manufacturing firms. 〈Table 3〉 presents the industrial classification of the sampled firms by 2-digit Korean Standard Industrial Classification (KSIC).

When it comes to the degree of diversification and performance, the 540 pooling data of the sample were used from 2003 to 2005. However, we felt that although the recognition of competitive condition may be reflected to firm's strategic decision immediately, time lag should also be considered to reflect a general planning cycle as in some previous research (e.g., Geringer, Tallman and Olsen, 2000; Bowen and Wiersema, 2005). That is why the measurement of foreign-based competition and moderate variables was limited only in 2003.

4.2 Variables and measurement

4.2.1 Main variables

4.2.1.1 Foreign-based competition

As mentioned in the section of Literature Review, foreign-based competition means the competition with foreign firms in the form of imports of foreign produced goods. Its concept is almost same as import penetration, and so it can be measured by the intensity of import penetration.

In this study, foreign-based competition was, therefore, measured by the ratio of imports to total domestic purchases in the core business industry of the firm in 2003(Bowen and Wiersema, 2005). However, it was difficult to find the data about total domestic purchases at the industry-level. Alternatively, we measured it by total sales of domestic firms minus exports plus imports in

〈Table 3〉 Industrial classification of the sample by KSIC

KSIC code	Industry	Sampled firms	%
15	Food Products and Beverages	22	12.21
17	Textiles	5	2.78
18	Sewn Wearing Apparel and Fur Articles	7	3.89
19	Leather, Luggage and Footwear	2	1.11
21	Pulp, Paper and Paper Products	6	3.33
23	Coke, Refined Petroleum Products and Nuclear Fuel	3	1.67
24	Chemicals and Chemical Products	43	23.89
25	Rubber and Plastic Products	4	2.22
26	Other Non-metallic Mineral Products	11	6.11
27	Basic Metals	21	11.67
28	Fabricated Metal Products	1	0.56
29	Other Machinery and Equipment	8	4.44
31	Electrical Machinery and Apparatuses n.e.c.	6	3.33
32	Electronic Components and Communication Equipment	14	7.78
33	Medical, Precision and Optical Instruments, Watches and Clocks	1	0.56
34	Motor Vehicles, Trailers and Semitrailers	18	10.0
35	Other Transport Equipment	5	2.78
36	Furniture; Manufacturing of Articles n.e.c.	3	1.67
Total		180	100 %

a given industry.

The data for import were collected through the KITA. However, the criterion of classifying industries in the KITA was different from that in other sources, so we had to classify the data from the KITA in accordance with the KSIC.

4.2.1.2 Business diversification

Entropy index, Herfindahl index and number of business segments are most widely acknowledged to measure the degree of business diversification.

The entropy index can be calculated as follows:

$$\text{Entropy index} = \sum_{i=1}^{N} S_i \ln(1/S_i)$$

where S_i indicates a firm's ratio of sales in a given business segment i to total sales, $\ln(1/S_i)$ is the weight of each segment and

N is the number of business segments a firm operates. This measure has the strength from the fact that it allows to distinguish between related and unrelated diversification (Chang and Wang, 2007).

The Herfindahl index is calculated as

$$\text{Herfindahl index} = \sum_{i=1}^{N} (S_i)^2$$

where S_i is the percentage of a firm's sales in a business segment and N is the number of business segments which the firm is engaged in. It is also popular as it reflects not only the number of business segments but also the relative importance of each segment.

Despite their respective merits mentioned above, the business diversification is sometimes measured by the simple count of businesses because it is often difficult to collect the data necessary to use either entropy or Herfindahl index.

In this study, too, the number of businesses which a firm operates was used as a proxy variable to measure the degree of business diversification in consideration of availability of data. Although it does not indicate the relative importance of each segment in sales, it is expected not to distort the results. It also shows the scope of diversification in a direct way. We counted the number by the 3-digit KSIC.

The data for the number of businesses which a firm operates were obtained in the KISFAS.

4.2.1.3 International diversification

One of the most common methods to measure the degree of international diversification is the ratio of a firm's foreign sales to total sales (FSTS). Some scholars have objected to using such a unidimensional measure, but a multidimensional measure developed by Sullivan (1994) received little support in Ramaswamy, Kroeck and Renforth (1996). Although there still remains ground for criticism against operationalizing the international diversification as the FSTS alone, much research has used the measure (e.g., Geringer, Beamish and daCosta, 1989; Grant, Jaminine and Thomas, 1989). Ultimately, considering the possibility of comparison with previous results and the data availability, the ratio of FSTS was chosen to measure international diversification.

The data for the ratio of each firm's foreign sales to total sales (FSTS) were collected through the KISFAS.

4.2.1.4 Performance

Three accounting-based measures were considered as indicators of firm performance; return on assets (ROA), return on equity (ROE), return on sales (ROS). Among the three accounting-based measures, we did

not employ ROE. It is more sensitive to capital structure differences. Consequently, we measured firm performance measured by ROA and ROS.

The data were gained from KISFAS.

4.2.2 Moderating variables

4.2.2.1 Industrial attractiveness

Industrial attractiveness can be defined as prospect for industrial growth.

The prospect for industrial growth was operationalized by industrial growth rate and it was measured by the average growth rate of industrial operating returns from 2001 to 2003. All the data were gained from the database of the Bank of Korea.

4.2.2.2 Proprietary assets

Technological and marketing assets have been considered as representative firm-specific capabilities to help firms achieve competitive advantages and above-average returns (Kogut and Chang, 1991; Caves, 1996).

We used R&D intensity for a proxy of the technology-related assets and advertising, including promotion, intensity for that of the marketing-related assets. R&D intensity was measured as the R&D expenditures divided by the firm's total sales in 2003, while advertising intensity was measured as the expenditures on advertising and promotion divided by the firm's total sales in 2003.

The related data were obtained from the KISFAS.

4.2.3 Control variable

4.2.3.1 Firm size

Firm size was employed as a control variable because it is expected to be related to levels of diversification and performance. It was operationalized as the amount of total assets. In addition, to avoid the effects of extreme differences of the amounts of total assets among firms in the sample, it was calculated with the natural logarithm.

The data were also collected from the KISFAS.

V. Results

5.1 Method of statistical analysis

In this research, path analysis with Amos 5.0 was employed to examine the hypotheses to examine the relationships between the four main variables; foreign-based competition, business diversification, international diversification and firm performance. Then to analyze the role of moderate variables in the main relationships, the full sample was divided into two groups on the basis of the median of each moderating

〈Table 4〉 Variables and measurement

	Variables	Measurement
Main variables	Foreign-based competition	Imports to total domestic purchases in the core business
	Business diversification	Number of business segment
	International diversification	Foreign sales to total sales
	Performance	ROA, ROS
Moderating variables	Prospect for industrial growth	3-year average growth rate of industrial operating returns
	Industrial profitability	Industry ROA
	Technological assets	R&D expenditures to total sales
	Marketing assets	Advertising expenditures to total sales
Control variable	Firm size	Total assets

varable: industrial attractiveness, technology assets, and marketing assets. In addition, regression analysis procedure was used to examine the non-linear relationships between diversification and performance which we hypothesized in H3 and H4.

5.2. Results

5.2.1 Examination of overall models

The fitness of the models must be checked at first.

Commonly used estimates are followed: χ^2, GFI (Goodness-of-Fit Index), AGFI (Adjusted Goodness-of-Fit Index), RMR (Root-Mean-square Residual), CFI (Comparative Fit Index) and NFI (Normed Fit Index).

In this research, some of χ^2 are much higher compared to df and some of RMR are extraordinarily high. However, the sample size is big enough, the acceptance of RMR is up to this researcher's decision and most of the other indices are over or nearby 0.90. Hence, the models are considered worth analyzing.

〈Figure 3〉 presents the results of path analysis on the relationships between the main variables. The detailed results are below.

First is about the effects of foreign-based competition on business diversification and international diversification. It shows foreign-based competition doesn't significantly affect the degree of business diversification (γ_{11} = .065, C.R. = 1.601, p>.10) but does give positive and significant influence on the degree

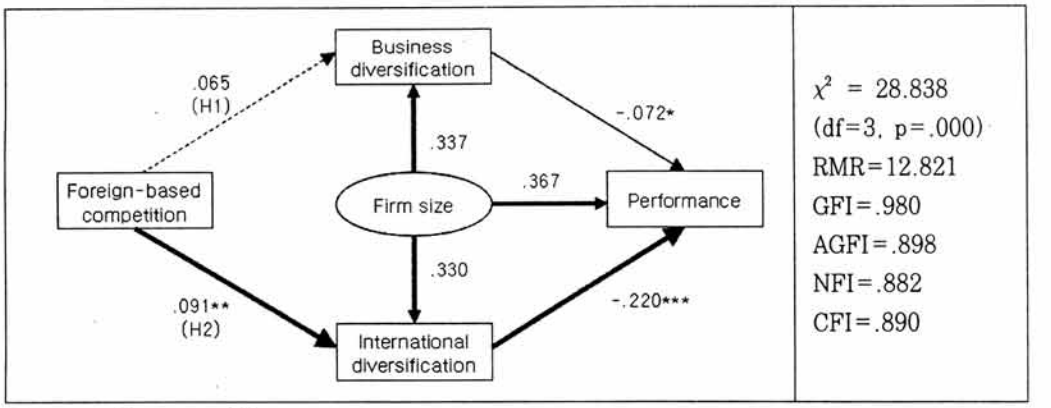
of international diversification (γ_{21} = .091, C.R. = 2.239, p<.05). In result, H2 is supported while H1 is rejected. That is, firms cope with the intensifying foreign-based competition through diversifying internationally rather than focusing on the core business.

Next is about the influence of each diversification strategy on the firm performance. The performance is shown to be negatively and significantly related to the degree of business diversification (β_{11} = -.072, C.R. = -1.676, p<.10) and to that of international diversification (β_{12} = -.220, C.R. = -5.140, p<.01). Here, though, we would not conclude whether the hypotheses are supported or rejected. It is not the linear but the non-linear relationship between each diversification and performance that we would examine. The related hypotheses (H3 and H4) are tested using the regression analysis later.

Then, the roles of each moderator are tested in the relationships between foreign-based competition and each diversification strategy. To do that, we divided the full sample into two subsamples on the basis of medians.

〈Figure 4〉 is on how the relationships change along with the industrial attractiveness. Foreign-based competition doesn't give any significant effects on both strategies in firms whose core businesses belong to more attractive industries. In contrast, firms whose core businesses are located in the less attractive industries are shown to diversify their business (γ_{11} = .156, C.R. = 2.598, p<.01) and expand internationally (γ_{21} = .292, C.R. = 4.878, p<.01) against the foreign-based competition.

In other words, if a core business faced with the foreign-based competition is not a highly growing industry, the firm is likely to



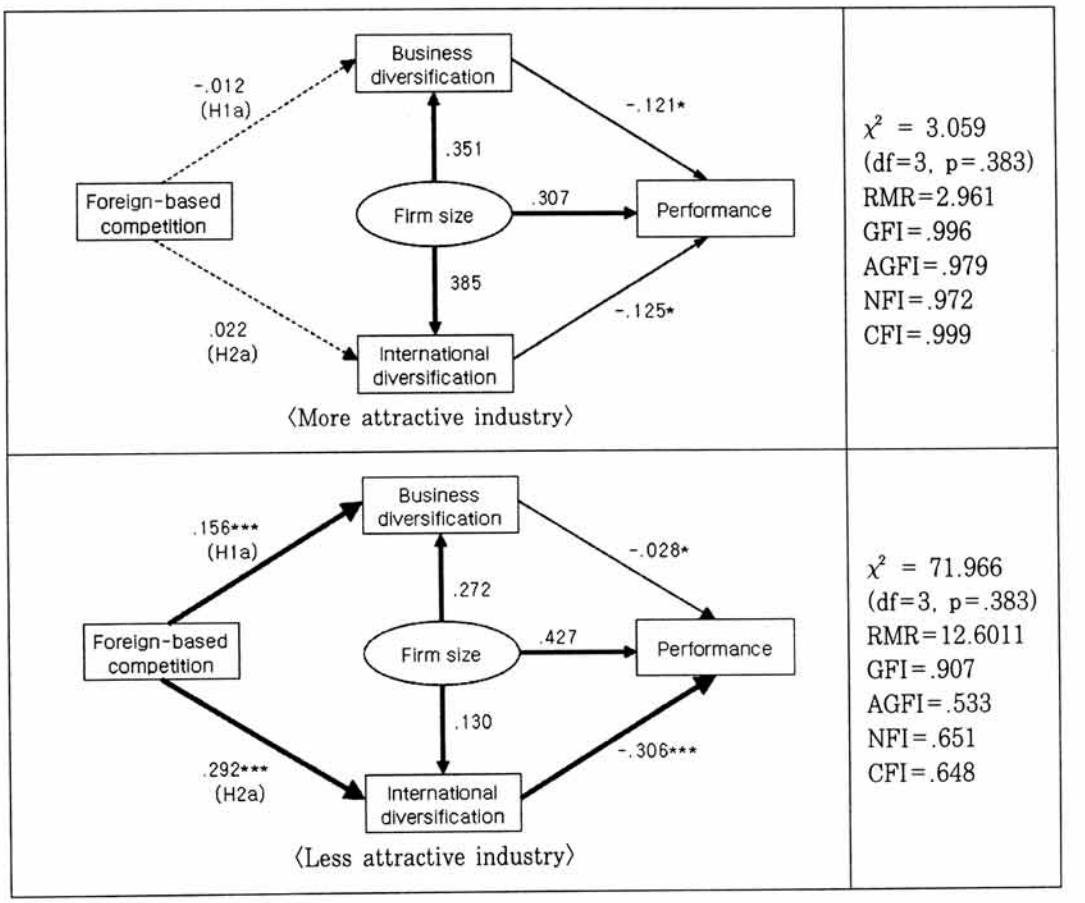
*: p<0.1, **: p<0.05, ***: p<0.01

〈Figure 3〉 The effects of foreign-based competition

develop additional businesses and diversify internationally as a response to the intensified foreign-based competition. Finally, H1a is rejected, but H2a is supported.

While the first moderating variable is industry-level, the others below are firm-specific.

〈Figure 5〉 is about the role of technology-related assets as a moderating variable in the relationships between foreign-based competition and diversification strategies. In a firm with more technology-related assets, the level of business diversification is positively and significantly related to the foreign-based competition (γ_{11} = .120, C.R. = 2.088, p<.05), but the level of international diversification is not significantly related (γ_{21} = .000, C.R. = -.006, p>.10). If a firm has



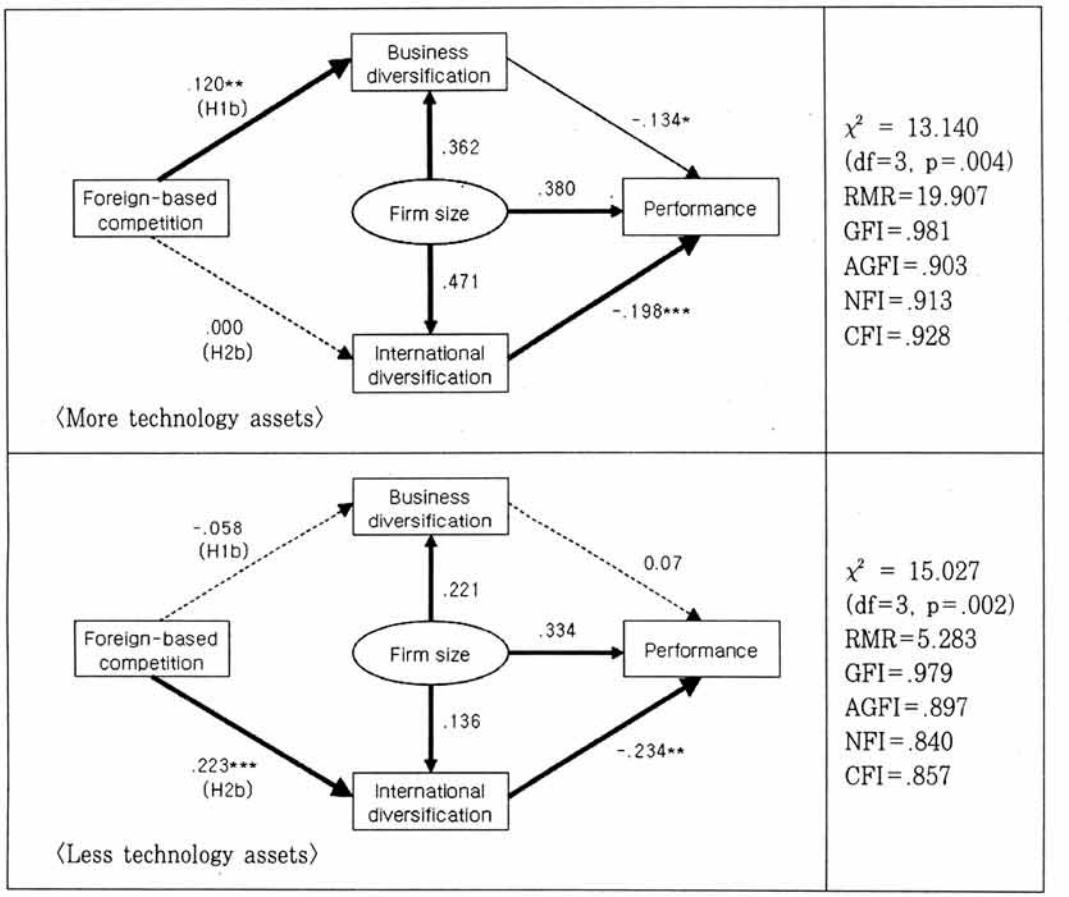
*: p<0.1, **: p<0.05, ***: p<0.01

〈Figure 4〉 The moderating effects of industrial attractiveness

more technology-related assets, it moves against foreign-based competition through increasing level of business diversification rather than expanding internationally.

When it comes to firms with less technology-related assets, the effect of foreign-based competition on business diversification is not significant (γ_{11} = -.058, C.R. = -.998, p> .10). However, the effect on the international diversification is positive and significant (γ_{21} = .223, C.R. = 3.854, p<.01)

The results are opposite to the hypotheses. They show the more a firm has technology-related assets, the more it diversifies the businesses, and the less a firm has technology-related assets, the more it diversifies internationally to deal with the intensifying foreign-based competition. Both H1b and H2b are



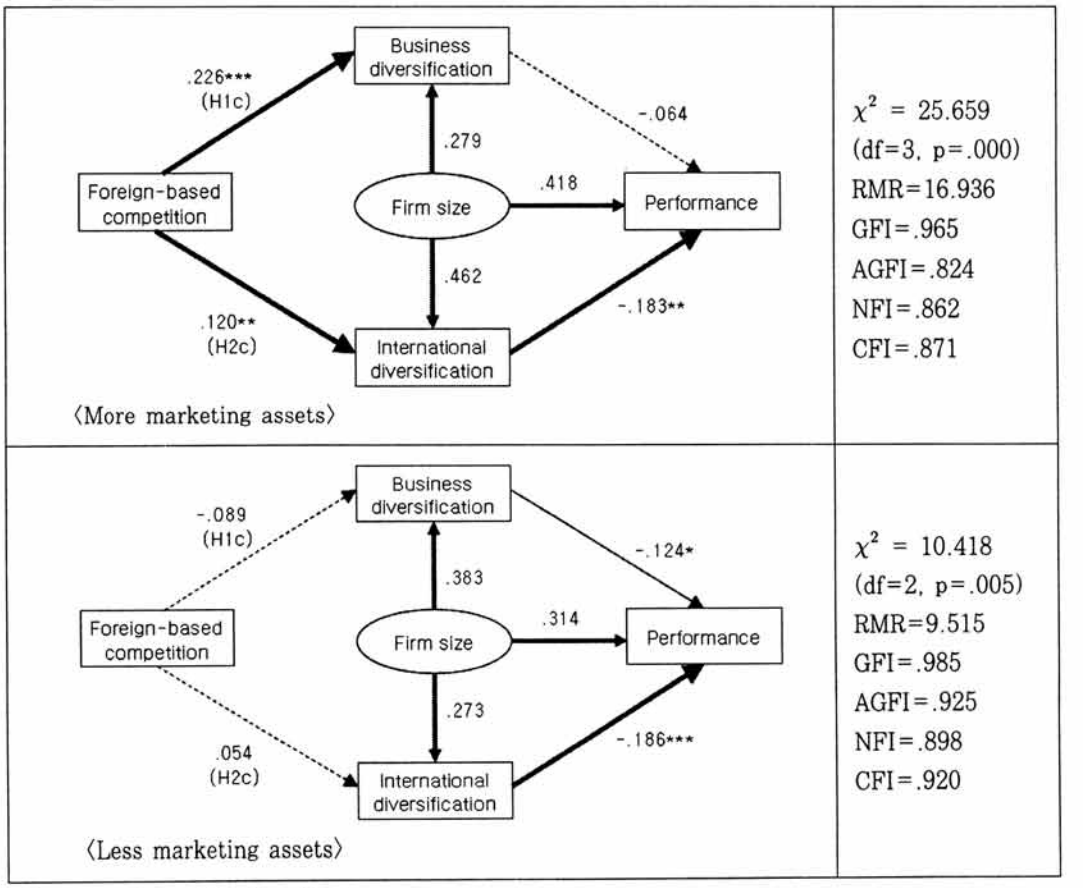
*: p<0.1, **: p<0.05, ***: p<0.01

〈Figure 5〉 The moderating effects of technology-related assets

rejected.

The second firm-specific variable as a moderating variable is the amount of marketing-related assets. The foreign-based competition gives positive and significant effects on both business diversification (γ_{11}= .226, C.R.= 3.968, p<.01) and international diversification (γ_{21}= .120, C.R.= 2.235, p< .05) in a firm with more marketing-related assets, as shown in 〈Figure 6〉. In contrast, in a less marketing-intensive firm, the effects are not significant (γ_{11}= -.089, C.R.= -1.582, p>.10) (γ_{21}= .054, C.R.= .919, p> .10).

It implies that the more a firm has marketing-related assets, the more it diversifies the business and the international scope. The results reject H1c, but support



*: p<0.1, **: p<0.05, ***: p<0.01

〈Figure 6〉 The moderating effects of marketing-related assets

H2c.

Next is to analyze the relationships between each diversification strategy and the firm performance.

Although 〈Figure 3〉 presented that performance was negatively and significantly related to the degree of each diversification strategy, we delayed discussing the results. It was the non-linear and inverted U-shaped relationship that we would like to examine. Therefore, the regression analysis was attempted.

As 〈Table 5〉 shows the results, the firm performance is negatively and significantly related to the squared degree of business diversification. The result supports the H3 which expected the non-linear and inverted-U shaped relationship. As explained in the note to 〈Table 5〉, the effect of business diversification on performance is expected to be positive until the degree of business diversification, which was measured by the number of businesses in a firm, approaches 2.25. On the other hand, beyond this level, the effect will be negative. It also implies that when the degree of business diversification is approximately 2.25, the performance

〈Table 5〉 The effects of each diversification on performance

	H3		H4	
	unstandardi-zed β	t-value	unstandardi-zed β	t-value
constant	-.227	-5.514***	-.256	-6.356***
degree of diversification	.009	1.155	.000	-.786
squared degree of diversification	-.002	-1.693*	-2.6E-06	-.725
firm size	.014	6.698***	.016	7.838***
R^2	.081		.116	
Adusted R^2	.076		.111	
F	15.797***		23.366***	

*: p<0.1, **: p<0.05, ***: p<0.01

Note: The estimated regression equation for the curvilinear model regarding business diversification(BD) and performance(PER) will be

$$PER = -0.227+0.014+0.009BD-0.002(BD)^2.$$

To show where the turning point is, a derivative of the curvilinear regression equation is taken with regard to BD:

$$\frac{d(PER)}{d(BD)} = -0.004BD+0.009$$

that will be zero if BD=2.25.

is expected to peak out.

However, no significant relationship is found from international diversification. That is, the relationship between the firm performance and international diversification is linear, as shown in 〈Figure 3〉, rather than non-linear. Therefore, H4 is not supported.

Ⅵ. Conclusion

6.1 Discussion

In this research, we examined how the intensity of foreign-based competition influences the business and international diversification strategies in Korean manufacturing firms and what effects the strategies give on the firm performance. We also employed the path analysis for the relationships between foreign-based competition and the two diversification strategies and the regression analysis for the relationships between the diversification strategies and firm performance.

To begin with, the explanations of the results for the effects of foreign-based competition on the diversification strategies are followed.

First, foreign-based competition was not shown to significantly influence the degree of business diversification. This result suggests that the degree of the business diversification may be decided in consideration of other factors rather than the intensity of foreign-based competition. However, it was reported to have positive and significant effects on the degree of international diversification. This supports the hypothesis that a firm whose core business is threatened by the foreign-based competition is likely to expand internationally as a means of seeking new marketplaces. In consequence, Korean manufacturing firms seem to cope with the intensifying foreign-based competition by increasing the degree of international diversification rather than decreasing the degree of business diversification and then focusing on the core business.

However, some industry-level and firm-specific factors change the direct effects of the foreign-based competition on the diversification strategies.

The first moderating variable was the industrial attractiveness. The result reported that the less attractive a firm's core business industry, the more positive the effects of foreign-based competition on the level of business diversification. That is, a firm whose core business industry doesn't have prospect for growth moves against the intensifying foreign-based competition through entering new business markets. Hence, the less prospects for industrial growth can be interpreted to prompt the firm to develop other profit-making businesses against the strengthening

foreign-based competition. Furthermore, it showed that the less attractive a firm's core industry, the more positive the relationships between foreign-based competition and the degree of international diversification. In other words, for firms with core business in the attractive industry, the pressure from the foreign-based competition is relieved and, therefore, the intensity of foreign-based competition doesn't significantly influence the level of international diversification. However, if a firm's core business industry is not attractive, the pressure to expand internationally increases. These imply that diversification strategy, whether business or international, tends to be used to escape from the prospectless industry.

The next two moderating variables are firm-specific. The first among them is the amounts of technology-related assets a firm owns. The result showed that firms with more technology-related assets are likely to diversify business against the intensifying foreign-based competition. In contrast, firms with less technology-related assets tend to diversify internationally. That is, firms with more technology-related assets cope with the foreign-based competition in their core business industries not by expanding international scope but by developing new business markets, which allows to exploit their existing redundant technologies. On the other hand, if firms don't have technology-related assets enough, they are likely to look for new foreign markets to sell their existing products. The less the technology-intensive assets, the more forceful the pressure to diversify internationally away from the threatened domestic market.

The second firm-specific moderating variable was marketing-related assets. In the subsample of firms with more marketing-related assets, both business and international diversifications were positively related to the foreign-based competition while in the subsample of less marketing-related assets the effects were not significant. This means that marketing-related assets are necessary conditions for diversification, whether business or international. In other words, if a firm has marketing-related assets enough, they can move against the intensifying foreign-based competition through both business diversification and international diversification. However, if a firm lacks the assets, both business diversification and international diversification are difficult to implement.

So far, we discussed the effects of the foreign-based competition on the two diversification strategies as a determinant. Then the discussion about the relationships between the strategies and firm performance should be followed.

In the regression analysis, the performance was shown to vary negatively with the squared degree of business diversification but

not to be related with the squared degree of international diversification. That is, the non-linear relationship was supported not between foreign-based competition and international diversification but between foreign-based competition and business diversification. It implies that business diversification improves the firm performance by a certain point but begins to damage the performance beyond that point. Moderate level of business diversification yields better performance as they can enjoy the economies of scope by leveraging the existing competencies. However, in firms with too high level of business diversification, the cost of operating and coordinating their business exceeds the benefits from the business diversification. This result seems to provide Korean manufacturing firms with important implication about the extent by which they implement business diversification and it was the level of 2.25 businesses in this research.

Unlike the effects of business diversification, international diversification was not shown to have non-linear, inverted U-shaped relationship with the firm performance. Rather, it can be said to have linear and negative effects on performance, as presented in 〈Figure 3〉. This negative effects can be interpreted with the difficulties in adapting to foreign markets and, furthermore, doing business in international scope. In other words, the high level of complexity and uncertainty stemming from expanded international scope overwhelms the opportunities for benefits from larger market basis. This result gives firms, which enter foreign markets to run away from the intensifying competitive domestic market, implication that international diversification doesn't always offer benefits.

6.2 Suggestions for future study

Despite the implication described above, there are still some limitations.

They are mainly involved with measurement. In measuring the degree of business diversification and international diversification, the unidimensional measurement such as the number of businesses in a firm and the ratio of foreign sales to total sales was employed because of the difficulties to gain data for multidimensional measurement. Even though the unidimensional measurement has been commonly used and yielded meaningful results, the multidimensional indices could have led to more exact results. Moreover, due to differences in the criterion to classify the industries, there may have been several errors in measuring the foreign-based competition by industries although those errors seem not to have distorted the results. Finally, there may be differences generating from different industries, but we did not control them.

In the light of the limitations, we can

suggest the guideline of future studies. That is, the better results can be expected with multidimensional indices for international diversification and business diversification and in consideration of the differences by industries. In addition, a modified research model can be suggested. For example, the intensity of foreign-based competition may influence the industrial attractiveness, and the attractiveness is likely to affect diversification strategy decision. The analysis on this path seems to be worth attempting.

We hope the model and methods presented in this paper can contribute to subsequent theoretical and empirical research on these issues.

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해외기반경쟁이 다각화전략에 미치는 효과와 기업성과

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요 약

본 연구는 해외기반경쟁이 기업의 사업다각화 및 국제다각화전략에 미치는 효과를 실증적으로 검증하고, 다각화전략의 결정요인과 그 성과를 통합하는 이론적 틀을 제공하는 것을 목적으로 진행되었다. 본 연구의 모형 설계는 구조-전략-성과의 패러다임에서 출발하고, 여기에 산업매력도, 기업의 기술 및 마케팅자원이라는 세 개의 조절변수가 추가되었다. 이러한 연구모형은 한국증권거래소에 상장된 제조기업을 표본으로 하여 경로분석과 회귀분석을 통해 검증되었다. 분석 결과는 다음과 같다.

첫째, 한국제조기업들은 해외기반경쟁에 대한 대응으로 국제다각화 수준을 증가시키는 것으로 나타났다. 둘째, 핵심사이 매력도가 높은 산업에 속할수록, 해외기반경쟁이 사업다각화와 국제다각화 수준에 미치는 효과가 커졌다. 또한 기술관련 자산이 많은 기업일수록 해외기반경쟁과 사업다각화는 정(+)의 관계를 가지는 반면, 마케팅관련 자산이 많은 기업에서는 해외기반경쟁이 사업다각화와 국제다각화전략 모두에 유의한 정(+)의 영향을 미쳤다. 마지막으로, 사업다각화 수준과 기업성과 간에는 비선형, 역U자 형의 관계가 발견되었다.

주제어: 해외기반경쟁, 다각화, 성과

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