INTERNATIONAL DIVERSIFICATION AND FIRM PERFORMANCE: THE S-CURVE HYPOTHESIS

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A proposed theoretical framework for the study of multinationality and performance includes both benefits and costs of geographic expansion over different phases of internationalization. Data on 1,489 Japanese firms over 12 years show a consistent horizontal X S-shaped X relationship between multinationality and performance. Further, firms investing more heavily in intangible assets, such as technology and advertising, achieved greater profitability gains from growth in foreign direct investment. Our framework and findings highlight complexity and temporal dynamics.

Increasingly, firms are diversifying the geographic scope of their business activities in the pursuit of competitive advantage (Porter, 1990; Ramaswamy, 1995). Geographic expansion comes with a set of attendant costs (Tallman & Li, 1996) and benefits (Geringer, Beamish, & daCosta, 1989) that, if incompletely conceptualized, can lead to different inferences about the net performance benefits of internationalization (Hitt, Hoskisson, & Kim, 1997; Sullivan, 1994). In this study, we addressed the following set of questions: What is the relationship between multinationality and firm performance? Is it linear (Delios & Beamish, 1999)? Is it curvilinear, or is the relationship more complex than a U-curve (Lu & Beamish, 2001) or inverted U-curve (Hitt et al., 1997)? To address these questions, we synthesized prior research on geographic diversification and firm performance and investigated the underlying reasons for inconsistent empirical findings on this relationship. We developed an integrative theoretical framework that brought together research on asset-based, internalization advantages in internationalization with that on various other internationalization costs and benefits across time.

Further, this study began to explore how the

motives for a firm's international expansion influenced the performance consequences of a geographic diversification strategy. We made these extensions to our framework relating performance and geographic diversification by examining the moderating influence on the multinationality-performance relationship of intangible assets, a key motive of a firm's international expansion.

We tested our new theoretical model with a unique longitudinal data set comprising 1,489 Japanese firms and their internationalization activities in the 1986–97 period. This sample captured firms as they progressed through various stages of international expansion, which was necessary to test our model. We found that the returns from a geographic diversification strategy were related to costs and benefits that varied depending on the extent of a firm's internationalization. This association was manifest in a horizontal S-curve, which at first showed a performance decline with increasing internationalization, followed by a positive relationship between increasing geographic diversification and firm performance, which then declined at very high levels of multinationality. This relationship in turn was moderated by intangible asset advantages that accrued with expansion of the geographic scope of a firm. Firms with strong technology or advertising asset advantages achieved higher returns to geographic expansion.

BACKGROUND AND HYPOTHESES

In the geographic diversification literature, there is a consensus that the primary benefit to international expansion is the exploitation of market imperfections (Rugman, 1979). Following this logic, a variety of writers in this literature have empiri-

cally tested a linear and positive multinationality-performance relationship. Studies have shown that higher levels of geographic diversification lead to better firm performance (Delios & Beamish, 1999; Doukas & Travlos, 1988; Errunza & Senbet, 1984). Other research has, however, indicated no relationship (Brewer, 1981; Morck & Yeung, 1991), or a negative relationship (Denis, Denis & Yost, 2002; Geringer, Tallman, & Olsen, 2000).

More recently, a few studies have begun to address costs involved in internationalization and tested a curvilinear relationship between multinationality and performance (e.g., Hitt et al., 1997; Lu & Beamish, 2001). Two studies showed an inverted U-shaped relationship between internationalization and performance when escalating coordination costs at high levels of internationalization were taken into consideration in samples of large, well-internationalized firms (Geringer et al., 1989; Hitt et al., 1997). In contrast, our previous work showed a U-shaped relationship in a sample of small to medium-sized enterprises (SMEs) confronted with the disadvantages of foreignness at early stages of internationalization (Lu & Beamish, 2001). The latter finding of a U-curve has sparked the idea that an S-curve might exist (Lu & Beamish, 2001). This idea has received some limited theoretical development and empirical verification (Contractor, Kundu, & Hsu, 2003).

Our review of the literature suggested that the conflicting results could be an outcome of incomplete theorization about the full range of benefits and costs, and about the changes in these benefits and costs over the time it takes to fully implement an internationalization strategy. We developed a theoretical framework providing a more complete account of the benefits and costs of internationalization as well as theory on how the benefits and costs change across stages of international expansion. We tested these ideas with a varied sample, ranging from firms with no foreign direct investments to firms with more than 600 investments in more than 60 countries.

Benefits from Geographic Diversification

Geographic diversification provides exploration and exploitation benefits. It enables a firm to realize economies of scale and scope (Caves, 1996). It helps it to reduce fluctuations in revenue by spreading its investment risks over different countries (Kim, Hwang, & Burgers, 1993). It helps reduce costs and increase revenues by increasing a firm's market power over its suppliers, distributors, and customers (Kogut, 1985). It lowers costs by enabling arbitrage of differences in input and output markets (Hennart, 1982).

Although these are the major exploitation benefits of geographic diversification, the initial impetus to a firm's internationalization comes from the opportunity to exploit market imperfections in the cross-border use of its intangible assets (Caves, 1971). A firm can gain above-normal returns by exploiting its firm-specific assets, especially intangible ones, in international markets (Buckley, 1988). Recently, scholars have drawn attention to the exploration benefits of internationalization using an organizational learning perspective. This perspective emphasizes that a firm's subsidiaries in disparate host countries can help to enhance its knowledge base, capabilities, and competitiveness through experiential learning (Barkema & Vermeulen, 1998; Delios & Henisz, 2000; Zahra, Ireland, & Hitt, 2000).

In addition, each host country has its own unique resource endowments and location-specific advantages, which might not be available in the home country. Such host country specific advantages can motivate a firm to establish subsidiaries there to explore these advantages and augment its competitiveness in both its home and host markets (Kogut & Chang, 1991).

Costs Related to Geographic Diversification

The costs in geographic diversification are typified by the problems of the liabilities of newness and foreignness (Hymer, 1976; Stinchcombe, 1965). When making a foreign investment, a firm's managers contend with many challenges related to a new operation, such as purchasing and installing facilities, staffing, and establishing internal management systems and external business networks. These challenges can put a new subsidiary in a disadvantageous position, as compared to an established firm in the target market, and can decrease its competitiveness. These liabilities, however, tend to decrease as a firm's subsidiaries build and improve reputations and legitimacy in the host country in which they operate (Barkema, Bell, & Pennings, 1996).

Challenges can be experienced by any new subsidiary, but there are difficulties specific to new subsidiaries established in foreign countries. A foreign subsidiary has a liability of foreignness (Hymer, 1976) that can lead to its having higher costs because it cannot conduct business activities as effectively as a local firm. Being foreign means mistakes in various business decisions are more likely. The likelihood of making competitiveness-impairing mistakes and the costs associated with the

liability of foreignness become attenuated with experience, in a learning-by-doing process (Barkema & Vermeulen, 1998; Vermeulen & Barkema, 2002).

Although disadvantages of newness and foreignness can diminish with a firm's experience in its host country environments, transaction and coordination costs increase with the degree of geographic diversification (Jones & Hill, 1988). The diversification literature contains well-accepted transaction-cost-based arguments (Williamson, 1975, 1985) and evidence about the costs associated with product diversification. For example, Williamson (1967) emphasized the loss or distortion of information as it passed through layers of hierarchy. Hoskisson and Turk (1990) argued that internal capital markets have governance and control limits. Markides (1992, 1995) reported value creation from corporate refocusing for firms in the 1980–88 period. Bergh and Lawless (1998) found in a panel of 164 *Fortune* 500 firms that there were limits in the efficiency of hierarchical governance and that environmental uncertainty heightened its costs.

Many of the costs associated with product diversification also apply to geographic diversification. For example, coordination difficulties, information asymmetry, and incentive misalignment between headquarters and divisional managers in multidivisional firms can be also manifest in multinational enterprises between headquarters and subsidiary managers (Denis et al., 2002; Harris, Kriebel, & Raviv, 1982). As the number of internal transactions increases with the number of foreign subsidiaries established by a firm, governance costs can

rise rapidly to a point at which the governance costs exceed any internalization benefits (Hitt et al., 1997; Tallman & Li, 1996).

The governance costs and coordination costs associated with increasing multinationality are compounded if these increases take place by a firm's expanding the number of host countries in which it operates. Each country has a unique business environment. The coordination of operations across disparate host countries leads to diseconomies in managing larger and larger operations (Bartlett & Ghoshal, 1989: 87) that significantly increase information-processing demands on a firm's managers and administrative systems (Hitt et al., 1997). In the meantime, expanding into dissimilar markets increases environmental uncertainty, which will further raise the costs of hierarchical governance (Bergh & Lawless, 1998; Hill & Hoskisson, 1987; Jones & Hill; 1988).

Geographic Diversification and Firm Performance

The above review identifies the exploitation and exploration benefits of geographic diversification while outlining the costs associated with being new and foreign and managing dispersed operations across borders. Previous research has not identified these in unison, nor has it addressed how these benefits and costs vary across the stages of a firm's internationalization process. In Figure 1 we show how our integration of these ideas leads to our

FIGURE 1
Multinationality and Performance: A Three-Phase Model
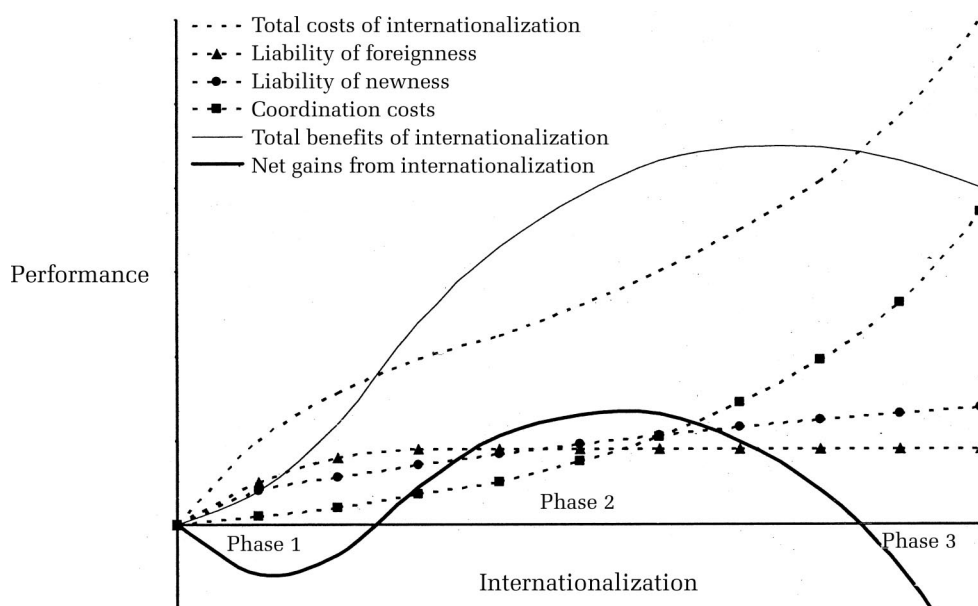
expectations about the nonlinear relationship between geographic diversification and performance.

The smooth solid line in Figure 1 represents total benefits from internationalization, as predicted from either an exploitation or an exploration perspective. Both exploitation and exploration benefits should increase with international expansion, up to a point of diminishing returns. Importantly, however, not all firms will encounter the same curve, as core research on multinational enterprise has indicated that the extent of benefits of exploitation are related to a firm's possession of intangible assets (Caves, 1971).

The smooth dotted line illustrates the total costs of internationalization. We decomposed costs into those linked to the liabilities of foreignness (dotted line with circle markers) and newness (dotted line with triangle markers), and those associated with coordination costs (dotted line with square markers). The pattern of these three costs differs as a firm expands internationally. The total costs for the liabilities of foreignness decrease and become level when an internationalizing firm becomes so familiar with various foreign countries that the establishment of foreign subsidiaries becomes more or less the same as the establishment of domestic subsidiaries. The total costs of the liabilities of newness decrease with learning and with improvements in legitimacy. In contrast, total coordination costs accelerate with the addition of foreign subsidiaries and/or new host countries. The interplay between these benefits and costs of internationalization should result in the smooth boldface curve in Figure 1. This curve identifies three distinct phases in the relationship between internationalization and performance.

At the initial stages of international expansion (phase 1), a firm encounters liabilities of newness and foreignness in which it must pay some "tuition" in the form of reduced profits resulting from such disadvantages. Given that firms at early stages of international expansion are generally young, small, and likely to have low product diversification (Hitt et al., 1997), there are no "deep pockets" to absorb this tuition cost. This cost can outweigh the benefits of internationalization, thus extending the time until net positive performance outcomes of internationalization can be realized.

With increasing international expansion, experiential learning about how to establish a subsidiary efficiently in a host country reduces the costs associated with being new and foreign. At the same time, growing geographic diversification enables asset advantages to be exploited across a greater spread of markets, which occurs alongside the development of new capabilities in international mar-

kets. The result is phase 2, in which increasing levels of geographic scope are associated with growth in a firm's profitability.

Although the costs related to newness and foreignness are being reduced during phase 2, the second set of costs we depict, those for governance and coordination, begin to rise. As a firm's network of foreign subsidiaries becomes more extensive, and as the firm has operations in more and more countries, governance and coordination costs escalate to the point where costs can again surpass the benefits of geographic diversification, and firm performance declines, marking phase 3. Putting the above arguments together, we hypothesize a horizontal S-shaped relationship between the extent of a firm's foreign direct investment (FDI) and performance.

Hypothesis 1. The relationship between geographic diversification and firm performance is nonlinear, with the slope negative at low levels of geographic diversification, positive at medium levels of geographic diversification, and negative at high levels of geographic diversification.

Interaction Effects of Intangible Assets and Geographic Diversification

Although our theoretical framework should hold for all firms, the slopes in the different phases of the S-shaped relationship outlined in Figure 1 could vary across firms. Each of the five forces we outlined as contributing to the net influence of geographic diversification can vary in its magnitude with specific firm characteristics. For example, prior research has identified the country chosen for expansion (Barkema et al., 1996) and the pace of expansion (Vermeulen & Barkema, 2002) as influences on the performance outcomes of a geographic diversification strategy. Pace and country choice could moderate the extent of the liabilities of newness and foreignness encountered in international expansion. Another potential influence is the international strategy and structure adopted by a multinational firm (Bartlett & Ghoshal, 1989), which could moderate the extent of coordination costs that firm encounters.

One important dimension that can moderate the exploitation benefit of an internationalization strategy is a firm's intangible assets (Caves, 1996). Internalization theory specifies that intangible assets, such as technological know-how, patents, management skills, brands, and goodwill are information intensive. Transactions with such assets, both buying and selling, are subject to market failure (Caves,

1971; Morck & Yeung, 1998). For efficient exploitation, the cross-border exchange of these assets must be internalized.

Further, the development of intangible assets requires substantial investments in capital, time, and human resources (Dierickx & Cool, 1989). An intangible asset's value is not likely to depreciate significantly when it is applied in different markets (Morck & Yeung, 1998). Given the resource and time costs of developing such assets, the efficiency of and returns to their exploitation is greater when their scope of use is greater (Teece, 1986). Hence, one way to exploit an intangible asset to its full value is to deploy it in a broad range of markets, such as in a geographic diversification strategy.

Consequently, firms with intangible assets should be able to generate abnormal high returns from their foreign direct investments through scale and scope economies and through the exploitation of market imperfections in the trade of intangible assets (Kotabe, Srinivasan, & Aulakh, 2002; Morck & Yeung, 1991). We expect that as a mechanism to exploit the value of intangible assets, foreign direct investment generates more value the more substantial the intangible assets. Our arguments imply that firm-specific assets are valuable for every internationalizing firm, irrespective of its base level of internationalization. Therefore, we expect that firm-specific assets will have a positive and linear moderating impact on the relationship between internationalization and performance.

Hypothesis 2. A firm's intangible assets moderate the relationship between geographic diversification and firm performance in such a way that high levels of intangible assets increase the performance gains attributable to geographic diversification.

METHODS

We examined the foreign expansions of Japanese firms. Japan was an appropriate setting for the tests of our hypotheses because we required a sample of firms at various stages of international expansion. Compared with their counterparts in the United States and Europe, Japanese firms' international expansion has been more recent, with the most dramatic period of expansion being the mid-1980s to the late 1990s (UNCTAD, 2000). We used this period to capture firms at the initial and late stages of internationalization.

To compile our sample, we collected corporate information and foreign direct investment information. The main source of corporate information on Japanese firms was the Nikkei NEEDS tapes, which we supplemented with company information from the Daiwa Research Institute *Analysts' Guide,* and from various editions of the *Japan Company Handbook.*[1]

The source of information for the foreign direct investment of Japanese firms was the annual publication *Japanese Overseas Investments (Kaigai Shinshutsu Kigyou Souran).* The data in this source are based on responses to questionnaires sent annually to Japanese overseas subsidiaries. It provides nearly complete information on the foreign activities of the firms it lists (Delios & Beamish, 2001), making it possible to develop a relatively complete, longitudinal profile of Japanese firms' international activities.

After matching the corporate information with the FDI information, we had a sample of 1,489 Japanese firms. Among these, 1,059 firms were engaged in FDI activities in the 1986–97 period. The number of direct foreign investments made by these firms ranged from 1 to 601, with the average being 8.45. The number of host countries ranged from 1 to 61 (average = f 3.96). These ranges in FDI activity indicate our sample captured firms with varying levels of internationalization, as was required to test our hypotheses.

Variables

Our dependent variable was corporate performance. We constructed both accounting-based and market-based financial performance measures. Our accounting-based financial performance measure was *return on assets (ROA),* computed as the ratio of net income to total assets. We obtained data for the computation of ROA from the NEEDS tapes. Our market-based financial performance measure was *Tobin's Q,* a ratio defined as the market value of assets divided by the replacement value of assets. Past criticisms of Tobin's *Q* have centered on the issue of measurement error and consequently biased estimation of the coefficient (Whited, 2001). Such potential measurement error is less of a concern in studies such as ours in which Tobin's *Q* is used as a dependent variable. Further, we tried to minimize potential measurement errors by using an intricate routine to compute the replacement value of assets rather than using book value as a convenient proxy. We obtained the data for Tobin's *Q* from the NEEDS tapes and the PACAP database, following the procedure of Goyal and Yamada (2004).

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[1] Toyo Keizai publishes the *Japan Company Handbook* and *Japanese Overseas Investments.*

For the measure of *internationalization,* we first developed two count measures of a firm's FDI activities. The first was a count of a firm's number of overseas subsidiaries in each year, irrespective of entry mode. The second was a count of the number of countries in which a firm had overseas subsidiaries in a given year. These two variables were highly correlated ($r = .84$). Next, we integrated these two measures into a composite measure of internationalization, following the procedures of Sanders and Carpenter (1998). To do this, we first divided each of the two count measures by either the maximum number of FDIs or the maximum number of FDI countries in our sample to change them from counts to ratios. We then computed the average of the two ratios so that our final measure of internationalization took values ranging from 0 to 1, with 1 representing the highest level of internationalization in our sample.

We developed the two measures of intangible assets best-received in the literature (Delios & Beamish, 1999; Morck & Yeung, 1991). Caves (1996: 7−8), in his review of the theory of multinational enterprise, noted that R&D intensity and advertising intensity have emerged as the most robust measures of intangible assets in the multinationality literature. We used *R&D intensity* (R&D expenditures expressed as a percent of sales) as our measure of technology assets such as technological know-how and patents. We used *advertising intensity* (advertising expenditures expressed as a percent of sales) as our measure of advertising assets such as brand names and goodwill.

We included controls for several variables known to affect corporate performance. We measured firm size using the logarithm of *net sales.* Other variables included the *debt-to-equity ratio,* as a measure of financial leverage, *export intensity* (export sales expressed as a percentage of total sales), and *product diversification.* Following prior studies (Tallman & Li, 1997), we computed product diversification as a Herfindahl measure (*product diversification* $= 1 - \Sigma P_1^2$, where P_i is the proportion of a firm's sales in product line i).

We measured monetary influences using the U.S. dollar-yen exchange rate from the *International Financial Statistics Yearbook,* as the dollar is a frequently used reference point for exchange rates. We had fixed effects for a firm's main industry based on NEEDS industry codes.

Table 1 presents descriptive statistics and a correlation matrix of all the variables for the full sample and for the subsample of firms with foreign direct investment.

Modeling Procedures

We examined the performance implications of internationalization strategies using a firm-year unit of analysis. To facilitate causal inference, we lagged all the independent variables by one year. With firm-year records for performance analysis, we used general linear squares (GLS) random-effects models to test the hypotheses. GLS models correct for the presence of autocorrelation and heteroscedasticity in pooled time series data (Kmenta, 1986). Using the Hausman test (Baltagi, 1995: 68), we compared our random-effects models to fixed-effects models, and random-effects models were preferred in all cases.

RESULTS

We report the results in Table 2. ROA is the dependent variable for the first six models, and Tobin's Q is the dependent variable for the latter six models.

Models 1 and 7 are the baseline models that

TABLE 1
Descriptive Statistics and Correlations[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9
1. ROA	0.04	0.05									
2. Tobin's Q	1.25	0.68	.19								
3. Exchange rate	120.77	12.35	.14	.22							
4. R&D intensity	0.01	0.02	.07	.10	−.02						
5. Advertising intensity	0.02	0.02	−.01	−.15	−.03	.06					
6. Net sales[b]	11.06	1.43	.05	−.04	−.02	.12	−.03				
7. Product diversification	0.57	0.18	−.03	−.02	.01	.11	.00	.18			
8. Debt-to-equity ratio	3.26	6.75	−.18	−.01	.04	−.09	−.08	.04	.00		
9. Export intensity	0.10	0.15	−.09	.03	.00	.27	−.05	.15	−.02	−.03	
10. Internationalization	0.04	0.07	−.06	.00	−.03	.21	−.06	.63	.15	.04	.34

[a] These Pearson correlations are significant at the .05 level (two-tailed tests) at $|.02|$.
[b] Logarithm.

TABLE 2
Results of Regression Analyses of Firm Performance on Internationalization in 1,489 Japanese Firms, 1986–97[a]

Independent Variables	ROA						Tobin's Q					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
1. Intercept	−0.09**	−0.17**	−0.16**	−0.16**	−0.16**	−0.16**	−0.60*	−0.89**	−0.46†	−0.47†	−1.00**	−0.47†
	(−4.79)	(−9.91)	(−8.13)	(−8.22)	(−8.19)	(−8.21)	(−2.04)	(−2.93)	(−1.70)	(−1.73)	(−3.29)	(−1.74)
2. Exchange rate	0.00**	0.00**	0.00**	0.00**	0.00**	0.00**	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**
	(21.56)	(21.23)	(21.10)	(20.99)	(20.99)	(20.99)	(33.98)	(33.73)	(33.63)	(33.53)	(33.53)	(33.52)
3. R&D intensity	−0.28**	−0.22**	−0.19**	−0.19**	−0.26**	−0.20**	−7.28**	−6.80**	−6.51**	−6.55**	−6.49**	−6.63**
	(−5.76)	(−4.37)	(−3.77)	(−3.86)	(−4.47)	(−3.92)	(−10.62)	(−9.79)	(−9.33)	(−9.39)	(−7.88)	(−9.51)
4. Advertising intensity	−0.30**	−0.32**	−0.31**	−0.31**	−0.30**	−0.33**	−3.88**	−3.89**	−3.77**	−3.68**	−3.68**	−4.47**
	(−6.81)	(−7.17)	(−7.00)	(−6.89)	(−6.85)	(−6.76)	(−6.08)	(−6.09)	(−5.89)	(−5.75)	(−5.75)	(−6.35)
5. Sales[b]	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**	0.07**	0.10**	0.11**	0.11**	0.11**	0.11**
	(11.97)	(16.05)	(17.24)	(17.53)	(17.54)	(17.57)	(7.47)	(8.77)	(9.57)	(9.79)	(9.79)	(9.92)
6. Product diversity, Herfindahl index	−0.02**	−0.02**	−0.02**	−0.02**	−0.02**	−0.02**	−0.12	−0.11	−0.11	−0.11	−0.11	−0.11
	(−4.17)	(−3.96)	(−3.99)	(−3.98)	(−3.95)	(−3.95)	(−1.46)	(−1.35)	(−1.36)	(−1.36)	(−1.36)	(−1.31)
7. Debt-to-equity ratio	−0.00**	−0.00**	−0.00**	−0.00**	−0.00**	−0.00**	−0.00**	−0.00**	−0.00*	−0.00**	−0.00**	−0.00**
	(−9.53)	(−9.41)	(−9.46)	(−9.54)	(−9.55)	(−9.52)	(−2.62)	(−2.60)	(−2.58)	(−2.63)	(−2.63)	(−2.61)
8. Export intensity	−0.03**	−0.02**	−0.02**	−0.02**	−0.02**	−0.02**	−0.08	−0.04	−0.01	0.00	0.00	0.00
	(−5.67)	(−4.16)	(−3.35)	(−3.18)	(−2.96)	(−3.18)	(−1.00)	(−0.52)	(−0.08)	(0.03)	(0.02)	(0.01)
9. Internationalization		−0.17**	−0.30**	−0.38**	−0.39**	0.41**		−0.98**	−2.16**	−3.11**	−3.11**	−3.78**
		(−10.86)	(−11.66)	(−10.95)	(−11.15)	(−10.22)		(−4.60)	(−6.44)	(−6.76)	(−6.69)	(−7.22)
10. Internationalization squared			0.26**	0.75**	0.67**	0.78**			2.51**	7.93**	7.99**	8.82**
			(6.41)	(5.30)	(4.55)	(5.44)			(4.55)	(4.21)	(4.12)	(4.62)
11. Internationalization cubed				−0.50**	−0.40**	0.51**				−5.33**	−5.39**	−5.61**
				(−3.61)	(−2.75)	(−3.68)				(−3.01)	(−2.93)	(−3.17)
12. Internationalization × R&D intensity					1.06*						−0.78	
					(2.26)						(−0.12)	
13. Internationalization × advertising intensity						0.86						24.94**
						(1.23)						(2.68)
Adjusted R^2	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.12	0.12	0.12	0.12
Wald χ^2	939.66**	1,065.91**	1,110.36**	1,124.50**	1,130.02**	1,126.01**	1,640.72**	1,664.31**	1,687.51**	1,697.63**	1,697.50**	1,705.70**
Wald test $\chi^2 (1)$		117.94**	41.11**	13.03**	5.13*	1.52		21.15**	20.70**	9.08**	0.02	7.21**

[a] Unstandardized regression coefficients are shown, with t-statistics in parentheses.
[b] Logarithm.
† $p < .10$
* $p < .05$
** $p < .01$
All two-tailed tests.

include only the control variables and two measures of parent firm asset advantages. The exchange rate has an overwhelmingly positive effect, indicating that home country currency (yen) depreciation improves the performance of Japanese firms. R&D intensity and advertising intensity had a significant, negative impact. All other control variables had negative influences on firm performance, except that sales had significant, positive impact on both ROA and Tobin's *Q*.

We tested Hypothesis 1 using models 2 (8), 3 (9), and 4 (10), in which we built the test of the S-shaped relationship by adding the linear term of internationalization in model 2 (8), its squared term in model 3 (9), and its cubic term in model 4 (10). We conducted Wald tests on the significance of the inclusion of each additional variable. As shown in the Wald chi-square statistics, the inclusion of the cubic term significantly improved model fit. A test of the joint significance of the linear, squared, and cubic terms was also significant in all models. Hence, our Hypothesis 1 was strongly supported: firm performance was negatively related to the linear term of internationalization, positively related to the square term of internationalization, and then negatively related to the cubic term of internationalization.

Hypothesis 2 predicts that intangible assets will have linear, positive, moderating impacts on the relationship between internationalization and firm performance. Models 5 (11) and 6 (12) tested Hypothesis 2 by entering the interaction of internationalization and R&D intensity and the interaction of internationalization and advertising intensity. The interaction between internationalization and R&D intensity was positively signed and significant in model 5, where ROA was the dependent variable. The interaction between internationalization and advertising intensity was positive and significant in model 12, where Tobin's *Q* was the dependent variable. As corroboration for these results, we used a Wald test to confirm that the inclusion of the interaction terms significantly improved model fit. Our Hypothesis 2 was partially supported. It is important to note that the "main effect" between internationalization and performance remained robust in all the models when the interaction terms were included.

Drawing on the results of models 5 and 12, we constructed Figures 2 and 3 to illustrate the nonlinear relationship between geographic diversification and performance across firms with differing levels of R&D intensity and advertising intensity. These figures both depict a relationship that is initially negative, then positive as geographic diver-

FIGURE 2
Moderating Effect of R&D Intensity on the Relationship between Internationalization and ROA
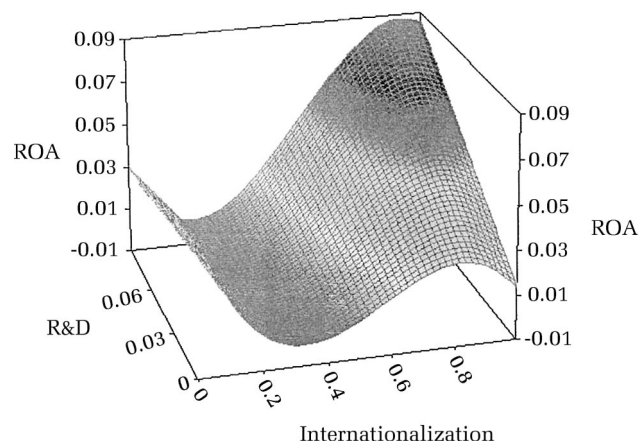
sity increases, but negative again at high levels of geographic diversity.

For example, in Figure 3, for firms with 2 percent advertising intensity, at the initial stage, there is a negative impact on performance with a net reduction of about 0.35 in Tobin's *Q* from the base case of no internationalization to a degree of internationalization of 0.2. Beyond this point, more internationalization contributes to higher performance, with the maximum increase of 0.5 in Tobin's *Q* (about a 40 percent increase over the value of Tobin's *Q* when the degree of internationalization is 0.2) and a net increase of 0.15 in Tobin's *Q* (about a 12 percent increase over the value at no internationalization) when the degree of internationalization reaches 0.8. Beyond this threshold of 0.8, a higher degree of internationalization is associated with lower performance.

Further, a comparison of the differences between different levels of R&D intensity in Figure 2 and advertising intensity in Figure 3 illustrates the positive and significant moderating impact of firm-specific assets. Take Figure 3 again, for example. A firm with a degree of internationalization of 0.3 and with an advertising intensity of 4 percent has an expected Tobin's *Q* value 7 percent higher than that for a firm at the same level of internationalization but with half (2 percent) the advertising intensity. At an internationalization level of 0.7, there is an expected improvement in Tobin's *Q* of 20 percent when the advertising intensity of a firm increases from 2 percent to 4 percent.

We conducted several robustness tests. We increased the lag structure to 2 years and 3 years and obtained consistent results, although the variance explained (the value of R^2) becomes smaller as the

lag increases. The results are robust in the subsample of 1,059 firms with FDI activities. The results are also robust to tests using ROA as the dependent variable in a sample (2,067 firms) not constrained to firms for which we had Tobin's Q data. We also centered the variables on their means to minimize their collinearity; the results were robust to the use of centered variables. Finally, the relationship we were modeling is a complex one in which both assets (such as technological assets) and strategy (such as internationalization) could be endogenous. To handle this endogeneity issue, we used a two-stage least squares procedure (2SLS) in which technological assets and internationalization were entered as endogenous variables. The S-shaped relationship was robust to the 2SLS procedure, while R&D intensity took a positive sign.

DISCUSSION AND CONCLUSIONS

We examined the nature of the relationship between geographic diversification and firm performance at different phases of internationalization, across firms with different assets. As depicted in Figures 2 and 3, we found that geographic diversification had a nonlinear relationship with performance. At high and low levels of internationalization, the extent of geographic diversification was negatively associated with firm performance, while at moderate levels of internationalization, greater geographic diversity was accompanied by higher performance.

This horizontal S-shaped relationship between geographic diversification and performance provides a basis for resolving the inconsistency of empirical results in this literature. Initially, our results seem to be at odds with the inverted and upright U-curves observed in previous research. When we consider that the inverted U typifies research conducted on samples of well-internationalized firms (Geringer et al., 1989; Hitt et al., 1997) and that the upright U emerged in a sample of newly internationalizing firms (Lu & Beamish, 2001), our findings present a reconciliation of this prior research.

We obtained these findings by developing an integrative theoretical framework of the costs and benefits encountered during nascent to mature stages of international expansion. We used a 12-year time horizon with a sample of firms at all stages of internationalization. Given this comprehensive theoretical framework and sample, one implication of our research is that scholars investigating the geographic diversification and performance relationship can begin to move beyond an assessment of its nature toward examination of its boundary conditions, or moderators. We proposed a firm's intangible assets as one such moderator. Although not a significant effect in all models, the positive moderating role attributed to a firm's investments in R&D-based and advertising-based assets provides evidence that intangible assets augment the value found in geographic expansion. Importantly, the robustness of the main effects of the internationalization variables to the inclusion of these moderating effects reinforces our contention that the benefits of internationalization do not just come from the internalization of cross-border transactions, as Morck and Yeung (1991) suggested.

To continue with this line of inquiry, researchers could begin to explore how the configuration of foreign investments in terms of the choice of modes, the sequence of countries chosen for expansion, the pace of expansion, and organizational structure moderate the factors underlying the S-curve (Figure 1) and influence its slopes and inflection points.

FIGURE 3
Moderating Effect of Advertising Intensity on the Relationship between Internationalization and Tobin's Q
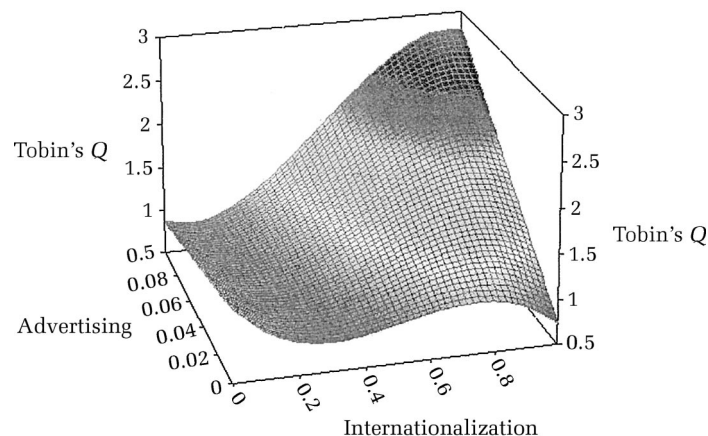
Further, by demonstrating how the nature of a fundamental relationship in strategy research can change when a full sample, versus a subsample, of available firms is analyzed, our research shows the value of not using a restricted sample when looking at strategy questions using archival data. Frequently, researchers select samples using largeness or being well-known as criteria (Geringer et al., 1989). This practice creates a bias, which is unnecessary since data on smaller and less-well-known firms are increasingly available.

This study offers practical guidance to managers in internationalizing firms. Although care should be taken in interpreting the slopes, heights, and inflection points in the curves in Figures 2 and 3, our findings do suggest that managers need to take a long-term view of internationalization. At initial stages, there might not be immediate positive returns from foreign expansion, and a firm can even suffer a decline in profits in its initial forays. During this stage, declining profits need not halt internationalization efforts, provided management devotes attention to ameliorating the initial disadvantages of being new and foreign to permit the intrinsic benefits of internationalization to arise and improve firm performance.

As well as being resolute during early stages of international expansion, managers need to be cognizant of the potential downside of excessive international expansion and to be proactive in the design and implementation of international strategies by optimizing the configuration of subsidiary networks to keep the scope of internationalization activities at an optimal level. Alternatively and perhaps more importantly, management can extend the peak of performance encountered in phase 2 of the internationalization and performance relationship and move the threshold of internationalization to a higher level. One means to so move the threshold would be to proactively develop capabilities for managing complexity (Hitt et al., 1997), by managing the time and pace of international expansion (Vermeulen & Barkema, 2002) in such a way that complexities encountered in the international expansion process do not overwhelm the capabilities of managing complexity.

Even when a firm is in phase 3 of the internationalization and performance relationship, managers can learn to adjust organizational structures and systems to handle the coordination problems we identified. When this happens, a firm can enter a new phase with positive returns from international expansion. As learning in the international environment tends to be incremental (Johanson & Valhne, 1977), this trend should continue in a cyclical fashion; decreases in profitability will be associated with new complexities at higher levels of international expansion, and then increases in profitability will occur as management learns how to manage the new complexities (Hitt et al., 1994).

Finally, the importance of intangible assets to internationalization should not be underestimated. One of the interesting realities of internationalization in recent years is how frequently a firm's reputation can precede its entry into a foreign market. Just as many exporting firms started exporting as a result of a welcome but unsolicited export order, managers in some firms that invest internationally have been pleasantly surprised to learn that their reputation for possessing strong intangible assets (patents, brands, and the like) has preceded them. Customers, suppliers, the business press, and potential partners have often already determined which foreign firm is a leader, whether an investment has occurred or not. Thus, the untapped benefits of intangible assets are eventually captured with actual FDI.

The most notable limitation of this study is that we derived our empirical results from a sample of Japanese firms, thus raising the concern that the findings might be country-specific. One of the strengths of this study was its use of both accounting and market-based measures of firm performance, along with a composite measure of internationalization. Even so, our measures of internationalization could be refined further (Sullivan, 1994). Finally, the model in this study had comparatively low explanatory power as it focused on macro organizational factors. Research could examine the effects of internal organizational moderators, such as a firm's organizational design and its staffing for the implementation of an internationalization strategy, on the relationship between multinationality and performance to explain a higher proportion of firm performance (Hansen & Wernerfelt, 1989).

To conclude, in developing a comprehensive stage model of the relationship between multinationality and performance, our study suggests that researchers need to be cautious in attributing immediate positive/negative performance outcomes to a geographic diversification strategy. Our analyses demonstrate that the relationship between internationalization and performance varies with the phase of internationalization. Research in this area should give equal attention to the costs and the purported benefits of international expansion, at both the early and late stages of this process. Our empirical findings illustrate that the relationship between multinationality and performance is dynamic. This demonstration requires the emerging body of theory to go beyond simple, linear explanations. We also highlight the need to consider how firm heterogeneity,

such as a firm's asset advantages, and other structures and decisions in its internationalization process, influence the performance outcomes of a geographic diversification strategy.

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