

The Impacts of International Diversification, Product Diversification, and Organizational Learning Capability on Firm Value: Evidence from Korean Firms

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Abstract: This study investigated the relationship between international diversification, product diversification, and organizational learning capability and the value of firm, focusing on experiences of Korean firms in the aftermath of the Asian financial crisis of 1997. Applying the resource-based view in conjunction with the organizational learning view, it found that, unlike the findings of non-Korean firms, international diversification of the Korean firms affected their firm values adversely. It also found that the values of Korean firms were affected negatively up to a certain level of product diversification but positively beyond that level, contradicting the often-made criticism that excessive product diversification of Korean firms was partly responsible for the financial crisis. Finally, the organizational learning capability of firm was found to contribute positively to the value of firm.

Keywords: Firm performance; Resource-based view; Knowledge sharing; Asian financial crisis

JEL Classifications: F23, F69, M16

1. Introduction

Numerous studies have been undertaken to identify the nature and role of major factors affecting firm value by management scholars from their respective disciplinary perspectives. This study investigates potential impacts of a firm's international diversification, product diversification, and organizational learning capability on the firm's value, focusing on experiences of Korean firms. This issue has gained particular attention in Korea in the aftermath of the Asian financial crisis of 1997-1998. Critics argue that the pursuit of growth through 'reckless' product diversification strategies and 'ill-conceived' international expansion strategies of Korean firms, particularly *Chaebol* firms, were partly responsible for a series of corporate financial distress which ultimately led to the financial crisis (Clifford, 1997; Henderson, 1998).

The strategies of 'product diversification' and 'market expansion' had been (perhaps, still are) most favored strategic options of many Korean firms which had blindly followed the mantra of "size matters most" and "big is always better". However, the corporate financial distress of these Korean firms before and after the financial crisis have raised serious doubts about potential economic benefits of their product diversification and international market diversification strategies. Furthermore, it has been widely pointed out that Korean firms are slow in developing the ability to create and share knowledge organization-wide, which is as or more critical as/than the possession of traditional production factors for survival and growth in the knowledge-based economy (Lee, 2001).

Though potential impacts of a firm's product diversification and international market diversification on the firm performance have been extensively researched (e.g., Capar and Kotabe, 2003; Contractor, Kundu, and Hsu, 2003; Geringer, Tallman and Olsen, 2000; Lu and Beamish, 2004), rarely have these been investigated in conjunction with the firm's organizational learning capability. The ability to share knowledge and information gained through product and market diversifications organization-wide will clearly affect the firm performance (Kogut and Zander, 1992; Lyles and Barden, 2001). Integrating insights from the diversification and the organizational learning literatures in the tradition of resource-based view of the firm, this study investigates potential individual and interactive effects of international market diversification, product diversification, and organizational learning capability on firm value.

This study is organized as follows. The following section reviews relevant literatures on the relationships between international diversification, product diversification, and organizational learning capability and firm value, and presents hypotheses to be tested. Data, methodology, and variables are presented in the next section. Finally, concluding remarks follow the presentation and discussion of empirical results.

2. Theoretical Background and Hypotheses

The resource-based view of the firm emphasizes the importance of a firm's resources and capabilities as the primary source of its competitive advantages (Barney, 1991; Grant, 1991). It posits that performance differences across firms can be attributed to the variance in the firm's resources and capabilities. Resources that are valuable, idiosyncratic, and difficult-to-imitate provide the basis for the firm's competitive advantages. Such resources and capabilities are the foundation of the firm's core competences. By internalizing the exploitation of such resources and capabilities in international markets, firms can reap benefits associated with economies of scale and scope, learning, and sharing of core competences among different geographic markets (Bartlett and Ghoshal, 1987; Kogut and Zander, 1992). Such benefits would become more pronounced and much greater when the internalized resources and capabilities are intangibles, such as superior manufacturing know-how, patents, marketing expertise, trademarks, and management skills, due to the inherent imperfections in external markets for intangibles (Buckley and Casson, 1976; Caves, 1982; Williamson, 1975). Given the 'public goods' nature of such intangibles, the higher the level of international involvement, the higher will be the level of exploitation of such resources and consequently, the level of firm performance (Itami and Roehl, 1987).

However, international diversification involves costs and risks, the so-called 'liability of foreignness' (Agarwal and Ramaswami, 1992; Zaheer, 1995). An internationalizing firm faces costs associated with logistics, trade barriers, cultural diversity, and lack of market familiarity, etc. in foreign markets. Such costs would increase as the level of international diversification increases. The higher level of diversification increases the governance cost of operations, the transfer cost of core competences due to cultural distance, and the cost of information collection and processing (Hitt, Hoskisson, and Ireland, 1994; Kogut, 1985). All of these might increase the overall costs of foreign operations and affect the firm performance adversely as the level of diversification grows.

The net impacts of international diversification on firm performance has been widely studied in the literature. Two alternative views are suggested on the relationship between international diversification and firm performance: *linear* (Daniels and Bracker, 1989; Grant, 1987; Kumar, 1984; Siddhartan and Lall, 1982) and *non-linear* (Hitt, Hoskisson, and Kim, 1997; Tallman and Li, 1996). The *linear* view has found empirically a positive relationship (Daniels and Bracker, 1989; Grant, 1987), a negative relationship (Siddhartan

and Lall, 1982), or no relationship (Kumar, 1984). The *non-linear* view has found an inverse U-shaped relationship where performance increases up to a certain point, and then decreases.

Following the *non-linear* view, we expect that the benefits of international diversification would be greater than the costs of international diversification up to a certain level of diversification, but the costs would outweigh the benefits beyond the certain level.

Hypothesis 1: The value of firm would increase up to a certain level of international diversification, but decrease beyond that level.

Firms can also utilize the valuable, idiosyncratic, difficult-to-imitate resources and capabilities which are internal to them across a variety of product lines. According to the resource-based view, the relationship between product diversification and firm performance depends on the type of diversification and the degree of diversity (Geringer, Tallman, and Olsen, 2000). Leveraging such resources and capabilities across related product lines will generate superior performance due to the benefits of economies of scale and scope in the use of the resources and capabilities (Peteraf, 1993; Teece, Pisano, and Shuen, 1997). However, unrelated product diversification would not contribute to performance since it would not be able to generate such benefits. Meanwhile, the transaction cost view argues that diversification beyond a certain degree would affect firm performance adversely due to increased governance costs (Jensen and Meckling, 1976; Jones and Hill, 1988). In the case of related diversification, the costs could rise more rapidly than the benefits as the number of internal transactions increases with product diversity (Tallman and Li, 1996). In the case of unrelated diversification, the costs would rise rapidly with product diversity without generating the benefits of economies of scale and scope, thus reducing efficiency.

Hypothesis 2: The value of firm would increase up to a certain level of product diversification, but decrease beyond that level.

A firm's learning capability is an important source of resources which provide the basis for its competitive advantages (Barney, 1991; Kogut and Zander, 1992; Nonaka and Takeuchi, 1995). Further, a firm's capability to "leverage learning on a worldwide basis" is a critical strategic requirement for survival and success in global markets (Bartlett and Ghoshal, 1987; Ruigrok and Wagner, 2003). By leveraging knowledge across different markets, the firm can capitalize on differing market endowments and market imperfections. The organizational learning involves successful learning from outside the firm network (extra-network learning) and timely and efficient diffusion of the learning among members of the network (intra-network learning). It allows managers to exploit most creative resources and innovative ideas from all units of the organization, thus contributing to overall performance of the firm. Ability to learn and to diffuse the learning among members of the network provides a key source of competitive advantages to the firm.

Despite the importance of timely and efficient intra-network knowledge sharing, knowledge is often held locally at individual units in many firms. This would prevent members of the network from learning from each other and applying the learning to renew their capabilities. Knowledge, information, and ideas can make maximum contributions to the firm performance when they are shared globally throughout the firm's network rather than held locally within individual units.

Hypothesis 3: The value of firm would be positively related to the firm's organizational learning capability.

As discussed before, both the international diversification and the product diversification strategies emphasize benefits of economies of scale and scope in the use of strategic resources. Further, organizational structures and capabilities developed for the product diversification strategy could also support the international diversification strategy. These suggest potential mutually-

reinforcing effects of both strategies in enhancing firm performance. Accordingly, a highly internationally diversified firm tends to be highly product-diversified too (Hitt, Hoskisson, and Kim, 1997). The combination of international diversification and product diversification could lead to greater and more stable revenues for the firm. The firm could take full advantage of any price and cost discrepancies among its various product and factor markets internationally and across product lines, reaping benefits of diversification and arbitrage among markets and products (Kogut, 1985). In addition, the combined diversifications could prevent potentially negative impacts on firm value of excessive international or product diversification by allowing the transfer of some of the 'excess' organizational structures and capabilities created by one type of diversification to the other (Hitt, Hoskisson, and Kim, 1997; Kim, Hwang, and Burgers, 1989).

In a sum, the combined diversification strategies would enable the firm to capture potential benefits associated with economies of scale and scope as well as potential benefits of arbitrage among diverse product and factor markets internationally, and to offer highly differentiated products at lower prices.

Hypothesis 4: The value of firm would be positively related to the interactive effect between the firm's international diversification and product diversification.

Continuous exposure to diverse operational and market environments presents a firm with valuable learning opportunities in global markets. Ability to learn from such opportunities, transform the resultant learning into deployable competitive firm-specific advantages, and leverage the advantages on a worldwide basis throughout the entire corporate network rests critically on the firm's learning capability (Nonaka and Takeuchi, 1995). The organizational learning capability would confer the firm with dynamic competitive advantages which can be exploited flexibly under diverse circumstances. It would become particularly critical to the firm's survival and growth in global markets which are frequently unpredictable and turbulent. Therefore, a firm with higher level of learning capability is better positioned to learn and benefit from the diverse internal and external environments and stimuli caused by international diversification, and is likely to perform better in global markets.

Hypothesis 5: The value of firm would be positively related to the interactive effect between the firm's learning capability and international diversification.

Product diversification requires that a firm should be able to utilize its valuable, idiosyncratic, difficult-to-imitate resources across diverse product lines. Since a different product line needs a different set of unique knowledge base and governance system (Lane and Lubatkin, 1998), a key to the success of product diversification depends on how effectively the firm can create a new set of knowledge base and governance system for each product line in order to fully utilize its core competences. Obviously, the firm's learning capability would play an important role in creating such knowledge base and governance system. However, it is known that a firm's learning capability can be better harnessed when focal organizational units share a same or similar knowledge base and governance system (Lane and Lubatkin, 1998). Further, Simonin (1999) found that product and process similarities among organizational units within a firm determined the type and scope of learning among them. The effectiveness of a firm's learning capability would be influenced by the degree of similarity of knowledge base and governance system among organizational units (Bowman and Helfat, 2001; Chang and Singh, 2000).

At a firm, the set of knowledge base and governance system is embedded in routines and practices of the organizational unit managing the product line. It will take time and resources to transform the existing routines and practices into new ones which incorporate new knowledge learned from outside. The task could be particularly difficult and resource-demanding if the new knowledge is conflictive with the existing routines and practices. In addition, diverse product lines

could impede effective communications among organizational units and diminish potential opportunities for intra-firm learning among the units. Therefore, a firm's organizational learning capability may not contribute positively, or even contribute negatively, to the firm's performance if the firm is highly diversified product-wise.

Hypothesis 6: The value of firm could be negatively related to the interactive effect between the firm's organizational learning capability and product diversification.

3. Data and Empirical Results

3.1 Data and sample

Data for the study were collected from *Present Status of Foreign Subsidiaries of Korean Firms, 2001* (Ministry of Finance and Economy, Republic of Korea, 2001), *Directory of Korean Companies, 2001* (Maeil Economic Press, 2001), and via a questionnaire survey. A total of 105 publicly-listed firms with manufacturing foreign direct investments were identified from the *Present Status of Foreign Subsidiaries of Korean Firms, 2001*. Data on sales, assets, debts, R&D expenses, advertising expenses, and foreign subsidiaries of these firms were compiled from the *Directory of Korean Companies, 2001*, and data on other items were obtained via the questionnaire survey. The questionnaire was developed following the procedures suggested by Cullen, Johnson, and Sakano (1995). First, the academic and trade literatures were reviewed to identify and assemble relevant factors affecting firm value and their measures. New measures were developed in cases for which no generally accepted measures were available. Second, two international business professors reviewed a preliminary version of the questionnaire. It was revised on the basis of their comments for additional clarity and coverage.

The focal 105 firms were contacted via telephone calls to explain the purpose of the study and solicit their cooperation for the study. The questionnaire was sent to presidents of 95 firms which expressed their willingness to participate in the study. In case they were unable to answer the questionnaire themselves, they were requested to transmit it to top managers in charge of international business. Respondents were asked to answer all items in the questionnaire and were assured of the confidentiality of their responses. Two weeks after the questionnaire was first mailed, reminder postcards were sent to all firms that had not yet responded. Another two weeks later after the first reminders, second reminder postcards were sent to all firms that still had not responded. After the two reminders, seventy three (73) completed responses were received. Of these, fifteen were excluded for the reason of non-manufacturing foreign direct investment, leaving fifty eight (58) valid responses out of the population of 105 firms (55% response rate) for analysis. These 58 sample firms had a total of 214 manufacturing subsidiaries around the world. Non-response bias was investigated with the widely used method suggested by Armstrong and Overton (1977), comparing four measures (sales, assets, international diversification ratio, and product diversification ratio) between early and later respondents (i.e., those which responded after receiving the first reminders). The results of a series of *t* tests for each of the four measures showed no statistically significant differences between them.

The sample focused on only publicly-listed firms to obtain their stock price information in order to calculate Tobin's *q* values. The study covered a three year period from 1998 to 2000 to maintain the consistency and continuity of data. In the wake of the financial crisis of 1997 in Korea, numerous listed firms were either exited or delisted due to mergers, bankruptcies, or receiverships (Major characteristics of the sample firms can be obtained from the author).

3.2 Dependent variable

Firm value was estimated by Tobin's q value (TOBN). Tobin's q value relates the current market value of the firm to the replacement cost of the firm's existing assets (Tobin and Brainard, 1977). It has been widely used in the literature as a measure of firm value. We used book values to estimate the market value of debts and the replacement cost of assets as in previous studies (Errunza and Senbet, 1981; Kim and Lyn, 1990). A firm's Tobin's q value was calculated as [(market value of stocks + book value of total debts)/ book value of total assets]. TOBN was the average of a firm's Tobin's q values of three years (1998, 1999 and 2000) (Kim and Lyn, 1990).

3.3 Independent variables

A firm's international diversification index (INTL), product diversification index (PDVF), organizational learning capability (LRNG), and interactive effects between international diversification and product diversification (INTL \times PDVF), international diversification and organizational learning capability (INTL \times LRNG), and product diversification and organizational learning capability (PDVF \times LRNG) were used as independent variables. INTL was a variable measuring the degree of a firm's international diversification. INTL was estimated by an indicator measuring a firm's *foreign sales as a percentage of total sales*, averaged over the three year period (1998-2000).¹

PDVF measured the degree of a firm's product diversification. It was estimated by a Herfindahl index of product diversification. The Herfindahl index has been widely used in the literature as a measure of the degree of a firm's product diversification along with such measures as the count of SIC codes and the entropy index. Hoskisson, Hitt, Johnson, and Moesel (1993) found it to be similar to Rumelt's (1974) qualitative categorization of product diversity. PDVF was calculated as $1 - \sum p_i^2$, where p_i was the share of product i 's sales in a firm's total sales over the three year period (1998-2000).

LRNG measured the degree of learning in various aspects of a firm's value chain. Following Porter (1985), nine distinct activities were identified as representing various aspects of a firm's value chain: 1) procurement of raw materials, parts and components, 2) manufacturing, 3) process design and improvements, 4) product design and improvements, 5) marketing, 6) sales, 7) finance, 8) accounting and legal, and 9) human resource management. Respondents were asked to rate the degree of learning in each of these nine value activities on a seven-point scale ranging from "1" (not at all) to "7" (very much) over the three year period (1998-2000). LRNG was a composite index representing the average of nine scores. The use of single composite index reduced the number of independent variables and allowed to avoid potential multi-collinearity problems. Cronbach's α coefficient (0.85) suggested sufficient internal consistency of the measures.

3.4 Control variables

We included other key variables which were found to be influencing the firm value in the literature as control variables: R&D intensity, advertising intensity, size, expected future growth opportunities, and leverage ratio (Kim and Lyn, 1990; Morck and Yeung, 1991). R&D intensity (RAND) and advertising intensity (ADVT) were rated by a respondent on a five-point scale ranging

¹ We experimented with a composite index combining "foreign sales as a percentage of total sales" and "number of regions where a firm had presence of foreign manufacturing subsidiary among the seven regions of the world" as a proxy for INTL, and obtained statistically similar results. However, we use this indicator as the proxy for INTL, rather than the composite index, due to a potential conceptual bias associated with the scope metric (which basically assumes all host countries/regions are of equal size and importance) in measuring the degree of international diversification.

from “1” (much lower) to “5” (much higher) in comparison with its major competitors over the three year period (1998-2000). Size (SIZE) was measured as the log value of the average of total assets over the same three year period. Expected future growth opportunities (GROW) was estimated by the firm’s sales growth rate over the same three year period. Finally, leverage ratio (LVRG) was estimated as the average of (total debts)/(total assets) over the same three year period.

3.5 Model

Based on the above discussion, we employed a following regression equation to test the hypotheses:

$$\text{TOBN} = a_0 + a_1 \text{RAND} + a_2 \text{ADVT} + a_3 \text{SIZE} + a_4 \text{GROW} + a_5 \text{LVRG} + a_6 \text{INTL} + a_7 \text{INTL}^2 + a_8 \text{PDVF} + a_9 \text{PDVF}^2 + a_{10} \text{LRNG} + a_{11} \text{INTL} \times \text{PDVF} + a_{12} \text{INTL} \times \text{LRNG} + a_{13} \text{PDVF} \times \text{LRNG} + u,$$

where *u* represents residual TOBN related to other factors.

3.6 Analysis and results

A correlation analysis was performed to assess the degree of multi-collinearity present in the sample data. The results are provided in Table 1. We found high levels of correlation between variables in square or interactive forms and their components, as generally expected (Greinger, Tallman, and Olsen, 2000): between INTL and INTL², PDVF and PDVF², INTL and INTL×PDVF, INTL and INTL×LRNG, LRNG and INTL×LRNG, PDVF and PDVF×LRNG, INTL² and INTL×PDVF, INTL×PDVF and INTL×LRNG, and PDVF² and PDVF×LRNG. Other than these variables, no serious multi-collinearity problem was observed.

To deal with possible multi-collinearity problems, we took a hierarchical approach in our regression analysis (Table 2) in which we first included the control variables (Model 1), then added the focal independent variables (including those with the square form) (Model 2), and finally added the interactive variables (Model 3). While multicollinearity would render coefficients less precise, they are still the best unbiased estimators in a regression model involving square and interactive variables (Gimeno, 1999).

Table 1. Correlation tests on variables

	TOBN	RAND	ADVT	SIZE	GROW	LVRG	INTL	INTL ²	PDVF	PDVF ²	LRNG	INTL×PDVF	INTL×LRNG	PDVF×LRNG
TOBN	1.000													
RAND	.124	1.000												
ADVT	-.131	.381**	1.000											
SIZE	-.174	.099	.358**	1.000										
GROW	.311*	.138	-.023	-.252*	1.000									
LVRG	-.099	.001	.147	.221	.041	1.000								
INTL	-.158	-.079	-.181	.070	-.117	.184	1.000							
INTL ²	-.092	-.097	-.212	.033	-.149	.128	.961**	1.000						
PDVF	-.283*	-.096	.062	.098	-.200	-.070	-.197	-.194	1.000					
PDVF ²	-.245	-.108	.057	.108	-.208	-.074	-.216	-.211	.974*	1.000				
LRNG	.187	.111	-.075	.240*	.007	-.019	.127	.127	.003	.024	1.000			
INTL×PDVF	-.203	-.087	-.177	.206	-.102	.125	.775**	.737**	.368**	.338*	.251*	1.000		
INTL×LRNG	-.079	.022	-.131	.179	-.029	.096	.772**	.768**	-.057	-.092	.607**	.731**	1.000	
PDVF×LRNG	-.163	-.012	-.061	.207	-.124	-.039	.043	.043	.722**	.702**	.629**	.432**	.414**	1.000

Notes: Sample size N=58 firms; In this table, * and ** indicate statistical significance of p<0.05 and p<0.01, respectively.

In Table 2, three models were estimated using OLS regression analysis to identify the hypothesized relationships. Model 1 reports results with the control variables only. Only GROW was significant with a positive sign at the 5% level. Model 1 explained 9.1% of the variance of the dependent variable ($p < 0.10$). In Model 2, we added INTL, INTL², PDVF, PDVF² and LRNG. INTL and INTL² were not statistically significant.

Table 2. Regression results

Variables	Model 1	Model 2	Model 3
RAND	.188	-.029	-.020
ADVT	-.170	-.094	-.014
SIZE	-.108	-.038	-.012
GROW	.322**	.189**	.157**
LVRG	-.051	-.043	-.112
INTL		-.568	-1.102**
INTL ²		.326	.394
PDVF		-1.822***	-1.749***
PDVF ²		1.442**	1.838***
LRNG		.314**	1.582***
INTL×PDVF			1.209***
INTL×LRNG			-.609
PDVF×LRNG			-1.463***
<i>F</i>	2.160*	2.842***	7.032***
Adjusted <i>R</i> ²	.091	.269	.607

Notes: Sample size N=58 firms; In this table, *, **, and *** indicate statistical significance of $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

Hypothesis 1, which predicted that the value of firm would increase up to a certain level of international diversification but decrease beyond that level, was not supported. PDVF was significant with a negative sign at the 0.01 level and PDVF² was significant with a positive sign at the 0.05 level. The results rejected Hypothesis 2, where we predicted that the value of firm would increase up to a certain level of product diversification due to the benefits of economies of scale and scope in the use of resources and capabilities, but decrease beyond that level due to increased governance costs. The coefficient of LRNG was found to be significant with a positive sign at the 0.05 level, supporting Hypothesis 3. The value of firm was positively related to the level of a firm's organizational learning capability. GROW was still significant ($p < .05$).

Model 2 explained 26.9 % of the variance of the dependent variable ($p < .01$), three times more explanatory power than Model 1 with the control variables only. In Model 3, we added three interactive variables (INTL×PDVF, INTL×LRNG, and PDVF×LRNG). INTL×PDVF was significant with a positive sign ($p < .01$), supporting Hypothesis 4 where we predicted that the value of firm would be positively related to the interactive effect between the firm's international diversification and product diversification. However, INTL×LRNG was not significant. Hypothesis 5 was not supported. PDVF×LRNG was significant with a negative sign ($p < .01$), supporting Hypothesis 6. The value of firm was negatively related to the interactive effect between the firm's product diversification and organizational learning capability. INTL was significant with a negative sign ($p < .05$). Overall, Model 3 explained 60.7% of the variance of the dependent variable ($p < .01$), more than twice over Model 2.

4. Concluding Remarks

4.1 Summary and conclusion

The study investigated the relationship between international diversification, product diversification, and organizational learning capability and the value of firm, focusing on experiences of Korean firms, in the wake of the financial crisis of 1997. Unlike the findings of previous studies of non-Korean firms (e.g., Caves, 1982; Kim, Hwang, and Burgers, 1993; Kogut, 1985), this study found that in general international diversification of the sample Korean firms affected their firm values adversely.

Inherently, international diversification is risky and costly due to the liability of foreignness the investing firm encounters in foreign markets. To overcome the liability of foreignness and thrive in foreign markets, the investing firm should possess unique firm-specific competences which its competitors in the foreign markets either do not have or cannot develop easily. However, it seems that the Korean firms might not have possessed such competences sufficiently as evidenced by the finding of insignificant role of RAND (R&D intensity) and ADVT (advertising intensity) in enhancing their firm values. This suggests that a firm's value would be adversely affected if the firm diversifies internationally without sufficient firm-specific competences to counterbalance the liabilities of foreignness. Alternatively, as Rugman and Verbeke (2004) reasoned, the "market share success" (i.e., international diversification) of Korean firms, especially in 'non-home' regions, might have been "at the expense of profit performance".

The literature shows the uncertain, complex, and mixed nature of the relationship between the firm value and the level of product diversification (Rumelt, 1974; Jones and Hill, 1988). We found that, contrary to the hypothesized inverted *U* shaped relationship, the values of Korean firms were affected negatively up to a certain level of product diversification but positively beyond that level. This contradicts the often-made criticism that 'excessive' product diversification of Korean firms was partly responsible for the financial crisis of 1997 in Korea. This study finds that the level of product diversification of the sample Korean firms was not necessarily 'excessive' and actually enhanced their firm values. The interactive effect between international diversification and product diversification (INTL×PDVF) was found to affect the firm value positively as hypothesized. The dual diversification strategies of Korean firms enabled them to capture benefits of economies of scale and scope as well as benefits of arbitrage among diverse product and factor markets, and to utilize their organizational structures and capabilities synergistically between both types of diversification.

Finally, the organizational learning capability of firm (LRNG) was found to contribute positively to the value of firm as predicted. However, we found the interactive effect between international diversification and organizational learning capability (INTL×LRNG) was not significant, but the interactive effect between product diversification and organizational learning capability (PDVF×LRNG) was significant with a negative sign as predicted. The insignificance of INTL×LRNG showed the difficulties of leveraging learned knowledge across diverse organizational units on a worldwide basis.

Without the ability to manage cultural, administrative, geographic, and economic distances among the various units effectively (Ghemawat, 2007), efficient intra-firm learning and knowledge transfer would be extremely difficult at internationally diversified firms. The study also showed that the dissimilarity of knowledge base and governance system among organizational units associated with higher level of product diversification limited the effectiveness of organizational learning at the Korean firms, and consequently affected their firm values negatively. This confirms the importance of similarity of knowledge base among organizational units in intra-firm learning and knowledge transfer (Lane and Lubatkin, 1998; Simonin, 1999).

4.2 Limitations and further research

The findings must be interpreted within the limitations of this study. First, the study focused only on publicly-listed Korean firms with manufacturing foreign direct investments, and thus the findings may not be representative of non-Korean firms with manufacturing foreign direct investments. However, this study broadened our general understanding of the studied relationship by uncovering new information on unique experiences of Korean firms which were not researched in the literature. Second, the multi-collinearity between some independent variables may have affected the significance of some variables. Thus, the results of this study need to be interpreted with caution.

At the end, this study did not separate firms with related product diversification from firms with unrelated product diversification due to insufficient sample variations. However, previous studies have alluded that impacts of related product diversification on the firm value could be different from those of unrelated product diversification (Rumelt, 1974; Tallman and Li, 1996). Investigation into its respective impacts separately could provide more fine-tuned insights about the relationship.

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