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INTERNATIONAL DIVERSIFICATION, KNOWLEDGE CAPABILITIES, CORPORATE PERFORMANCE, AND THE PARADOX OF RESOURCE MOBILITY

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Abstract

This study examines the link between international diversification, organizational knowledge capabilities and corporate performance. The success or failure of international corporate diversification depends to a large extent on the capability of parent firms to transfer knowledge to subsidiaries, and for those local subsidiaries to effectively utilize that knowledge. However, according to the resource-based view of the firm, knowledge capabilities are likely to be rare, valuable and resistant to imitation and substitution. Thus, parent firms may find it difficult to transfer knowledge to subsidiaries, leading to a paradox. This paper explores the effect of four knowledge capabilities on the performance of diversified firms. Data were analyzed on 5,000 Japanese subsidiaries over a period of 12 years. The results suggest that knowledge that is valuable, but not rare, positively affects subsidiary performance in the short-term, but not the long-term. By contrast, knowledge that is valuable and rare affects subsidiary performance in the long-term, but not the short-term. Implications of these findings are explored and discussed.

Keywords: Resource-based view, knowledge transfer, international diversification, subsidiary performance, Japanese overseas investment, intangible assets

Introduction

A key issue faced by today's multinational enterprises (MNEs) is the extent to which international corporate diversification affects sustainable competitive advantage. Some foreign subsidiaries have been successful in the short-term, but have floundered over longer periods. Other subsidiaries have sustained losses over successive periods before eventually turning a profit. While parent firms seek to diversify internationally for many reasons including lower labour costs, proximity to a customer base, or enhanced access to primary resources, the success or failure of the venture is likely to be linked to the ability of the parent firm to transfer its knowledge capabilities to the subsidiary.

Information systems research has long been interested in the process of knowledge transfer, although the majority of this work has focused on the transfer of knowledge between individuals, rather than between firms (Agarwal and Henderson 2002; Simonin 1999; Tsai 2001). This paper examines the effectiveness of the knowledge transfer process between diversification partners for different types of knowledge over a 12-year period of time. By examining knowledge transfer in the context of international diversification, this research provides a contribution to both research and practice.

Most diversification research has been focused on large MNEs in North America and Western Europe (Chandler 1990; Grant and Jammine 1988; Markides and Williamson 1996; Peteraf 1993). Relatively little research has been conducted on corporate diversification outside these two regions, resulting in a knowledge gap in the rest of the world (Guillen 2000; Khanna and Palepu 1997). This study examines diversification and performance from the perspective of Japan, one of the leading source nations of

foreign direct investment (FDI) outflows (Beamish and Inkpen 1998). For instance, Japan is the second largest foreign investor in the United States after the United Kingdom, Japanese firms hold the largest stock of FDI in Asia, and they have a leading FDI position in many European countries (Beamish and Inkpen 1998).

Literature Review

Corporate Diversification and the Paradox of Resource Mobility

Stopford and Wells' (1972) pioneering study on the management of MNEs identified corporate diversification as one of the most critical determinants of MNE performance over time. MNEs pursue diversification strategies for a number of reasons. Modern portfolio theory states that corporate diversification can act as a risk management mechanism (Hissey and Caves 1985; Rugman 1979) by establishing a buffer of control around the firm against business downturns, especially in intense and highly competitive industries (Sahlman and Stevenson 1985; Wade and Gravill 2003). Diversification may also be used as a means of escaping unattractive markets (Christensen and Montgomery 1981; Rumelt 1974) by expanding into new business lines (Stimpert and Duhaime 1997). Transaction cost theory argues that in certain circumstances hierarchical structures are more economical to operate than market structures due to the minimization of transactions costs (Coase 1937; Williamson 1981). Firms within a hierarchy (i.e., entities within a diversified firm) can avoid search, coordination, and other costs that may be incurred by non-diversified firms in a market setting. Thus, the diversified firm can operate in a more efficient manner. Although corporate diversification has been widely applied in many MNEs, the empirical evidence to support the relationship between diversification and performance is still mixed (Grant and Jammine 1988).

A shortcoming with modern portfolio theory and transaction cost theory is that they tend to overlook the influence of firm-specific factors—in this respect they are firm agnostic. These theories do not explicitly consider the reason that many firms choose to diversify—to extend their existing capabilities to new markets. Another theoretical justification for diversification, the resource-based view of the firm (RBV), centers on the unique and valuable assets and capabilities within a diversified organization. RBV theory argues that diversification can make core organizational resources more easily transferable among parts of a business. As such, resource flows are allowed to move in a manageable and predictable manner within the firm (Baum and Oliver 1991; Ohmae 1989). Using resource-based arguments, Rumelt (1974) and (Berry 1975) found that related diversification, where a parent and subsidiary operate in similar businesses, was associated with higher profitability than unrelated diversification. Wade and Gravill (2003) found that subsidiaries that operated in related industries to the parent outperformed unrelated subsidiaries in an international setting.

Careful scrutiny of the resource-based view, however, uncovers a paradox with respect to diversification. In order for a resource to lead a firm to a position of competitive advantage, it must be both rare and valuable. If this advantage is to be sustained over time, that rare and valuable resource must resist transfer, substitution, and imitation (Wade and Hulland 2004). However, successful long-term diversification relies on the transfer of valuable and rare resources between parent and subsidiary. If this resource transfer were not to occur, then parent and subsidiary would be nothing more than two standalone entities—the whole would not be more than the sum of its parts. Therefore, the paradox is that the resources that provide the most benefit to a diversified firm are those which are most difficult to transfer between diversification partners. Managers may assume that knowledge can be transferred with relative ease between parts of a diversified firm, but this may not be the case. In fact, diversified firms may fail to transfer these resources leading to lower than expected subsidiary performance, at least in the short term. We call this the *paradox of resource mobility*.

Knowledge Capabilities

In his work on the nature of multinational firms, Dunning (1988; 1993) recognized knowledge as a critical organizational resource. The resource-based view suggests that firms may be considered distributed knowledge systems (Tsoukas 1996). However, knowledge is affected by the paradox of resource mobility noted above. Knowledge is normally valuable and often rare. Proprietary knowledge is rare by definition and may be highly valued. As a consequence, knowledge is often a source of competitive advantage. Knowledge also resists imitation and substitution, and due to its inherent tacit form, it is also hard to transfer. Thus, the capability of identifying and applying organizational knowledge within a firm may be a principle source of achieving *and* sustaining competitive advantage (Grant 1991). So, for a firm to take full advantage of diversification, it must somehow transfer its rare and valuable knowledge between parent and subsidiary without making that knowledge simultaneously available to competitors.

Empirical evidence suggests that some MNEs have successfully applied productive resources, particularly core intangible resources, into new businesses (Chatterjee and Wernerfelt 1991; Montgomery and Hariharan 1991). These intangible resources, such as marketing skills, technological capabilities (Chatterjee and Wernerfelt 1991), internationalization experience (Lu and Beamish 2001), and host country experience (Makino and Delios 1996) have been transferred between parents and subsidiaries. Research has also shown that superior performance in related diversified firms is associated with the development and exploitation of core skills (Bettis 1981), and that related businesses tend to outperform unrelated businesses (Wade and Gravill 2003). Therefore, there is evidence to suggest that some forms of organizational knowledge are transferred within diversified firms.

Yet, this evidence is not consistent, nor is it conclusive. In addition, the extant research on knowledge capabilities and corporate diversification has not extensively explored the differential effect of distinct types of knowledge. Knowledge can exist in many forms. The resource-based view specifies a set of resource attributes that reflect a resource's ability to create and sustain a competitive advantage (Barney 1991). Some forms of knowledge are more rare or more valuable than others. Knowledge capabilities also vary in the extent that they can be transferred, imitated, or substituted. Knowledge that rates highly on these factors should, according to the resource-based view, confer a large effect on sustainable competitive advantage. Drawing on the paradox noted earlier, these knowledge resources should also be the most difficult to move from a parent firm to a subsidiary.

Hypotheses

This paper considers the effect of four parent-firm knowledge capabilities on subsidiary performance. Drawing on the RBV, these knowledge capabilities vary in the extent to which they contain the resource attributes—value, rarity, imitability and substitutability—necessary to create and sustain a competitive advantage (see Table 1).

The first two of these capabilities—internationalization experience and local host country experience—are built by firms in order to facilitate the process of geographical diversification—diversifying across national or regional boundaries. *Internationalization experience* is a function of the extent to which a firm has operated in international markets previously. Firms that have extensive international experience accumulate general knowledge about the process of operating in international environments. This knowledge flows down from the parent to the subsidiary. Generally speaking, internationalization experience is valuable but not rare; it is possessed by many MNEs. It may also be highly substitutable. Firms may gain internationalization experience through a variety of equifinal paths. Subsidiaries could use this knowledge capability to create a competitive advantage, but it may be of limited use in sustaining that advantage. Drawing on resource-based logic, the power of internationalization experience to confer competitive advantage may be high initially, but would not be sustained over time. Thus,

H1a: Subsidiaries' initial short-term performance will be positively associated with their parents' internationalization experience. But,

H1b: Subsidiaries' long-term performance will not be associated with their parents' internationalization experience.

Table 1. The Resource Attributes of Four Parent-Firm Knowledge Capabilities

Resource Attribute	Internationalization Experience	Host Country Experience	Technological Knowledge	Marketing Knowledge
Value	H	H	H	H
Rarity	L	L	H	M
Imitability	H	M	L	L
Substitutability	H	H	L	M
Short term advantage	Yes	Yes	No	No
Long term advantage	No	No	Yes	Yes

H = high; M = medium, L = low

Despite the possession of international knowledge and experience (Dunning 1988, 1993), foreign firms in host country environments frequently face location-based disadvantages (Hymer 1976; Makino and Delios 1996). These disadvantages are derived from a lack of local knowledge of social, political, and economic conditions in the host country (Beamish 1988), as well as information on how to access the local labor force, distribution channels, raw materials and other factors required for the conduct of business in the host country (Makino and Delios 1996). *Local host country experience* is the extent to which the firm has operated in the local country environment. Existing research has found that MNEs resolve local knowledge disadvantages by accumulating local experience (Johanson and Vahlne 1977; Li 1994), hiring local staff (Beamish and Inkpen 1998; Delios and Bjorkman 2000), and increasing local ownership (Makino and Delios 1996). As local knowledge accumulates, MNEs tend to increase their subsidiary-based resource commitments (Erramilli 1991; Erramilli and Rao 1990; Johanson and Vahlne 1977; Li 1994). Makino and Delios (1996) found that due to the inter-firm knowledge transfer from local partners to the foreign firm, joint ventures with local partners attain superior performance compared to joint ventures without local partners. Local host country experience is valuable to an MNE, but like internationalization experience, it is unlikely to be rare in the marketplace. There are a number of ways that firms can gain this knowledge, and it can be imitated with relative ease. Thus, according to resource-based logic, subsidiaries may benefit from the knowledge initially, but would likely not be able to achieve sustainable performance based on those benefits. Thus,

H2a: Subsidiaries' initial short-term performance will be positively associated with their parents' host-country experience. But,

H2b: Subsidiaries' long-term performance will not be associated with their parents' host-country experience.

The third and fourth knowledge capabilities—technological knowledge and marketing knowledge—are built by firms in order to facilitate the process of product diversification—diversifying across product lines. *Technological knowledge* is a function of the proprietary technological knowledge within a firm. For example, technical patents or research and development knowledge would be part of technological knowledge. This knowledge capability is likely to be both valuable and rare. Because it is proprietary, there may be fewer knowledge substitutes. Therefore, technological knowledge may become the source of a sustainable competitive advantage for firms. However, following the paradox of resource mobility, parent firms will encounter difficulty attempting to transfer technological knowledge to subsidiaries. In addition to the fact that technological knowledge is rare and imperfectly mobile, this difficulty may arise due to lack of physical proximity, language or cultural differences, shared subsidiary ownership, or other confounds. Those parents that manage to transfer this knowledge, however, will enjoy sustained gains. Thus,

H3a: Subsidiaries' initial short-term performance will not be associated with their parents' level of technological knowledge. But,

H3b: Subsidiaries' long-term performance will be positively associated with their parents' level of technological knowledge.

Marketing knowledge is the capability to analyze markets and develop plans to sell products and/or services. Marketing knowledge is typically rare, but its value may depend on the context (i.e., it may be location specific). Operating in a different country typically represents a change of societal, political, economic, and technological environments. These differences will require a firm to adapt its marketing knowledge capabilities to the new country setting. The greater this adaptation, the more likely the marketing knowledge will positively contribute to a subsidiary's performance in that particular country setting. Local market adaptation is likely to be facilitated by internationalization and local host country experience (Delios and Beamish 2001). Thus,

H4a: Subsidiaries' initial short-term performance will not be associated with their parents' level of marketing knowledge. But,

H4b: Subsidiaries' long-term performance will be positively associated with their parents' level of marketing knowledge. And,

H4c: The effect of marketing knowledge on the performance of subsidiaries is positively associated with the extent of local country experience and internationalization experience.

Finally, when parent and subsidiary operate in related industries, the transfer of knowledge capabilities should result in greater value to the subsidiary (Caves 1971). For example, technological knowledge capabilities should be of high value to a subsidiary that operates in the same industry as the parent. These capabilities may be of less value to a subsidiary in a different industry.

The same principle applies for marketing knowledge capabilities. When a parent and subsidiary operate in related areas, the marketing knowledge of the parent may be more applicable to the subsidiary than in a case where the two firms operate in different industries. Thus,

H5: Subsidiaries in related industries to parent firms will achieve higher levels of performance than subsidiaries in unrelated industries.

Methodology

Data

The data used to test the hypotheses were drawn from a variety of Japanese sources (see Table 2). We used a sample of Japanese companies to observe the incremental transfer of knowledge capabilities between parent and subsidiary over time, because Japanese firms are characterized as approaching foreign markets incrementally with later investments exploiting capabilities built by earlier investments (Chang 1995).

The sample was drawn from the *Analyst's Guide*, a book of information on Japanese firms listed on the Tokyo Stock Exchange. Parent-level data were compiled from two sources: data on parent employment levels, R&D spending, and advertising spending were drawn from *Kaishah Zaimu Karute*, a publication by Toyo Keizai Inc., a market research firm; parent firms' principle industries were drawn from the *Japan Company Handbook*.

The data on foreign subsidiaries were taken from *Kaigai Shinshutsu Kigyō Souran, Kuni-Betsu* (i.e., *Japanese Overseas Investment, by Country*). Toyo Keizai Inc. compiles this dataset annually by conducting annual mail and telephone surveys on major Japanese firms, and supplements the collected information with archival data. The 2001 edition had data on over 30,000 subsidiaries of more than 4,000 parent firms. It was estimated that 41 percent of total Japanese FDI is included in this dataset. Thus, the dataset is representative of the overall Japanese FDI landscape (Delios and Beamish 2001; Makino 1995; Wade and Gravill 2003).

In order to examine the influence of knowledge capabilities on subsidiary performance in both the short-term and the long-term, the dataset was restricted to the 12 year period between 1990 and 2001. Given that it normally takes 10 to 15 years to realize a return on foreign subsidiary investment (Tachiki 1999), we adopted a time window of 12 years for this study to examine how different knowledge capitals were transferred from parents to subsidiaries over time. To avoid temporal bias associated with any single year, subsidiaries that were founded in either 1990, 1991 or 1992 were included in the sample. The full sample comprised of 4,964 subsidiaries. A demographic profile of the sample is provided in Table 3.

Table 2. Data Sources Used in This Study

Subsidiary-level Data	→	<p><i>Kaigai Shinshutsu Kigyō Souran</i> (various editions)</p> <ul style="list-style-type: none"> • host country experience • international experience • founding year • entry mode • subsidiary size • subsidiary's industry • relatedness of subsidiary's business to parents' • subsidiary's region (Asia, North America, Europe, Other) • subsidiary performance (profitability 1994, 1999, 2001)
Parent-level data	→	<p><i>Analysts' Guide</i></p> <p><i>Kaisha Zaimu Karute</i></p> <ul style="list-style-type: none"> • size (employment) • R&D intensity (5-year average) • advertising intensity (5-year average) <p><i>Japan Company Handbook</i></p> <ul style="list-style-type: none"> • SIC codes for parent firms

Table 3. Demographics of Sample Subsidiaries

Subsidiary			Entry Mode			Region			Industry		
Year	#	(%)		#	(%)		#	(%)		#	(%)
1990	2113	(43)	Wholly Owned	2284	(46)	Asia	2023	(40)	Primary	77	(2)
1991	1596	(32)	Joint Venture	1991	(41)	North America	1170	(24)	Secondary	1772	(36)
1992	1255	(25)	Other	689	(13)	Europe	1331	(27)	Tertiary	3115	(62)
						Other	440	(9)			
Total	4964	(100)	Total	4964	(100)	Total	4964	(100)	Total	4964	(100)

Measures

Subsidiary performance was operationalized as a managerial assessment of profitability. This measure was adopted due to a widespread lack of available financial performance data at the level of the subsidiary. Each subsidiary's general manager was asked to classify the financial performance of their subsidiary into one of three categories: loss, breakeven, or gain. The content validity of this measure has been demonstrated in the literature (Delios and Beamish 2001; Isobe, et al. 2000) and a considerable number of studies have adopted this measure (e.g., Delios and Beamish 2001, Delios and Bjorkman 2000). Considering that subsidiary performance may be unstable for the first two years following inception (Wade and Gravill 2003), profitability in 1994 was used as a short-term measure of performance. Following the argument that it takes 10 to 15 years for Japanese firms to fully realize a return on foreign investments (Tachiki 1999), we measured long-term performance using subsidiary profitability in 1999 and 2001.

Parent firm host country experience was measured using a logarithmic transformation of the number of years of investment history the parent firm had in the host country (Delios and Beamish 2001). Similarly, *parent firm internationalization experience* was measured using a logarithmic transformation of the number of years of international investment history a firm had accumulated. We applied logarithmic transformation to the two measures to ensure normal distribution of the data.

Technological knowledge and *marketing knowledge* were measured using parent firms' R&D intensity and advertising intensity respectively. R&D intensity is widely used as a proxy for technological knowledge (Beamish and Delios 1999; Stimpert and Duhaime 1997). We used R&D intensity five-year average of the parent firm by the year the subsidiary's performance was measured to represent the level of the firm's technological knowledge. Similarly, we used advertising intensity five-year average of the parent firm by the year when the subsidiary's performance was measured as a proxy of the parent firm's marketing knowledge (Delios and Beamish 2001).

Relatedness was measured by comparing the industry of a subsidiary with its parent firm's core business. This variable was measured using a combination of SIC code and international investment experience. While SIC codes alone are often used as a proxy for relatedness, there are shortcomings of this approach to determine the extent of diversification (Farjoun 1994). Areas in which the parent firm has considerable experience in foreign markets should also be considered part of the firm's core business (Farjoun 1994). Wade and Gravill's (2003) measure of relatedness, which considers both the two-digit SIC code and parent firm international investment experience, was adopted for the study.

Following previous studies, control variables were considered to help rule out alternate explanations (Dunning 1993; Tallman and Li 1996). Firm size was defined as a logarithmic transformation of the number of employees in each subsidiary. Subsidiary age (i.e., measured as subsidiary founding year), entry mode (i.e., joint venture, wholly owned, and other), industry category (i.e., tertiary industry vs. non-tertiary industry) and region of host country (i.e., Asia, Europe, America, and other) were also controlled for in the analysis (Delios and Beamish 2001).

Statistical Method

Ordered logistic regression was applied in this study to test the relationship between the independent variables and subsidiary profitability. An ordered logistic regression model is an appropriate qualitative choice procedure when the dependent variable is ordinal but not ratio-scaled (Amemiya 1981; Delios and Beamish 2001).

Results

Table 4 presents descriptive statistics and a correlation matrix. As might be expected, the two experience variables (i.e., host country experience and internationalization experience) were significantly correlated ($r = 0.606$). However, moderate to low correlation values across most independent variables suggested that multicollinearity did not threaten the results.

Table 5 presents the model results. Model 1 reports the profitability analysis for 1994 (short-term performance), while models 2 and 3 report the profitability analysis for 1999 and 2001 respectively (long-term performance). To enhance comparability and clarity, we classified the variables into four categories: *knowledge capability*, *organizational characteristics*, *industry*, and *region*, and lined up the same variables across the three time periods. Overall, the three models were highly significant ($p < .001$), indicating that there must be at least one variable in each model with a significant effect on profitability.

Hypothesis 1a stated that subsidiary short-term performance is positively associated with the parent's internationalization experience prior to the subsidiaries' founding year. The positive and moderately significant coefficient ($p < 0.1$) on the internationalization experience measure in model 1 moderately supported this hypothesis. The positive result indicated that subsidiary profitability was positively associated with parent firm's internationalization experience.

Hypothesis 1b stated that subsidiary long-term performance is not associated with the parent's internationalization experience. The results indicate that the coefficients of internationalization experience in models 2 and 3 were not significant. This hypothesis was supported by the data.

Hypothesis 2a stated that subsidiary short-term performance is positively associated with the parent's host-country experience. The data showed that the coefficient of host country experience on subsidiary performance in model 1 was positive and significant ($p < 0.05$). Hypotheses 2a was supported.

Hypothesis 2b stated that subsidiary long-term performance is not associated with the parent's host-country experience. The data showed that host country experience had no significant effect on profitability in either model 2 or model 3. Hypothesis 2b was supported.

Hypothesis 3a stated that subsidiary short-term performance is not associated with the parent's level of technological knowledge. However, the result showed that the coefficient of technological knowledge in model 1 was moderately significant ($p < 0.1$). This result was not consistent with Hypothesis 3a.

Table 4. Correlations, Means and Standard Deviations

	Mean	Std	1	2	3	4	5	6	7	8	9	10
1.FDTN_YR	1990.85	0.82	1									
2.MODE	1.74	0.86	-0.02	1								
3.SUB SIZE	3.84	1.89	-0.01	0.288	1							
4.PARENTSIZE	3.50	0.55	-0.04	-0.01	0.126	1						
5.RELATED	1.21	0.41	0.019	0.098	0.339	0.09	1					
6.SERV_IND	0.60	0.49	-0.03	-0.25	-0.57	0.02	-0.51	1				
7.REGION	2.03	1.02	-0.06	-0.08	-0.24	0.07	-0.12	0.241	1			
8.LOCAL EXP	3.79	1.31	-0.06	0.087	0.112	0.27	-0.02	-0.06	-0.1	1		
9.INT EXP	6.05	1.80	0.017	0.075	0.117	0.48	-0.01	-0.02	0.068	0.606	1	
10.MKT EXP	0.01	0.02	-0.02	-0.03	0.04	0.01	-0.05	0.017	0.028	-0.13	-0.12	1
11.TECH EXP	0.02	0.03	-0.02	-0.06	0.007	0.28	0.043	-0.03	0.036	0.012	0.081	0.07

Notes: Correlations greater than .05 or less than -.05 are significant at .05 level; Founding Year: 1990, 1991, 1992

Entry Mode: JV = 1; WOE = 2; Region: Asia = 1; Europe = 2; North America = 3; Industry: Non-tertiary = 0; Tertiary = 1

Table 5. Ordered Logistic Regression for Subsidiary Profitability

Subsidiary Profitability Analysis (1994–2001)									
Variable	Ordered Logistic Regression for Probability								
	Model 1 (1994)			Model 2 (1999)			Model 3 (2001)		
	Co-efficient	Sig.	Std.	Co-efficient	Sig.	Std.	Co-efficient	Sig.	Std.
Knowledge Capability									
INTERNATIONAL	0.068	†	(0.04)	0.012		(0.04)	0.018		(0.04)
HOST COUNTRY	0.12	*	(0.05)	0.049		(0.05)	0.09		(0.06)
TECHNOLOGICAL	4.728	†	(2.69)	4.91	*	(2.01)	4.311	†	(2.35)
MARKETING	-3.331		(3.13)	2.644		(3.65)	6.165	†	(3.59)
HOST COUNTRY*MKTING	-2.929		(2.35)	2.051		(2.26)	3.729	†	(2.22)
INTERNATIONAL*MKTING	0.405		(2.93)	3.89		(2.68)	0.594		(2.57)
Organizational Character									
SUBSIDIARY SIZE	0.078	*	(0.04)	0.024		(0.03)	0.015		(0.04)
PARENT SIZE	0.947	***	(0.14)	0.877	***	(0.12)	0.836	***	(0.12)
[FDTN_YR=1990]	0.809	***	(0.15)	0.204	†	(0.12)	-0.048		(0.13)
[FDTN_YR=1991]	0.602	***	(0.16)	0.031		(0.13)	-0.127		(0.14)
[MODE=JV]	0.053		(0.22)	-0.387	†	(0.21)	-0.525	*	(0.21)
[MODE=WOE]	-0.09		(0.22)	-0.115		(0.20)	-0.189		(0.21)
[RELATENESS]	-0.037		(0.16)	0.27	†	(0.14)	0.338	*	(0.15)
Industry									
[TERTIARY INDUSTRY]	-0.042		(0.14)	0.2		(0.13)	0.4	**	(0.14)
Region									
REGION	-0.102	†	(0.06)	-0.206	***	(0.06)	-0.134	*	(0.06)
Log-likelihood	2934.81			3602.42			3174.8		
Model Chi-square	164.26***			224.88***			195.84***		
Number of Cases	1597			1648			1448		

Note: †p < 0.1; *p < .05; **p < .01; ***p < .001

Hypothesis 3b stated that subsidiary long-term performance is positively associated with the parent's level of technological knowledge. The positive and significant coefficients of technological knowledge in model 2 ($p < 0.05$) and model 3 ($p < 0.1$) were consistent with hypothesis 3b. Hypothesis 3b was supported.

Hypothesis 4a stated that subsidiary short-term performance is not associated with the parent's level of marketing knowledge. The data showed that the coefficient of marketing knowledge was not significant in model 1. Thus, hypothesis 4a was supported.

Hypothesis 4b stated that subsidiary long-term performance is positively associated with the parent's level of marketing knowledge prior to the subsidiaries' founding year. The results showed that the coefficient of marketing knowledge was not significant in 1999 but was moderately significant in 2001 ($p < 0.1$). Hypothesis 4b was moderately supported.

Hypothesis 4c stated that the effect of marketing knowledge on subsidiary performance is positively associated with the extent of local country experience and internationalization experience. We examined the interaction effects of host country experience, internationalization experience, and marketing knowledge on subsidiary profitability. The data suggested that the interaction effect of host country experience and marketing knowledge was moderately significant in model 3 (i.e., 2001), but the interaction effect of internationalization experience and marketing knowledge was not significant in either model 2 or model 3. Overall, hypothesis 4c was partially supported.

Table 6. Results Summary

	Short-term		Long-term	
	Hypothesis	Result	Hypothesis	Result
Internationalization Experience	H1a	MS	H1b	S
Host Country Experience	H2a	S	H2b	S
Technological Knowledge	H3a	NS	H3b	S
Marketing Knowledge	H4a	S	H4b	MS
Marketing Knowledge x host country and internationalization experience		H4c	PS	
Relatedness		H5	PS	

Note: S = Supported; MS = Moderately Supported; PS = Partially Supported; NS = Not Supported

Hypothesis 5 stated that subsidiaries operating in an industry related to their parent firms achieve higher performance than subsidiaries in unrelated industries. The results showed that the coefficient of relatedness was negative and was not significant in model 1, but was positive and significant in model 2 ($p < 0.1$) and model 3 ($p < 0.05$). The data suggested that hypothesis 5 worked for long-term subsidiary performance, but not in the short-term.

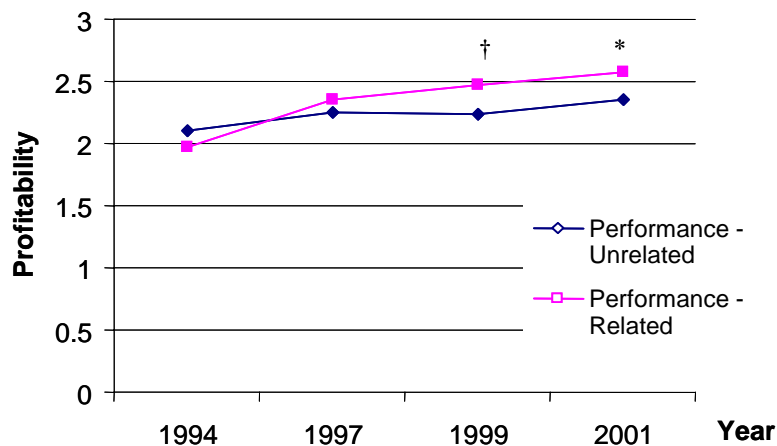
In sum, the data supported five hypotheses, moderately or partially supported four hypotheses, and failed to support one hypothesis (see Table 6 for a summary). Host country experience and internationalization experience were found to influence the short-term but not the long-term performance. Conversely, marketing knowledge was found to influence long-term but not short-term performance. The effect of parent firm's marketing knowledge on subsidiary performance was influenced by host country experience over the long term. Technological knowledge was found to influence both short- and long-term performance. Finally, related subsidiaries were found to outperform unrelated subsidiaries over longer periods, but not over shorter ones.

Discussion, Implications, and Limitations

Discussion

The data paints a complex yet compelling picture of how knowledge capabilities affect corporate performance in firms pursuing a strategy of international diversification. It is clear from this study that all knowledge is not equal. Different types of knowledge affect a firm's performance at different times, and in different ways. The study largely supports the paradox of resource mobility as a tangible impediment to the transfer of complex capabilities, such as knowledge, within diversified firms. Non-rare and fungible knowledge capabilities such as internationalization experience and host country experience were found to positively affect performance in the short-term, but not in the long-term. Rarer and less fungible knowledge capabilities, such as marketing knowledge, did not affect performance in the short-term, but did have an effect in the long-term. This type of knowledge appears to resist transfer initially, as suggested by the resource-based view. The significant interaction between marketing knowledge and host country experience suggests that marketing knowledge is context specific and thus even if it is transferred from parent to subsidiary, it must be modified at the subsidiary level to take local factors into consideration.

Parent firm technological knowledge was found to positively affect subsidiary performance in both the short and long terms. Further, the effect size of this relationship is remarkably high (as evidenced by the large coefficient in model 1 of Table 5), particularly in the short term. Given that technological knowledge is a complex knowledge capability, this result appears to contradict the paradox of resource mobility. One explanation for this finding could be that technological knowledge in the form of technical know-how is more context-independent than marketing knowledge. This type of knowledge does not need to be modified to fit local country-specific conditions to the same extent as marketing knowledge, and thus subsidiary benefits may be realized sooner. Another explanation is that some forms of technological knowledge, such as patents, are protected by legislation, affording the diversified firm an artificial monopoly on that knowledge resource. Due to this protection, the resource is resistant to imitation in both the short and longer terms. Given the importance of this result, further study on this question is clearly required.



Note: †p < 0.1; *p < 0.5; Profitability: 3 – gain; 2 – breakeven; 1 – loss

Figure 1. Profitability of Related vs. Unrelated Subsidiaries (1994–2001)

The data also suggests that the time required to transfer complex knowledge, such as technological knowledge, may be alleviated considerably when parent and subsidiary operate in related areas. Relatedness may also increase the applicability of parent-firm marketing knowledge to subsidiaries. The results show that when parents and subsidiaries are related, the performance of subsidiaries is significantly higher than in cases where the diversification is in an unrelated area.

The relationship between relatedness and performance, however, appears to change over time. Our findings suggest that relatedness influences long-term performance but not short-term performance. As plotted based on subsidiary performance between 1994 and 2001 grouped by subsidiary relatedness, unrelated subsidiaries initially out-performed related subsidiaries, although the coefficient was not significant (see Figure 1). In addition, there appears to be an increasing returns effect of relatedness on performance, as the performance of related firms increases over time, while the performance of unrelated subsidiaries is stagnant.

An explanation for this finding could be that parent firms initially invest in unrelated businesses based on the idea of modern portfolio theory—broader is better—in order to spread risk, or to take advantage of an attractive market opportunity. Over time, however, this study suggests that knowledge capabilities are more easily transferred from parents to related subsidiaries, which leads to them outperforming unrelated subsidiaries over the long-term.

Implications for Researchers

There has been a good deal of conceptual work using the RBV, yet relatively little empirical research has been conducted (Wade and Hulland 2004). In particular, there is a paucity of research that examines the RBV using longitudinal data. Longitudinal data is required to determine the *sustainability* of competitive advantage (Miller and Shamsie 1996). This paper draws on data from 12 years to gain a robust picture of both short-term and long-term firm performance. In addition, few studies using the RBV have examined the applicability of resource attributes, despite the fact that they are central to the theory. This paper differentiates among four knowledge capabilities along the lines of each capability's resource attribute set. This paper provides a guide to researchers who wish to conduct empirical analysis using the resource-based view.

The study provides robust support for the resource-based view of the firm. The results show that knowledge that is valuable, but not rare, can lead to short-term competitive advantage, but not long-term competitive advantage. Conversely, knowledge that is valuable, rare, and resistant to imitation and substitution can lead to long-term competitive advantage. However, such knowledge may be difficult to transfer from parent to subsidiary in the short term. These results support the notion of a paradox of resource mobility. This paradox may help researchers to explain the seemingly contradictory findings related to subsidiary performance within internationally diversified firms.

While much is known about the economies of North America and Western Europe, far less is known about other world economies, even large ones like Japan. This paper adds to the growing literature on the Japanese business environment.

Implications for Managers

The existence of a paradox of resource mobility has important implications for senior managers considering, or implementing, a strategy of international diversification. A common justification for such a strategy is to leverage the firm-specific knowledge of the parent to boost the performance of the subsidiary. This study suggests that this is easier said than done. The more complex the knowledge is, the more difficult it will be to transfer effectively. Managers should not look for short-term gains when success depends on the transfer of complex firm-specific knowledge (the exception to this is technological knowledge, for which short- and long-term benefits are realized). Those managers with the patience to stick through short-term instability may be rewarded by long-term gains.

The results of this study suggest that long-term gains may be magnified in situations where the subsidiary and parent operate in related areas. This finding is relevant for managers as they decide on a diversification strategy. If the purpose of diversification is to minimize risk, then firms may decide to invest in unrelated areas. In such cases, initial subsidiary performance may be high, but will stagnate over time.

This research contains a cautionary note to managers who base an international diversification strategy on knowledge that is fungible or easy to substitute or imitate. Subsidiaries may flourish in the short term, but our research shows that they will flounder over longer periods.

Limitations

This study suffers from many of the limitations common with the use of archival data. For example, the content validity of measures (particularly marketing and technological knowledge) is inadequately tested. Future research should address this limitation by extensively testing and, where necessary, reoperationalizing these measures. Further, the data is powerful enough to raise issues and suggest relationships between causes and effects, but they can only hint at explanations for these effects. In-depth, qualitative analysis is required to more fully understand the hows and whys of knowledge transfer between parents and subsidiaries in international contexts.

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