Redefining the Three-Stage Hypothesis of International Expansion

By

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Abstract

Empirical studies on international expansion, that have followed the six years since the publication of the 3-stage paradigm for international expansion, have shown only limited support for the S-curve hypothesis. But while the basic concept is unassailable, the very generality of the paradigm is its weakness in empirical studies. A study's sample has to include firms in all three stages to have empirical verification. The field needs more fine-grained distinctions, such as territorial coverage, product diversification and other firm-specific variables. This research note shows that the territorial scope covered by the firm makes a substantial difference to the relationship between multinationality and performance. Moreover, the effect of multinationality on performance can be overwhelmed by other firm-specific variables, such as product diversification. The path of international expansion is a much more complex process than is shown by existing studies. The results also suggest three generic types of international expansion strategies with which a MNE can increase its market value.

INTRODUCTION

Few topics are more central to the study of international business than the link between the multinationality and performance. Despite a growing literature, empirical results have been inconclusive and contestable. Depending on the study, they show linear, U-shaped, inverted U-shaped or a S-shaped fit between the degree of internationalization and performance. Recently, the three-stage paradigm (Contractor, Kundu, & Hsu, 2003; Lu & Beamish, 2004) attempted to reconcile these views by positing differential positive and negative effects on a firm's performance, depending on the stage of its international expansion.

Some argue that trying to explaining firm performance based on a single explanatory variable (namely the firm's degree of multinationality) is bound to produce contradictory results from different studies, since the samples chosen for each study will vary (Contractor, 2007; Tallman & Li, 1996). Kotabe, Srinivasan and Aulakh (2002), Ruigrok, Amman and Wagner (2007), and others, propose that additional firm and industry-specific variables need to be introduced for a more refined explanation of profitability. Specifically, Hitt, Tihanyi, Miller and Connelly (2006) suggest that international and product diversification variables *both* need to be included as explanatory variables, together with their interactions.

The contribution of this research note is to introduce as explanatory variables, (i) the regional dimension, (ii) product diversification as well as (iii) the interactions between the two. The empirical results show that the 3-stage paradigm only works for firms that are global in their territorial coverage. The results also show that the interactive effect of product diversification on performance is negative when the MNE has expanded mainly into proximate foreign markets, whereas the effect is positive for companies whose expansion has mainly been in geographically distant foreign markets. These findings can be a spur for further, more nuanced research.

A longitudinal dataset comprising 315 U.S. MNEs was used, where information on performance, product diversification, and country coverage was available for 1998 to 2004. The sample was divided into three sub-groups where the firm had expanded mainly into (i) Proximate foreign markets in its own

region, (ii) Geographically distant foreign markets outside its home region, and (iii) both near and far territories, or a "global" coverage. The results for each sub-group are intriguingly different, clarify to some extent the reasons for the seemingly contradictory results of prior studies, and provide fodder for further theory development and research.

LITERATURE REVIEW AND RESEARCH QUESTIONS

According to Hennart (2007), more than 100 empirical studies have investigated the relationship between multinationality and performance in top tier journals. Early research on this topic found a positive linear relationship between multinationality and performance (e.g., Errunza & Senbet, 1981; Kim & Lyn, 1986; Grant, 1987), while Siddharthan and Lall (1982) and Fatemi (1984) found a negative linear relationship. Later research was significantly improved by introducing non-linear models. Geringer, Beamish and daCosta (1989) and Hitt, Hoskisson and Kim (1997) found an inverted U-shaped relationship, implying that a firm derives incremental benefits of international expansion which are greater than the incremental costs of internationalization costs – up to a point – but that, with further internationalization, costs exceeded benefits and produced a downturn in performance. On the Performance vs. Internationalization map, a positive slope is followed later by a negative slope. However, contradictory results were obtained by Lu and Beamish (2001) and Ruigrok and Wagner (2003), among others, who found a U-shaped relationship. A U-shaped relationship suggests a negative effect on the firm in early internationalization, followed later on, with further international expansion, by learning, experience and scale effects, which produce a positive slope on the Performance vs. Internationalization graph.

The three stage paradigm (Contractor, Kundu & Hsu, 2003; Lu & Beamish, 2004; Riahi-Belkaoui, 1998; Thomas & Eden, 2004) attempted to reconcile these seemingly contrary results. It proposes that international expansion reduces performance at the initial, or early, stage of internationalization (Stage 1) due to the liability of foreignness, insufficient international experience and because, initially, there is only one (or a few) nations over which to spread the costs and overheads of early internationalization. In Stage 2, with additional territorial coverage and experience, the MNE

would enjoy the positive effect of further internationalization on performance because of economies of scale and scope, learning, risk diversification and market power. The internationalization literature (e.g., Johanson & Vahlne, 1977; Johansson & Wiedersheim-Paul, 1975) posits that MNEs reduce their internationalization costs (the liability of foreignness) by expanding into familiar markets where their domestic market knowledge is likely to be applicable. Rugman and Verbeke (2004) show that MNEs focus on proximate countries in their own region (whether their home base is North America, Europe or Asia-Pacific). This proximity or familiarity results in lower transaction, adaptation and learning costs than the case where expansion is in distant territories. For companies that have expanded beyond an optimal degree, in Stage 3, the effect of yet more international coverage would be detrimental to performance. This is because the costs of coordinating and managing very (culturally and institutionally) distant markets, in this third stage, exceed the benefits derived from these additional markets – since it is likely that Stage 3 expansion would be in tertiary or peripheral markets –the better, larger and less-risky territories having already been covered by the firm in Stage 2 expansion.

The 3-stage paradigm thus attempts to reconcile past contradictory results by including *both* a U as well as an Inverted-U curve. In Figure 1, we see that if a sample of companies mainly covered Stages 1 and 2, the statistical fit would be U-shaped. Another sample, by focusing mainly on firms that have *gone beyond* their early internationalization stage and populate Stages 2 and 3, would show an inverted U-shaped curve. If the sample contained mainly Stage 3 firms, the statistical fit would be a linear negative slope as seen in a few studies such as Siddharthan and Lall (1982) and Fatemi (1984).

But how to demonstrate this proposition empirically? The 3-stage paradigm is, in one sense, a longitudinal explanation. Longitudinal studies are vanishingly rare in this sub-field because of data availability over a long enough time period. This research note provides some answers by tagging each firm in our sample with a territorial or regional indicator. If we can show that the effects of incremental international expansion (on performance) vary depending on the regional coverage of the firm, this would support the implicit argument of the 3-stage paradigm, that different firms populate the three

different stages of the model.

[INSERT FIGURE 1 HERE]

The first and second stages taken together explain the U-shaped results found in the literature. In the last stage, the relationship becomes negative again due to excessive internationalization, because of the complexities of coordination and adaptation in far-flung and peripheral markets. The second and third stages, taken together, explain the inverted U-shaped relationship found in other samples.

The initial costs of Stage 1 internationalization include liabilities of foreignness, learning costs, unrealized scale economies and administrative costs initially spread over only one, or few, foreign markets. The initial costs of internationalization in Stage 2 are outweighed by the incremental benefits of further international expansion into other culturally, institutionally and geographically proximate nations, so that the net effect on performance has a positive slope in Figure 1. In Stage 2 the firm is able to enjoy economies of scale and scope; access to foreign ideas and cheaper inputs; fuller utilization of capacity; the ability to disaggregate their value chain more finely according to each nation's comparative advantage; diversification of business cycle and currency risk; accumulated international experience; and in some cases greater market power.

The internationalization literature posits that the firm expands initially, and even later for the most part, in their own home region of the triad due to lower adaptation costs and a better ability to deploy firm specific advantages (Rugman & Verbeke, 2004; Johanson & Vahlne, 1977). We call this type of internationalization strategy the Proximate-region expansion strategy in Figure 1. Internationalization benefits are reached more quickly when the MNE operates within a homogeneous market than when it operates across several heterogeneous markets.

As a firm extends its international expansion, it will serve more distant, heterogeneous, and even peripheral and risky markets. Serving many heterogeneous markets does provide incremental benefits such as learning and resource sharing (Lu & Beamish, 2001). However, eventually in Stage 3, with the majority of its operations in distant markets, incremental coordination and governance costs become greater than the benefits (Tallman & Li, 1996). An MNE will begin to show a negative relationship

between performance and internationalization in the third stage. We call this type of strategy the Distant-region expansion strategy.

A MNE which operates within *both* the relatively homogeneous market (Proximate-region) and heterogeneous markets (Distant-region) will populate all three-stages. We call this type of strategy the global expansion strategy.

Performance is Contingent on Other Firm-Specific Factors

A criticism of this literature has been its dependence on only one explanatory variable – internationalization. Surely, critics say, performance is also contingent on other firm-specific factors such as R&D Intensity and Advertising Intensity (Kotabe, Srinivasan & Aulakh, 2002). Other literature, exemplified by Hitt *et al*. (2006) has attempted to link (i) product diversification with (ii) international "diversification" in order to explain performance. However, the *interaction* between the two is far from clear. (This research note provides some directions for further research). Product diversification, *per se*, provides benefits such as synergies and transfer of ideas across product divisions, economies of scope, better utilization of assets, and better access to capital. But as in the case of internationalization, product diversification – beyond an optimal point – reduces performance due to complexity, bounded rationality, and escalated governance costs. Too much diversity reduces synergistic and learning benefits. The result can be an overall inverted-U-shaped curve for the Performance-Product Diversification graph (Palich, Cardinal & Miller, 2000; Tanriverdi & Venkatraman, 2005). But how product and international diversification interact remains inconclusive.

METHOD

Data

Data for U.S. MNEs were gathered from *Compustat Segment* (for sales, assets, R&D expenditure and advertising expenditure, by industry classifications and geography) and *Compustat Industry Annual* (for performance data). Regrettably, each firm reports geographic information based on its own classification. In this study, we used a modified version of Rugman's (2005) triad classification, as either Proximate-region (NAFTA countries) or the Distant-region which comprisies all other countries. Because

of changes in the accounting standard (FASB 131), we could only use data after 1998 when FASB 131 established standards for disclosure about related products and services, geographic areas and major customers.

The final sample includes 835 observations for 315 firms in 36 industries using the 2-digit North American Industry Classification System (NAICS) between 1998 and 2004. 1,173 firms disclosed their sales by geographic and industry segments for 1998-2004. Excluding purely domestic firms reduced the number of firms in the sample to 327. Among the 327 firms, we were able to gather information on R&D and advertising intensity of 315 firms.

For the 315 firms in our sample, 80 firms, 39 firms and 196 firms were classified into the Global, Proximate-region and Distant-region expansion strategies, respectively. The characteristics of the three types of firms were not statistically different for any variables except R&D intensity (0.21 for the Global-expansion strategy; 0.12 for the Proximate-region expansion strategy; and 0.46 for the Distant-region expansion strategy).

The degree of multinationality (foreign-to-total sales) of the global-expansion strategy group was the highest at 0.25, while the multinationality of the Proximate-region expansion strategy group was the lowest at 0.07, and for the Distant-region expansion strategy group it was 0.17. Standard deviation for multinationality in each group was high; none of the groups were statistically different from each other in regard to the degree of multinationality. In total, the sample firms averaged approximately 18% of their sales in foreign countries. The summary statistics and correlation matrix are shown in Table 1.

[INSERT TABLE 1 HERE]

Model and Variables

The dependent variable is the log of the firm's market value – the sum of the common equity, preferred stock and debt. We also used Tobin's Q as a dependent variable used in prior studies, as a robustness check, but the results were not appreciably different. While the market value of a firm is the sum of net tangible and intangible assets, the latter comprise the key assets for most companies, and a significant relationship exists between the market value of the firm and its intangible assets (Hall, 1993;

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Griliches, 1981). If multinationality affects the market value of a firm, then it should stem from the intangible portions of the assets (Morch & Yeung, 1991).

In the empirical model we included product diversification and the interaction between multinationality and product diversification (Delios & Beamish, 1999; Tallman & Li, 1996; Geringer, Beamish, & daCosta, 1989). We also included other control variables such as R&D intensity, advertising intensity and firm size.

The model tested is:

$$
\begin{aligned}
\ln(\text{MV})_{i,j,t} = {} & \beta_0 + \beta_2 \text{MULTI}_{i,t} + \beta_3 (\text{MULTI})_{i,t}^2 + \beta_4 (\text{MULTI})_{i,t}^3 \\
& + \beta_5 (\text{PDIV})_{i,t} + \beta_6 (\text{PDIV} \times \text{MULTI})_{i,t} + \beta_7 (\text{R \& D})_{i,t} + \beta_8 (\text{ADV})_{i,t} \\
& + \beta_9 \ln(\text{TA})_{i,t} + \beta_{10} \ln(\text{MV})_{i,t-1} + \mu_j + \nu_t + \varepsilon_{i,j,t} \quad ,
\end{aligned}
$$

(1)

where subscripts i, j and t represent firm, industry and year, respectively. MULTI represents multinationality (foreign-to-total sales). PDIV represents product diversification, which is measured by a Herfindahl type index ($1 - \sum P_i^2$, where P_i is the proportion of a firm's sales in the 4-digit industry i). We also used the number of 4-digit industries in which the firm operated instead of the Herfindahl type index for a robustness check. R&D and ADV are R&D intensity and advertising intensity, respectively, measured by R&D and advertising expenditures divided by the firm's tangible assets. ln(TA) is the log of tangible assets, a proxy for firm size. We also included one-year lagged dependent variable ($\ln(\text{MV}_{t-1})$) in order to control the unobserved firm specific characteristics.

ANALYSIS AND RESULTS

Equation (1) was tested using an ordinary least squares regression model with a heteroskedasticity robust standard error. We controlled for year-fixed and industry-fixed effects. We tested this on the total-sample (Model (1) in Table 2) and on sub-categories to see if different regional expansion strategies affect the relationship between multinationality and performance: Model (2) for the Global expansion strategy group; Model (3) for the Proximate-region expansion strategy and Model (4) for the Distant-region expansion strategy category.

[INSERT TABLE 2 HERE]

As Model (1) of Table 2 shows, none of the coefficients of for the multinationality variable are statistically insignificant. We also tested linear only and quadratic only equation models but the coefficients remained statistically insignificant. Thus, the combined total-sample analysis does not support any relationship between multinationality and performance.

However, the sub-group analyses provided clear empirical evidence to support the three-stage hypothesis, as well as the significant finding that *the geographical scope of the MNE's operations is indeed very relevant*. In Model (2), the coefficients of the cubic, quadratic and linear terms for multinationality are all statistically significant, with signs as predicted by the 3-stage paradigm. The results strongly support an S-curve fit – but only for Global-expansion strategy firms that have operations in both proximate and distant regions. This sub-sample has firms operating in all three stages. Some are barely beginning their initial international expansion. Incidentally, the paradigm recognizes that Stage 1 will be relatively short – for most firms only a "rite-of-passage" before the beneficial effects of subsequent internationalization kick in (Contractor, 2007). For this sub-sample, the market value of Global-coverage firms is maximized (at the inflexion point between Stages 2 and 3 in Figure 1) when the MNE has 58% of its total sales in foreign countries. (Incidentally, market value is 3% higher than the market value of a domestic firm, *ceteris paribus*). For this subset of firms, performance was minimized (at the inflexion point between Stages 1 and 2) when the MNE had 18% of its total sales in foreign countries. (Incidentally, such MNEs' market value is 15% lower than the market value of a domestic firm, *ceteris paribus*). Therefore, the marginal effect of international expansion is positive when the MNE's foreign sales range between 18% and 58% of total sales. Thus, an MNE using the global expansion strategy would go through all three stages of international expansion. The interaction between multinationality and product diversification is negative and non-significant.

In Model (3), for the Proximate-region subsample, the linear term of multinationality is positive and statistically significant. We also tested the quadratic and cubic equations, but the multinationality variables were statistically insignificant. (These results are available upon request). A positive-linear fit best explains, for the Proximate-region sub-sample, the link between performance and international

expansion. Expanding in the MNE's proximate region raises its market value. The interaction between multinationality and product diversification was negatively significant.

Why was a U-shaped (quadratic relationship) not established, as expected from the paradigm in Figure 1? This may be an artifact of the sample or statistical analysis. But another plausible explanation is that Stage 1 (the initial international foray) is *a priori* expected to be short for most companies. With the left side of the U being relatively small, Stage 2 effects overwhelm Stage 1 in a combined pool. Then, the better statistical "fit" in this and some other studies (Errunza & Senbet, 1981; Kim & Lyn, 1986; Grant, 1987) is simply a positive linear relationship.

Model (4) shows that multinationality is negatively related to the market value of the MNE. A negative-linear fit best explains the effects of international expansion into the distant region. The quadratic and cubic terms for multinationality were again statistically insignificant – likely because the Stage 3 negative effects of far-flung or distant region internationalization outweighed the positive effects of Stage 2. Recall that the 3-stage paradigm explicitly posits a negative slope for expansion into culturally, institutionally and geographically distant regions). The dominant effect and conclusion is negative. However, this negative relationship can be moderated by product diversification. The interaction between multinationality and product diversification is positive and significant.

This study thus enriches and confirms the 3-stage paradigm by showing the dominant positive and effects of international expansion, depending on the proximate or distant region used for expansion. It also confirms that, for the "global" subsample – where the firms have expanded into both proximate and distant regions – the complete S-curve hypothesis, as shown in Figure 1, applies.

Additional Checks

Robustness checks appear in the Appendix. We test Equation (1) with different measures of product diversification and performance. In the first four columns of Appendix, we use the number of 4-digit industries in which a firm had sales as the product diversification variable when the log of the market value is the dependent variable. In the second four columns, we use Tobin's Q as the dependent variable. The results are consistent with the results found in Table 2.

We also tested the model with a somewhat larger sample by excluding data on R&D and advertising intensities. The results remained consistent and robust. We do not report these results but they are available upon request.

ADDITIONAL DISCUSSION

The empirical results show that, generally, proximate-region expansion increases a MNE's market value, although product diversification – acting in interaction with multinationality – reduces its positive effect on performance. Thus the marginal effect of multinationality, for proximate-region expansion, becomes negative when the Herfindahl Index for product diversification is 0.16. Several studies show that product diversification beyond a threshold produces negative effects (e.g., Palich, Cardinal & Miller, 2000).

The more intriguing result is that distant-region expansion reduces a MNE's market value. If so, why do MNEs expand globally or into distant regions? For some, it may be an inadvertent, unknowing or mimetic strategy. But another possibility, suggested by these results, is that product diversification can moderate or overcome the negative effects of distant region expansion on performance. In Table 2, the interaction between multinationality and product diversification is statistically significant, with a positive sign, for distant-region expansion strategies. In fact, when the Herfindahl Index for product diversification is greater than 0.2, the marginal effect of multinationality changes from negative to positive for distant market expansion.

To put this in perspective: Past studies such as Delios and Beamish (1999), Geringer, Tallman and Olsen (2000), Lu and Beamish (2004) and Tallman and Li (1996) have analyzed the moderating role of product diversification in the relationship between multinationality and performance, but their results are inconsistent. One *ex post* hypothesis we can propose for future research is that the more diversified firms are more likely to access, and be receptive to, idiosyncratic or novel knowledge available in distant markets – knowledge which they can then utilize to improve performance in their home and proximate markets, and overall. Doukas and Lang (2003) argued that the moderating role of product diversification was likely to be strong when an MNE diversified outside of its core business in the international market,

while the moderating role was likely to be weak when an MNE diversified its core business into the international market.

Figure 2 illustrates the link between multinationality and product diversification for all three types of international expansion strategies. Figure 2(a) depicts the relationship for average values of product diversification (product diversification index = 0.12). The proximate-region expansion strategy results in a higher market value for the MNEs. With a higher product diversification index = 0.151, and the multinationality value about 0.58, the global expansion strategy yields the highest performance, although a proximate-region strategy still yields positive market values (See Figure 2 (b)). When the product diversification index equals to 0.205 in Figure 2 (c), a distant-region strategy offers a higher performance outcome than the global expansion strategy does. For the even higher levels of product diversification, (for example, one standard deviation from the mean when the product diversification index = 0.33), a distant-region strategy yields a distinctly positive effect on market value for a MNE, while highly product diversified firms expanding only in their proximate markets show a very negative effect.

[INSERT FIGURE 2 HERE]

TENTATIVE CONCLUSIONS AND FURTHER RESEARCH DIRECTIONS

In retrospect, the 3-stage paradigm of international expansion is a self-evident proposition – that a firm will suffer significant threshold costs of its initial foray outside its home country (Stage 1) resulting in a downturn in performance; but in Stage 2 incremental benefits of further international expansion will outweigh incremental costs to produce positive effects on performance; and that finally, if international expansion is carried too far in Stage 3, incremental costs are greater than benefits, resulting in a negative effect on performance because of excessive internationalization.

But while the concept is unassailable, the very generality of the paradigm is its weakness in empirical studies, for two reasons.

(i)   A study's sample has to include firms in all three stages to have empirical verification. For example, in this study, only the "global" firm sub-sample, where firm had operations in *both*

proximate as well as distant markets, was the complete S-curve seen in the results in Figure 2. Other studies, or sub-samples that cover only some stages of the paradigm, or certain regions, may only see truncated results. (Truncating the S-curve can produce either U, inverted-U, or linear results in a statistical "fit" as we saw in this study's findings for proximate-region only, or distant-region only subsamples).

(ii)   The effect of the multinationality variable on performance can be overwhelmed by other firm-specific variables, such as product diversification. Firm performance is, obviously, not just a function of degree of multinationality but also other company characteristics.

The contribution of this research note toward further research is to illustrate a finer-grained approach. It shows that *where* the firm expands internationally matters. By breaking the sample down by regional coverage, we were able to show different effects of multinationality on performance. Additional directions for research come from the differential findings for product diversification on proximate-region vs. distant-region coverage. The path of international expansion is a much more complex process than is shown by existing studies. Other directions for research could include investigating whether the MNE's intangible assets (Berry, 2006) and economic development of markets affect its expansion trajectory (Pantzalis, 2001). The interaction between internationalization and product diversification remains a complex issue deserving further dissection and even more of a fine-grained approach. For instance, Chang and Wang (2007) find differential results for related versus unrelated diversification.

In terms of managerial implications, the results imply three generic types of international expansion strategies with which a MNE can increase its market value. The first strategy is for the MNE to seek integration and scale benefits in its own geographic region while focusing on few products. The second strategy is for the MNE to seek new knowledge and learning benefits by expanding into heterogeneous distant-region markets with a higher level of product diversification. The third strategy – available obviously mainly to larger firms – is a combination of the first (integration) and second (learning) strategies where the MNE expands both into homogeneous and heterogeneous markets with a medium level of product diversification.

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Table 1 Summary Statistics and Correlation Matrix

	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.
1. Log of Market value	3.02	2.33							
2. Tobin's Q	0.70	0.32	-0.087*						
3. Log of assets	4.48	2.03	0.917**	-0.123**					
4. Multinationality	0.18	0.17	0.261**	-0.199**	0.297**				
5. Product (H) diversification	0.12	0.21	0.171**	-0.250**	0.140**	0.079*			
6. Product (N) diversification	1.66	1.19	0.2122**	-0.229**	0.178**	0.074*	0.838**		
7. R&D intensity	0.16	0.23	-0.333**	0.076*	-0.400**	-0.063†	-0.081*	-0.130**	
8. Advertising Intensity	0.04	0.08	-0.029	-0.012	-0.075*	-0.088*	0.023	0.046	0.051

Note: N=835. $^{\dagger}P < 0.1$; $^*P < 0.05$; $^{**}P < 0.01$ (Two tailed). Product (H) diversification is a herfindahl type measure. Product (N) diversification is a number of 4-digit industries, in which a firm has sales. Product (H) diversification and product (N) diversification do not enter the model together.

Table 2 Regression Results: Redefining the Three-Stage Paradigm

	Dependent Variable: Log of Market Value			
		Sub-group analysis		
	Total-sample (pooled analysis) Model (1)	Global expansion Model (2)	Proximate-region expansion Model (3)	Distant-region expansion Model (4)
Multinationality	0.4717	-1.9596*	0.5280*	-0.4190†
	(1.0944)	(0.8204)	(0.1851)	(0.2440)
Multinationality square	-2.9143	6.9987*		
	(5.1103)	(2.4564)		
Multinationality cubic	2.7621	-6.0740*		
	(5.0608)	(2.1622)		
Product diversification	-0.1025	0.4702	-0.0196	-0.2735
	(0.1374)	(0.3422)	(0.3010)	(0.3046)
Multinationality × Product diversification	0.9551+	-0.8873	-3.2702***	2.1601*
	(0.4941)	(0.8980)	(0.5716)	(0.9435)
R&D intensity	0.0337	0.1433	0.0580	0.0419
	(0.2494)	(0.5340)	(1.1196)	(0.2764)
Advertising intensity	0.4081	-1.1059	0.7949	0.3120
	(0.3949)	(0.8490)	(1.0118)	(0.2301)
Log of assets	0.5286***	0.4542***	0.8046***	0.5101***
	(0.0419)	(0.0441)	(0.1500)	(0.0495)
Lagged log of market value	0.5135***	0.5532***	0.2496†	0.5497***
	(0.0357)	(0.0495)	(0.1211)	(0.0332)
Constant	-0.9587***	-0.5868***	-1.0284**	-0.9695***
	(0.1778)	(0.0804)	(0.2868)	(0.2154)
Number of observations	835	228	116	491
R Square	0.902	0.953	0.904	0.869

Notes: Industry-fixed and year-fixed effects are estimated but are not reported here. Heteroskedasticity robust standard errors are in parentheses. $^{\dagger}P < 0.1$; $^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$ (Two-tailed). Foreign-to-total sales is used for multinationality. A Herfindahl type measure ($1 - \sum P_i^2$, where P_i is the proportion of a firm's sales in 4-digit industry i) is used for product diversification.

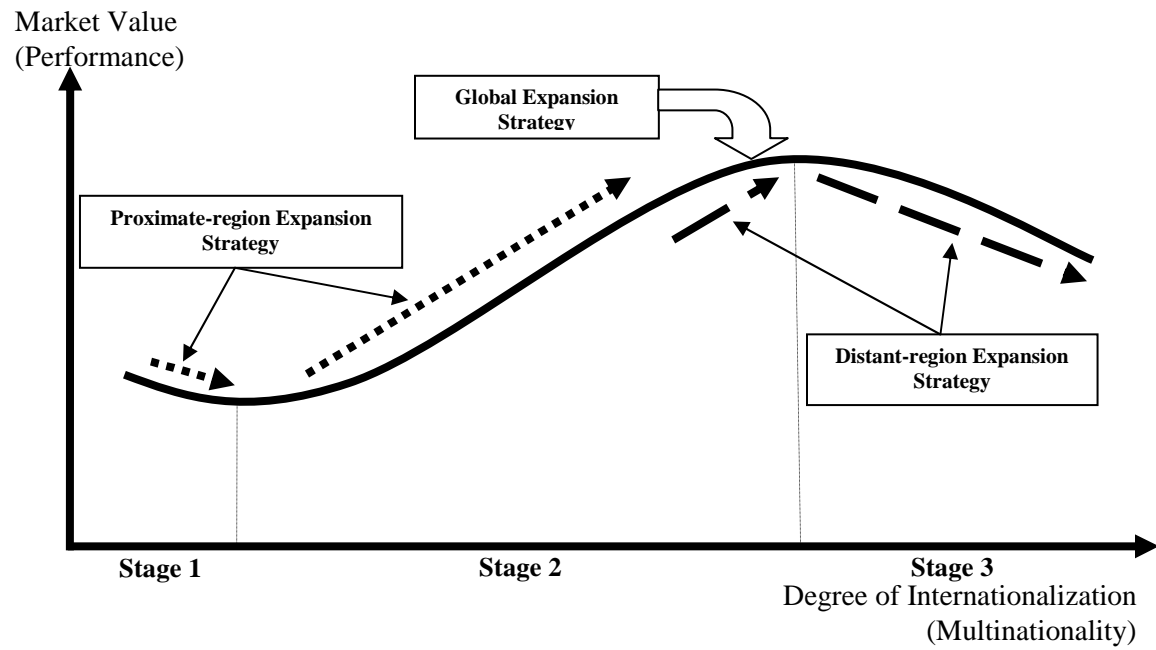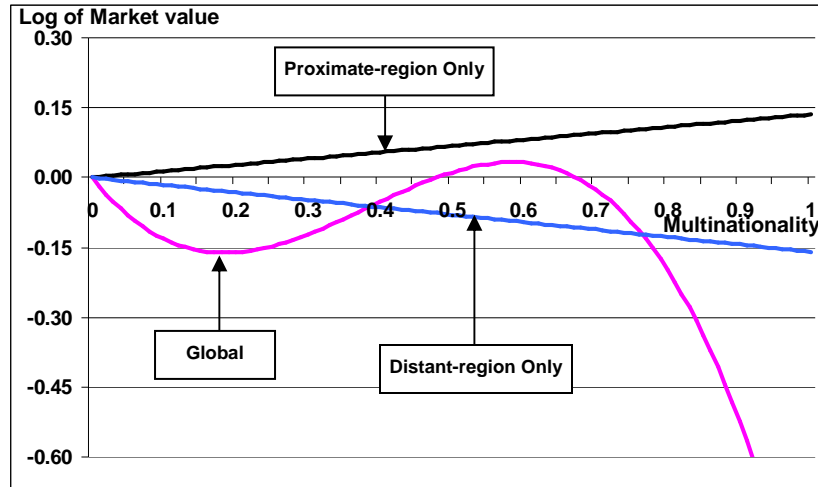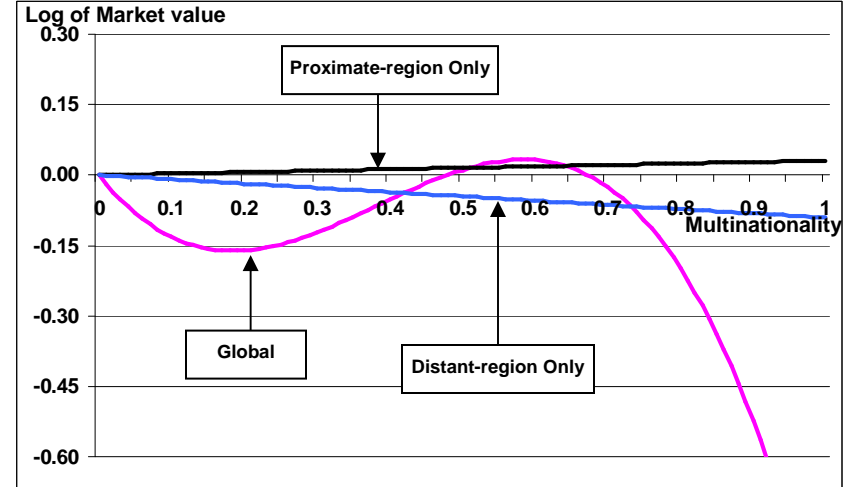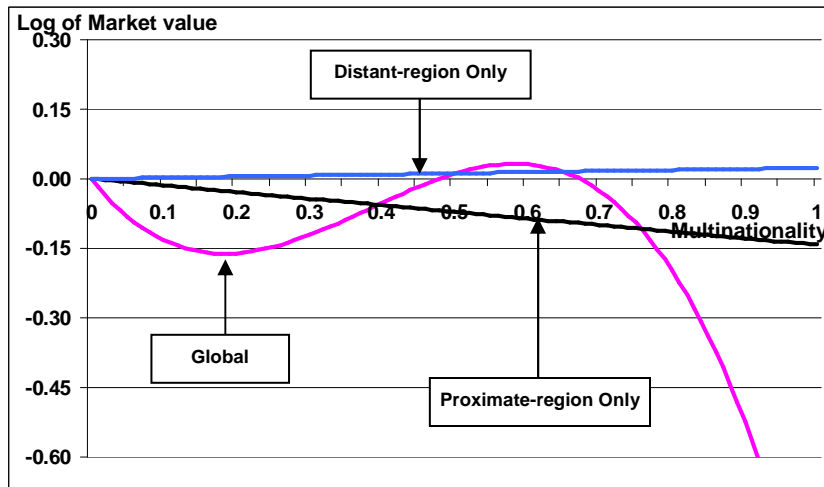**Figure 1** The Three-Stage Paradigm and Heterogeneous Strategies

Figure 2 The Performance Implication of International Expansion strategy and Product Diversification

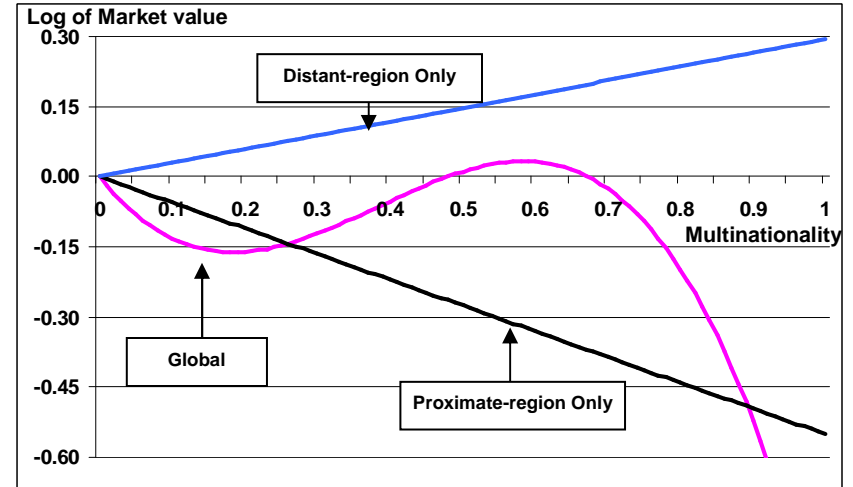(a) At the sample mean of product diversification = 0.12

(b) When product diversification index = 0.152

(c) When product diversification index = 0.205

(d) At one standard deviation from the sample mean
Product diversification index = 0.33

Note: The vertical axis is the log of market value and the horizontal axis is foreign to total sales. The graphs are drawn based on the results in Models (2) – (4) of Table 2.

Appendix Robustness Checks

	Dependent variable: Log of market value				Dependent variable: Tobin's Q			
		Sub-group analysis				Sub-group analysis		
	Total-sample Model (1)	Global expansion Model (2)	Proximate-region expansion Model (3)	Distant-region expansion Model (4)	Total-sample Model (1)	Global expansion Model (2)	Proximate-region expansion Model (3)	Distant-region expansion Model (4)
Multinationality	0.2592	-1.7443*	1.4039**	-0.8117†	-0.1466	-0.1781	0.5360†	-0.2193***
	(1.0309)	(0.7956)	(0.4610)	(0.4045)	(0.1196)	(0.1434)	(0.2669)	(0.0262)
Multinationality square	-2.829	7.3547**			0.4441	1.2934**		
	(5.0175)	(2.5537)			(0.4078)	(0.3578)		
Multinationality cubic	2.5292	-6.3009**			-0.8847*	-1.2844**		
	(4.9636)	(2.1529)			(0.3797)	(0.3388)		
Product diversification	-0.0141	0.117	0.0059	-0.0286	-0.0331***	0.0039	-0.0173	-0.0568***
	(0.0132)	(0.0932)	(0.0548)	(0.0324)	(0.0082)	(0.0097)	(0.0185)	(0.0145)
Multinationality × Product diversification	0.2050**	-0.2622†	-0.7197***	0.4048*	0.0735*	-0.0447	-0.2396**	0.1352***
	(0.0680)	(0.1443)	(0.1703)	(0.1747)	(0.0319)	(0.0262)	(0.0625)	(0.0233)
R&D intensity	0.0390	0.1130	-0.0548	0.0542	-0.0810**	0.0823	-0.2103	-0.1192*
	(0.2497)	(0.5443)	(1.0971)	(0.2692)	(0.0252)	(0.1116)	(0.2184)	(0.0544)
Advertising intensity	0.3912	-1.0654	0.8828	0.2738	-0.0089	-0.051	-0.2096	-0.0921
	(0.3989)	(0.8760)	(0.9400)	(0.2540)	(0.0983)	(0.1252)	(0.2194)	(0.0856)
Log of assets	0.5299***	0.4666***	0.8048***	0.5147***	-0.0096***	0.0014	0.0009	-0.0060*
	(0.0412)	(0.0508)	(0.1481)	(0.0431)	(0.0019)	(0.0019)	(0.0103)	(0.0022)
Lagged dependent variable	0.5111***	0.5433***	0.2524*	0.5453***	0.8604***	0.7247***	0.6100***	0.6444***
	(0.0346)	(0.0587)	(0.1174)	(0.0288)	(0.0225)	(0.0696)	(0.1029)	(0.0621)
Constant	-0.9477***	-0.7348**	-1.0556**	-0.9541***	0.1989***	-0.0105	0.3719*	0.4513***
	(0.1800)	(0.2043)	(0.2658)	(0.2230)	(0.0260)	(0.0336)	(0.1351)	(0.0313)
R Square	0.902	0.953	0.902	0.869	0.691	0.628	0.648	0.502

Notes: See the notes of Table 2. Product diversification is measured by the number of 4-digit industries, in which a firm has sales.