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Internationalization and Performance: An Organizational Learning Perspective

Abstract

- For over 30 years, researchers have investigated the relationship between corporate internationalization and performance. While most recent findings indicate that the link may exhibit a non-linear form, researchers disagree on the exact shape of the statistical curve.
- In this study, the relationship was examined through cross-sectional and longitudinal statistical analyses of data from 84 German manufacturing companies during the 5-year period 1993–1997.

Key Results

- A standard-U form of the internationalization-performance relationship was found across all statistical techniques applied. Organizational learning appears to accompany the internationalization process of multinational corporations (MNCs).

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Manuscript received April 2001, revised September 2001.

Introduction

The relationship between the internationalization and the performance of corporations has triggered extensive interdisciplinary research throughout the last three decades (for reviews of the literature see Annavarjula/Beldona 2000, Ramaswamy 1992, Sullivan 1994a). Researchers have examined the link between performance and the degree of internationalization, attempting to prove empirically the theoretical argument that international expansion represents a precondition for superior financial success. Postulating only the benefits of internationalization, early studies in the 1970s and 1980s hypothesized a linear relationship between the degree of internationalization (DOI) and firm performance. The findings of these inquiries have been inconsistent and contradictory.

Recognizing that internationalization can be subject to risk and failure, researchers in the 1990s acknowledged that internationalization brought both benefits and costs, with costs exceeding benefits at high levels of internationalization (Daniels/Bracker 1989, Geringer/Beamish/daCosta 1989, Gomes/Ramaswamy 1999, Ramaswamy 1995). In the inverted-J curve of the relationship, researchers identified an 'internationalization threshold', a point in firms' expansion process at which global complexity starts to strain managerial and organizational capacity. The downturn in performance at high levels of internationalization was interpreted as implying that companies may benefit from targeting a certain universally applicable, or at most an industry-specific, ratio of domestic to foreign operations.

This prescription was soon questioned. Sullivan (1994b, p. 166) vehemently challenged the notion of a static and undifferentiated 'threshold of internationalization', arguing that the supposition of a "deterministic relationship between financial performance and internationalization, seemingly irrespective of the type or strategy of the MNC, questions the premise of proactive management." His statistical analyses indicated that the internationalization-performance relationship "is characterized by at least one, if not a series of, 'convergence, decline, reorientation, convergence cycles'." More recently, the findings by Riahi-Belkaoui (1998) confirmed the existence of such an horizontal-S form of the link.

In our study, we attempted to further illuminate and resolve some of the controversies surrounding the internationalization-performance link. Using a company sample from Germany and with the help of multiple statistical techniques, we examined the relationship for the period 1993–1997. The article is structured as follows. First, we depict the settings, conceptual frameworks, and methodological procedures of previous inquiries into a non-linear DOI-performance relationship. In particular, we discuss two seemingly opposed theoretical foundations on which prior investigators have based their arguments. A synthesis leads to hypothesis formulation. We then describe our company sample, applied variable con-

ceptualization/operationalization, and analysis techniques. This is followed by the presentation of results. Sections on discussion/conclusions and limitations/recommendations close the article.

Literature Review

Previous Theoretical Frameworks, Methodologies, and Results

Early investigators shared a strong focus on the benefits of international expansion and a consequent suggestion of a positive, linear form of the internationalization-performance relationship. These inquiries have produced inconsistent and contradictory findings. Most prominent researchers in the field now argue that the omission of internationalization costs in the theoretical frameworks of early inquiries would largely explain the ambiguous results (Gomes/Ramaswamy 1999, Hitt/Hoskisson/Kim 1997, Sullivan 1994b).

Addressing this conceptual shortcoming, researchers in the late 1980s started to discuss the benefits as well as the costs of corporate internationalization in their studies, suggesting a curvilinear form of the relationship. Table 1 contains a brief overview of the seven studies identified that have examined a non-linear DOI-performance link. Whereas early researchers touched only lightly on the issue of internationalization costs (e.g., Daniels/Bracker 1989 merely used the expression, “operating risks”, p. 48), authors in the 1990s elaborated both the benefits and costs and their potential interplay.

Benefits of Internationalization

The benefits of internationalization are suggested and described by two core theory streams: theories of foreign direct investment (FDI) and theories of the multinational firm.

FDI theories, which are primarily economics-driven and hence focused on factors located in the firm’s external environment, aim to explain why multinational companies exist. Imperfections in international product, factor, and financial markets are postulated to benefit firms that internationalize. Whereas scholars in international business and industrial organization economics normally emphasized economies of scale and scope (e.g., Buckley/Casson 1976, Caves 1971), researchers in financial economics stressed portfolio diversification and its effect on companies’ risk-return performance (e.g., Lessard 1976, Levy/Sarnat 1970).

Table 1. Previous Inquiries Into a Non-linear DOI-Performance Link: Sample Characteristics, Theoretical Frameworks, Methodologies, and Results

Author(s) and Year	Sample and Time Period	Theoretical Framework	Key Variables Operationalization*	Statistical Technique	Result(s)
Daniels/Bracker 1989	116 US companies in eight industries ^a ; 1974–1983	FDI; operating risks	DOI: FSTS and FATA; Performance: after-tax ROS and ROA	ANOVA, six intervals (0–10; 10–20; 20–30; 30–40; 40–50; 50 and above)	Identification of internationalization threshold within ‘50% and above’ DOI interval; threshold industry-specific
Geringer/Beamish/daCosta 1989	100 US and European companies, respectively; 1977–1981	FDI; internal and external costs	DOI: FSTS; Performance: after-tax ROS and ROA	ANOVA, five intervals (0.1–19.9; 20–39.9; 40–59.9; 60–79.9; 80–99.9)	Identification of internationalization threshold within ‘60–79.9%’ DOI interval
Sullivan 1994	75 US companies dominantly in seven industries ^b ; 1988–1990	FDI, organizational evolution theories, comparative management; internal and external costs	DOI: multi-item index; Performance: after-tax ROS and ROA	ANOVA, five intervals based on DOI index	Relationship between DOI and performance characterized by series of ‘convergence, decline, reorientation, convergence’ cycles (trigonometric wave)
Ramaswamy 1995	25 US companies in the drug and pharmaceutical industry; 1980–1987	FDI, theories of locational choice; internal and external costs	DOI: FATA; Performance: after-tax ROS, ROA, and ROVA	Pooled cross-section/ time-series analysis; control for size	Identification of internationalization thresholds at a DOI of 0.56 for ROA, 0.82 for ROS, and 0.64 for ROVA
Hitt/Hoskisson/Kim 1997	295 US companies; 1988–1990	FDI, theory of the multinational firm, organizational learning; internal and external costs	DOI: entropy measure (sales diversification across four distinct regions); Performance: ROA and R&D intensity	Classical regression analysis; control for size, industry, capital structure, and internationalization mode	Relationship between DOI and performance characterized by an inverted-U (full sample and moderate diversifiers), standard-U (nondiversifiers), and linear shape (high diversifiers)
Riahi-Belkaoui 1998	100 US companies; 1987–1993	FDI	DOI: FSTS; Performance: ROA	Classical regression analysis with three DOI-range variables (0–14; 14–47; 47 and above); control for size	Relationship between DOI and performance characterized by a horizontal-S shape (negative within low and high range, positive within middle range)
Gomes/ Ramaswamy 1999	95 US companies in four industries ^c ; 1990–1995	FDI, theory of the multinational firm; internal and external costs	DOI: multi-item index; Performance: ROA and OCTS	Pooled cross-section/ time-series analysis; control for size and industry	Relationship between DOI and performance characterized by an inverted-J shape

^a Specialty equipment and materials; branded foods; auto suppliers; drugs; health care; aerospace-defense; production equipment; electrical equipment

^b Food; chemical and allied products; pharmaceuticals; petroleum and refining; industrial machines; electronics; transportation

^c Chemical; drug and pharmaceutical; computers and office equipment; electrical and electrical goods

* FSTS: Foreign sales to total sales; FATA: Foreign assets to total assets; FDI: Foreign direct investment; DOI: Degree of internationalization

Adopting a more managerial perspective, theories of the multinational corporation (MNC) focus on the organization's internal environment. The main source of benefits from internationalization is not seen in the reactive exploitation of external opportunities, as proposed by FDI theories, but in the proactive induction and exhaustion of intra-firm comparative advantages. Fayerweather (1978) suggested that international resource transfer and the integration potential of worldwide corporate structures, systems, and processes can provide MNCs with company-specific competencies not available to the domestically operating firm. Similarly, the resource-based view of the firm (Wernerfelt 1984) proposed that global resources and core competencies promote organizational learning and knowledge development. Finally, the theory of operational flexibility (Kogut 1989) proposed arbitrage and leverage opportunities in MNCs, especially those that successfully developed a global network structure.

Costs of Internationalization

The costs of internationalization are suggested by several, partially overlapping, theories from different academic disciplines.

Siddharthan and Lall (1982) were among the first to indicate that increasing degrees of internationalization and concomitant organizational and environmental complexity may eventually exhaust managerial capacity. Difficulties arise from high information-processing demands, which themselves are seriously aggravated by cultural problems accompanying global expansion. Likewise, researchers engaged in cross-cultural studies have posited communication, coordination, and motivation problems stemming from cultural diversity in the firm (e.g., Hofstede 1980). Some of these concepts are integrated in transaction cost (Jones/Hill 1988) and agency (Doukas/Travlos 1988, Roth/O'Donnell 1996) theories. As international expansion increases, governance and transaction costs increase exponentially due to the geographical and cultural dispersion of the various principals and agents in the multinational firm.

Addressing external costs of internationalization, researchers emphasized the financial and political risks accompanying foreign expansion. Financial risk as if exchange-rate fluctuations and inflation (Reeb/Kwok/Baek 1998) offset advantages of earnings stability derived from worldwide portfolio diversification. Political uncertainty may arise when foreign governments enforce unanticipated change to the business environment of the firm, including boycotts, fund remittance control, and expropriation (Boddeyn 1988).

The Interplay

Obviously, MNCs encounter both the benefits *and* the costs of internationalization. Hence, internationalization per se is not a sufficient condition for superior performance. Hypothesizing a monotonic linear internationalization-performance relationship is thus an over simplistic approach to theory construction. More promising is an assessment of the interplay between costs and benefits along firms' internationalization trajectory. The conceptual frameworks applied by researchers who investigated a curvilinear DOI-performance link provide a starting point for broaching the complex cost-benefit trade-off.

In summarizing the theoretical frameworks of previous inquiries (*cf.* Table 1), one may distinguish two contrasting camps. Daniels and Bracker (1989), Geringer et al. (1989), Ramaswamy (1995), and Gomes and Ramaswamy (1999) seem to hypothesize a rather deterministic, at most industry-specific, inverted-J form of the internationalization-performance link, characterized by a 'threshold of internationalization': a global performance maximum identified at a DOI (ratios of foreign sales to total sales, foreign assets to total assets, etc.) somewhere between 50–82%. Performance appears to increase monotonically up to this critical zone, climax and then decrease monotonically.

This argument is best exemplified by the theoretical framework of Gomes and Ramaswamy (1999). Central to their explanation is the assumption of incremental internationalization (Johanson/Vahlne 1977). Firms are said to internationalize on an evolutionary path, starting in geographically and culturally close markets, then successively progressing toward cognitively and physically more distant environments. Initial expansion into countries that exhibit a close similarity in terms of consumer tastes, market systems, and institutional settings eases the transfer of marketing techniques, human resources, and technology. Likewise, organizational structures, leadership approaches, and corporate control mechanisms need only small adjustment when dealing with foreign settings closely resembling home markets. Finally, financial and political risk is perceived to be minor for companies operating in homogeneous business environments: "[I]t can be argued that firms have much to gain during their initial foreign market entries because they can deploy their home based skills and resources to achieve economies of scale and/or scope . . . without huge cost increases" (Gomes/Ramaswamy 1999, p. 176). However, as soon as corporations enter unfamiliar territories that require major reconfiguration of internal processes, structures, and mechanisms, the costs of internationalization dramatically increase and eventually exceed the benefits. Following this argument, one readily infers that the inverted-J curve is, to a high degree, pre-determined, and that firms should avoid crossing the identified thresholds of internationalization.

The second theoretical camp is less uniform, but Sullivan's (1994b) and Hitt et al.'s (1997) conceptual bases are significantly similar, both relying largely on

organizational learning theory. In particular, Sullivan follows theories of metamorphic transformation (Chandler 1962), periodic reorientation (Mintzberg/Waters 1982), and gestalt reconfiguration (Miller/Friesen 1980), suggesting that internationalization creates the need for, and thus is accompanied by, internal change. As firms expand, their existing structures, systems, and other internal settings at some point will fail to fit the new global environment, resulting in a gradually deteriorating corporate performance. Avoiding retrenchment or “de-internationalization” (Benito/Welch 1997, p. 7), firms are compelled to reconfigure internal systems. If they find a new match between internal settings and external contexts, their performance recovers and they enter the so-called ‘convergence phase’ (Tushman/Romanelli 1985).

Hitt et al. (1997) also follow theories of organizational evolution and learning. In particular, they hypothesize and empirically confirm that managerial experience with complex environments, derived from the mastering of high product diversification, provides organizations with indispensable knowledge for maintaining superior performance at high degrees of internationalization. Their findings indicate a positive linear relationship between internationalization and performance for firms with high product diversification, a standard-U form for non-diversified companies, and an inverted-U shape for corporations with moderate product diversification. Interestingly, the finding of a positive linear relationship for firms with long experience in managing high complexity suggests that, if properly prepared, firms may not experience declining performance at all. Companies that encounter such a monotonically linear internationalization-performance relationship most likely anticipate, and thus react promptly to, the costs of internationalization.

In summary, the second theoretical camp emphasizes the dynamic nature of the internationalization threshold itself. In contrast to the first camp, it suggests that corporations are not doomed to experience declining performance at a certain point on their expansion path, but that managers can proactively shape the internationalization-performance relationship by shifting existing thresholds or avoiding them altogether.

Synthesis and Hypothesis

Integrating these differing theoretical viewpoints may at first appear difficult. Yet, a re-examination of the fundamental concepts involved suggests a method of reconciliation.

Although not explicitly mentioned by Gomes and Ramaswamy (1999), Johanson and Vahlne’s (1977) theory of incremental internationalization or loca-

tional choice has, at its core, organizational learning processes. Indeed, their seminal article is titled “The internationalization process of the firm – A model of *knowledge development* and increasing foreign market commitments”. Learning opportunities along the internationalization path provide the firm with cumulative knowledge, preparing it for further successful expansion. Thus, the impression given by Gomes and Ramaswamy’s argument -that firms are largely condemned to decreasing performance at high degrees of internationalization- runs counter to the theory that they themselves rely on.

The notion of a deterministic and universal ‘internationalization threshold’ is also at odds with research suggesting the existence of vast benefits for firms that are internationally diversified into culturally heterogeneous markets. Hitt et al. (1997, p. 774), for example, argue that cognitive inputs from a culturally diverse workforce are necessary for effective corporate innovation and technological progress. Here, culturally unrelated international diversification “provides the opportunity for new and diverse ideas from a variety of market and cultural perspectives.” Indeed, researchers in cross-cultural management, international human resource management, global leadership, and knowledge management have stressed that firms capable of generating, combining, and transferring intangible assets or tacit knowledge within operating units that span a variety of cultural environments obtain the most valuable internationalization benefits (e.g., Dunning 1998, Hofstede 1980, Johansson/Yip 1994). Corroborating these theoretical arguments, empirical research findings tend to confirm the existence of competitive advantages for companies that expand into culturally unrelated markets (e.g., Doukas/Travlos 1988, Morosini/Shane/Singh 1998).

Admittedly, mainly in contrast to initial benefits derived from economies of scale, benefits available at high degrees of internationalization and in culturally diverse markets need to be proactively induced and managed. As noted above, before any profits can be realized, firms need to reconfigure internal structures, systems, and processes to fit the new market environment. While some corporations will fail to do so and thus face stagnant profit development, internationally diversified MNCs such as Dow Chemical (US), ABB (Sweden/Switzerland), and Nestlé (Switzerland) have shown that high degrees of internationalization, cultural diversity, and high corporate performance are not mutually exclusive.

The theories described above, including those of locational choice, organizational evolution, and global knowledge development, suggest that the form of the internationalization- performance relationship is likely to be determined by organizational learning processes. Firms that initially consider foreign activities merely as an “adjunct to domestic business or as a source of quick profits” (Magaziner/Reich 1985, p. 8) will be able to exploit economies of scale and/or scope and thus achieve high performance outcomes. In the course of further international expansion and gradual adoption of a culturally unrelated strategy, firms face an increasing imbalance between external environments and internal com-

petencies. Triggered by performance pressures accompanying such misalignment, organizational learning sets in and firms begin to reconfigure internal systems, mechanisms, and processes to match their new global environment. Successfully passing through the reorientation period, corporations experience a point of reversal and restore positive performance development. Supported by viable organizational settings, companies are now in a position to exhaust the benefits available at high degrees of internationalization. Reflecting this line of argument, we hypothesize a standard-U form of the DOI-performance relationship.

Hypothesis: The relationship between ‘degree of internationalization’ and ‘performance’ exhibits a standard-U form, with performance being high at low degrees of internationalization, low at medium degrees of internationalization, and high again at high degrees of internationalization.

Research Methodology

Sample and Data Sources

For this study, we made use of a company sample from Germany, the European Union’s largest economy. The final set of firms was distilled in a multi-step process. Initially, we identified Germany’s largest 500 manufacturing companies by sales in 1997 (Germany’s Top 500, Frankfurter Allgemeine Zeitung Information Services 1999). Because internationalization benefits (in particular economies of scale) and costs outlined above are of major relevance only to companies of sufficient size, only firms with annual sales of at least DM 150 million (equivalent to approximately \$US100 million) during 1993–1997 were included.

Next, we sorted firms according to the availability of internationalization data. Under German company law, firms are required to provide data on geographical sales distribution only, not on asset, employee, or subsidiary dispersion between home country and host nation(s). Thus, to acquire a statistically valid sample size, we had to rely on the ratio of foreign subsidiary sales to total sales (FSTS) as the ‘degree of internationalization’ measure (Handbuch der deutschen Aktiengesellschaften 1995–1998, Hoppenstedt Verlag). Companies that did not distinguish between export and foreign subsidiary sales and those that did not provide the figures necessary for calculating the ratio were removed from the sample.

Performance data over the five-year period were obtained from *Dafne* (1999), a database with financial figures for major German companies. The few missing data points were calculated by the authors according to *Dafne*-provided formulas

with original data from annual reports and/or financial manuals (Handbuch der deutschen Aktiengesellschaften 1995–1998, Hoppenstedt Verlag). Cross-checking primary and archival ratios provided support for the accuracy of the data. Firms that did not provide the required accounting data for any of the years examined were removed from the sample.

Finally, in smoothing performance variation due to ownership idiosyncrasies, we deleted all companies that were dominantly government- or foreign-owned (determined by voting majority) in 1995. Complete data for the five-year period 1993–1997 were available for 84 German companies evenly distributed across four industries: Automobiles (21); Chemicals (22); Metals (20); and Machinery (21). In summary, the company sample is representative for medium to large German manufacturing firms with FDI in the period 1993–1997.

Variable Conceptualization and Operationalization

Degree of Internationalization

Researchers may conceptualize firms' degrees of internationalization on three dimensions: structural, financial, and psychological (Sullivan 1994a). The structural dimension comprises asset, subsidiary, or employee distribution between companies' home countries and host nation(s). Financial internationalization captures organizations' monetary or revenue dependence on foreign markets. Finally, psychological or 'qualitative' internationalization reflects the international disposition of firms' top management teams (e.g., members' educational and professional experience in foreign countries; the breadth of nationalities on board; top management team's cultural heterogeneity).

In the German setting, selecting the conceptualization/operationalization technique for the internationalization variable is largely restricted by the non-availability of data. As noted above, reliable and complete internationalization data for the five-year period under study was obtainable only in FSTS form; we therefore had to depend on the financial dimension of the degree of internationalization. This has its merits. As mentioned above, next to structural internationalization it captures a core dimension of the degree of firms' foreign activity. Equally important, FSTS is the DOI measure most used in previous inquiries, facilitating valid cross-study comparison of findings and therefore sustained research progress.

Performance

Corporate performance can be conceptualized on two core dimensions: financial and operational (Venkatraman/Ramanujam 1986). Financial performance may be

further divided into those measures based on accounting data (reflecting past performance) and those grounded in capital market values (reflecting investors' expectations of future performance). By contrast, operational performance indicators do not reflect direct monetary outcome but determine core underlying processes that ultimately result in financial performance (e.g., cost efficiency, technological capability).

Intending to provide adequate research validity and comparability, we chose to conceptualize performance on both dimensions, financially and operationally. Return on assets (ROA) was the applied financial performance indicator. The accounting measure has been used intensively in prior inquiries on the DOI-performance relationship and thus allows for cross-study comparisons. To control for country-specific tax regulations and practices, we used pre-tax ROA figures.

Operating costs to total sales (OCTS) was chosen as the operational performance measure. It is defined as the sum of the ratios of firms' material costs to sales and employee costs to sales, and thus reflects cost efficiency. The OCTS measure was selected for three reasons. First, it allows for testing the widely held belief that reduction of material and labor costs represents a major benefit of international expansion (Porter 1985). Second, exemplifying an underlying process or value-adding activity in MNCs, cost efficiency allows for more direct measurement of the impact of internationalization than aggregate firm-level profitability ratios (Ramaswamy 1992). Finally, OCTS was used by Gomes and Ramaswamy (1999) in their recent systematic examination of the DOI-performance relationship for US companies, and thus permits valid comparison between the two countries.

Control Variables

Carrying out regression analysis, we controlled for two major factors: organizational size and industry membership. Size was measured as the natural logarithm of total employees or total assets. In the case of ROA (which is a function of total assets) as the dependent variable, total employees represented the size measure, whereas OCTS (which is a function of total employees) prompted us to choose total assets. Industry dummy variables encompassed I_1 = Automobiles, I_2 = Metals, and I_3 = Machinery. The residual industrial sector was represented by Chemicals.

Analysis Techniques

To date, researchers who revealed a non-linear relationship between the degree of internationalization and performance have utilized three statistical approaches to data analysis (*cf.* Table 1). Some applied ANOVA techniques on averaged data (Daniels/Bracker 1989, Geringer et al. 1989, Sullivan 1994b), drawing (mean)

performance comparisons over firms at different levels or ranges of internationalization. Others used classical multiple regression analysis on three-year averaged data for the variables under study (Hitt et al. 1997). Common to both statistical approaches was the use of data averaged over multiple years. Whereas this procedure may help to smooth out annual variations due to accounting practices, averaged data is also likely to disguise important tendencies or cyclical movements over time. Realizing this disadvantage, in their recent examinations of the DOI-performance relationship Ramaswamy (1995) and Gomes and Ramaswamy (1999) employed pooled time-series/cross-sectional regression analysis. Combining cross-section and time-series data makes it possible to reveal individual exploratory variables as well as their dynamics over time.

In our study, we made use of all three analysis techniques previously employed in inquiries of this kind. ANOVA procedures were applied on a four-interval DOI scale (1–39.9%; 40–59.9%; 60–79.9%; 80–99.9%) with firms categorized on the basis of their five-year averaged FSTS ratio ($N = 84$). Classical multiple regression analysis was carried out on five-year averaged data for the DOI, performance, and size variables ($N = 84$). Finally, pooling cross-section and time-series data, we relied on Kmenta's (1986, pp. 618–620) cross-sectionally heteroscedastic and timewise autoregressive model ($N = 420$). His approach to panel data analysis subjects each individual observation to a double transformation before applying a final ordinary least squares analysis. Initially, regression residuals are used to estimate the statistical parameters (ρ factors) needed for eliminating autocorrelation. In the second stage, residuals variance is calculated for each sample company and used to remove data heteroscedasticity. Altogether, the use of multiple statistical approaches (cross-sectional and longitudinal) allowed us to assess the validity of our results. In case the findings converged across multiple techniques, evidence of robustness would have been provided.

Results

Table 2 shows descriptive statistics for the five-year averaged data ($N = 84$, a) and pooled data ($N = 420$, b), respectively. Regression diagnostics did not indicate problems of multicollinearity for the averaged data. With respect to the pooled data, the problems most likely to occur, nonconstant variance (heteroscedasticity) and autocorrelation, are minimized through the application of Kmenta's generalized regression technique.

The statistical results unambiguously indicate a significant non-linear relationship between companies' degree of internationalization and performance. Supporting our hypothesis, we found convincing evidence for a standard-U form of the relationship across all statistical techniques applied.

Table 2. Means, Standard Deviations, and Correlations

Variables	Mean	S.d.		2		3		4		5	
		a	b	a	b	a	b	a	b	a	b
1. ROA	0.07	0.04	0.06	-0.54**	-0.431**	-0.065	-0.012	-0.213	-0.164**	-0.183	-0.137**
2. OCTS	0.77	0.11	0.11			-0.223*	-0.22**	0.029	0.023	-0.014	-0.015
3. FSTS	0.60	0.15	0.16					0.28**	0.274**	0.356**	0.354**
4. Size (Empl.)	4.10	0.62	0.62							0.976**	0.974**
5. Size (Assets)	3.40	0.69	0.69								

^a N = 84; ^b N = 420 Size (Empl.) = log of total employees; Size (Assets) = log of total assets
 * p < .05 ** p < .01

Table 3. Results Obtained Through Regression Analysis

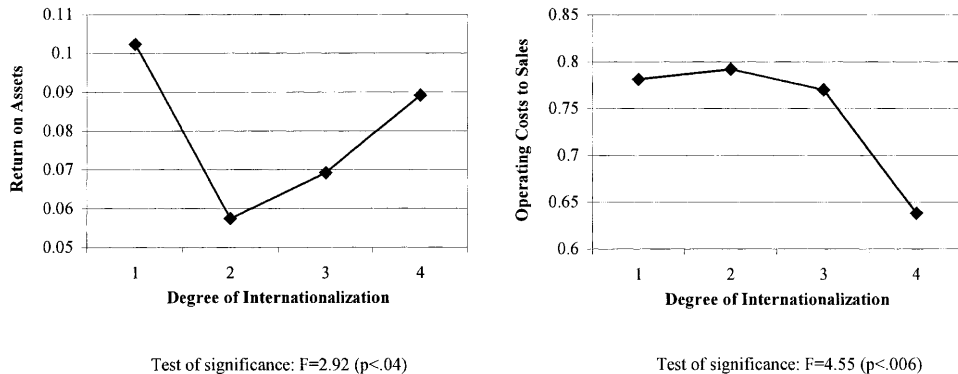
Classical regression analysis on five-year averaged data (N = 84)					Pooled cross-section/time-series regression analysis (N = 420)				
Dependent variables					Dependent variables				
	OCTS		ROA			OCTS		ROA	
	Linear	Non-linear	Linear	Non-linear		Linear	Non-linear	Linear	Non-linear
FSTS	-0.05	0.943*	-0.032	-0.496*	FSTS	-0.05	0.821***	-0.011	-0.456***
FSTS2		-0.868*		0.406*	FSTS2		-0.765***		0.39***
Size (Empl.)			-0.015 [†]	-0.01	Size (Empl.)			-0.017***	-0.012**
Size (Assets)	0.015	0.007			Size (Assets)	0.015 [†]	0.006		
I ₁	0.141***	0.134***	-0.038**	-0.036**	I ₁	0.139***	0.133***	-0.035***	-0.033***
I ₂	0.118***	0.113***	-0.023 [†]	-0.021 [†]	I ₂	0.117***	0.113***	-0.021**	-0.019*
I ₃	0.133***	0.135***	-0.044**	-0.045**	I ₃	0.129***	0.131***	-0.042***	-0.043***
Adj. R2	0.28	0.32	0.13	0.18	Adj. R2	0.29	0.33	0.08	0.12
ΔF		5.883*		5.886*	ΔF		24.75***		15.67***

[†] p < 0.10 Size (Empl.) = log of total employees; Size (Assets) = log of total assets
 * p < 0.05 I₁ = Automobiles ** p < 0.01 I₂ = Metals *** p < 0.001 I₃ = Machinery

Figure 1 depicts the relationship as identified through ANOVA techniques. Performance differences between firms located in varying DOI intervals are statistically significant at $p < 0.04$ for ROA and $p < 0.006$ for OCTS. With regard to ROA, the relationship starts high at interval 1, and exhibits a global minimum at interval 2 that is followed by a point of inflexion at interval 3, signifying an increasing positive slope (concave upward) at high degrees of internationalization. As expected, the relationship between OCTS and degree of internationalization comes close to a mirror image. Starting off already high, operating costs increase toward interval 2, climax and exhibit a point of inflexion at interval 3, depicting an increasing negative slope (convex downward) at high DOIs. For both ROA and OCTS, boundary points of the curve (global minimum and global maximum, respectively) can be located within the second DOI interval (40–59% FSTS).

Regression analysis largely confirmed the results found through ANOVA techniques (*cf.* Table 3). For both classical and pooled cross-section/time-series analysis, the inclusion of a squared FSTS term significantly increased the proportion of variance explained (for both OCTS and ROA). The finding of a significant squared term with the hypothesized positive sign for ROA suggests a standard-U form of the DOI-performance relationship. Again roughly mirror-imaging this relationship, operating costs (OCTS) exhibited an inverted-U shape, dropping rapidly at high degrees of internationalization. Regression analysis also allowed us to identify maximum and minimum points with greater precision. Partial derivatives with respect to the FSTS variable revealed global minima at 61% (classical) and 58% (pooled cross-section/time-series) FSTS for ROA. With respect to OCTS, global maxima are identified at 54% FSTS through both classical and panel data analysis.

Figure 1. Results Obtained Through ANOVA Techniques (N = 84)



Discussion and Conclusions

This study set out to further illuminate the debate about the 'degree of internationalization-performance' relationship. A review of previous inquiries at first seemed to indicate a conceptual controversy. Yet organizational learning processes could be identified as a common denominator among constructed frameworks. Theoretical synthesis thus prompted us to hypothesize a standard-U form of the internationalization-performance relationship.

Statistical analysis of data from a German company sample across the 1993–1997 time period confirmed our presumption. Starting at high financial performance levels, MNCs' profitability declines to the 60% FSTS mark, after which profit development reverses and exponentially increases. The concave shape of the curve at high DOIs signifies that once firms get past this threshold, they tend to catch up very fast. From this one may deduce that, once effectively adapted, MNCs are in a good position to rapidly reap the benefits flowing from high degrees of internationalization.

With respect to cost efficiency or operational performance, internationalizing companies encountered a time-lagged convex learning curve, starting at a 54% FSTS ratio. This finding suggests that, in contrast to widely-held beliefs, operating costs may not be reduced by initial foreign expansion. The benefits that stem from access to cheap raw materials and low labor costs appear to be exploitable only by firms that exhibit high degrees of internationalization. Again, companies most probably have to undergo a period of learning to come up with appropriate structures, mechanisms, and processes that allow for the effective exploitation of imperfections in global factor markets. Similar to financial performance, once reversed, operational performance or cost efficiency increases exponentially (i.e., OCTS decreases exponentially).

Altogether, the impression given by previous research, that the costs of internationalization inevitably outweigh the potential benefits beyond a certain 'threshold', is not confirmed. Rather, our findings suggest that MNCs pass through an organizational learning process characterized by internal reconfiguration that allows for superior performance development at high DOIs. The relatively long period of performance deterioration that accompanies this adjustment process may explain why many firms eventually resign and de-internationalize again before reaching the turn-point.

Given the consistency of our results across multiple statistical techniques, we need to ask why previous inquiries normally revealed an inverted-J form of the internationalization-performance relationship. In view of the wide range of industries spanned by preceding research (*cf.* Table 1), largely covering the industrial sectors examined in this study, industry seems to be a poor explanatory variable. In searching for other reasons, one may argue that the varying time periods ex-

amined, ranging from the early 1970s to the mid-1990s, explain the differing empirical results. Yet Gomes and Ramaswamy's (1999) finding of an inverted-J form was generated from data spanning the years 1990–1995, a period partially overlapping this study's period of investigation. Finally, in choosing the variable conceptualization/operationalization and statistical techniques to apply to data analysis, we made an effort to cover all approaches used in previous inquiries. Hence, methodological divergence is also unlikely to provide a convincing explanation for the differing empirical results. In what follows, we argue that country-specific idiosyncrasies are a more likely explanation.

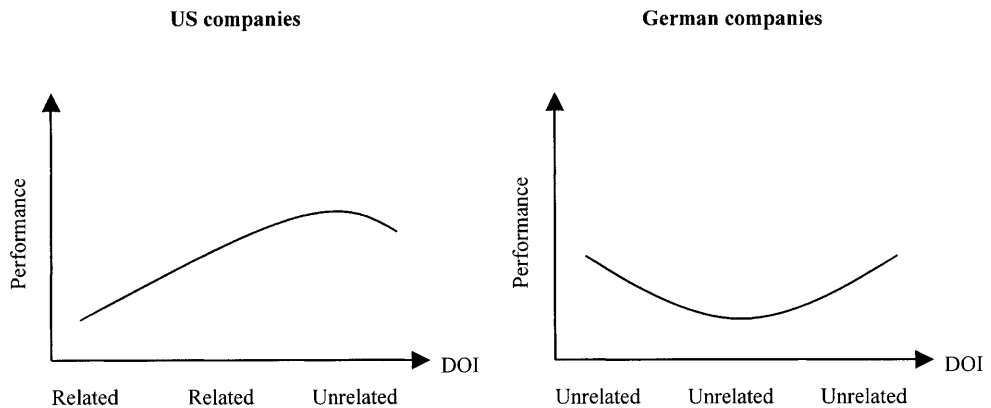
If one looks at the country of origin of the data analyzed in previous studies, it becomes evident that researchers have predominantly relied on US organizations. Geringer et al. (1989), the sole author team that included non-US firms in their analysis, merged firms from several European countries into one aggregate sample, thus largely blurring nation-specific impacts. In conclusion, our study represents one of the first single-country examinations of a curvilinear DOI-performance relationship for non-US organizations.

German and US firms differ in terms of prevalent type of international expansion (culturally related versus unrelated). As described by several scholars, the average US MNC locates initial foreign activities in Canada, the United Kingdom, and Australia (Davidson 1980, Johansson/Yip 1994, Makhija/Kwonsoo/Williamson 1997). From this, one may conclude that US corporations, at the beginning of their internationalization, are engaged in culturally related rather than unrelated expansion strategies. Apparently also confirming theories of initial foreign location based on the 'psychic distance' premise, German companies are likely to target Switzerland and Austria. However, both countries are very small markets and thus have never been able to attract substantial German FDI. Instead, the average German firm expanded early into other European, North American, and Asian countries, nations characterized by higher psychic distance. We may infer that, unlike US firms, German companies have been obliged to pursue culturally unrelated strategies at the outset of foreign expansion.

Country-specific expansion strategies can help to explain the seemingly contradictory empirical results drawn from the German and US company samples. As German firms move into culturally unrelated markets already at low DOIs, they are rapidly confronted with performance pressures caused by the mismatch described above between external business environments and internal settings. Managers soon realize that future financial success in far-flung global markets requires immediate reconfiguration of corporate structures, mechanisms, and processes. Having successfully adapted, companies experience a positive feedback loop in the subsequent expansion process.

The average US MNC is likely to pursue a culturally related expansion strategy at the outset of internationalization. As Gomes and Ramaswamy (1999, p. 176) note: "Market familiarity pre-supposes relatively similar administrative

Figure 2. Degree of Internationalization and Performance: The Role of Prevailing Country-specific Type of Expansion (Culturally Related/Unrelated)



mechanisms, similar consumer tastes and distribution systems compared to culturally . . . distant locations. Therefore, it is plausible that firms would be able to leverage their home country competencies in these locations more easily, translating into superior profitability.” Internationalization thus increases US firms’ performance up to a threshold at which culturally unrelated expansion is inaugurated (inverted-J curve). From then on they will pass through a standard-U curve comparable to the one German MNCs have experienced. Figure 2 illustrates our rationale for the apparently conflicting findings of previous research on a non-linear DOI-performance relationship.

Limitations and Recommendations for Future Research

Putting the findings of this study into proper perspective, we need to point out the core conceptual and methodological limitations circumscribing the research effort. Before we are able to announce generalizations on the exact nature of the DOI-performance relationship, further research that addresses these issues will be necessary.

Conceptual

In accordance with theories of organizational learning, our findings indicate that intra-firm reconfiguration processes are likely to be induced by performance pressures that companies encounter along their internationalization path. Recon-

structured 'fit' between internal mechanisms and external environments then allows for the exploitation of benefits at high DOIs. Given that companies learn on their way to high degrees of internationalization, a central question arises: which are the organizational capabilities most critical for successful operation in increasingly complex foreign market environments? Our findings obviously fall short of advising companies as to the exact nature of decisive areas for reconfiguration. Here, researchers are called upon to quantitatively identify core organizational moderators of the DOI-performance relationship (e.g., organizational structure, top management team composition, control system).

Although our findings suggest that the U-curve pattern is a 'one-off phenomenon', one may ask about the possibility of multiple successive U-formations during firms' internationalization process. If companies face multiple 'fit-misfit-fit' sequences in the course of their international expansion, we need to assume a certain time schedule for the emergence of particular problems and respective needs for adjustment. Suppose, for example, the existence of a triple-U curve: may we hypothesize that performance will initially decline because of an organizational structure misfit, subsequently (i.e., at higher DOIs) because of problems in top management team demography, and finally because of problems in corporate controlling? Our findings convey the notion of an emergence of misfit simultaneously in multiple areas, all of which companies need to address concurrently through effective and efficient reconfiguration. However, the search for contingency relationships as suggested above, besides clarifying the distinct nature of required internal reconfiguration, could also shed further light on the issue of parallel or sequential adjustment demands in the course of firms' internationalization.

Methodological

Due to the non-availability of data, we had to rely on FSTS as the DOI measure. As pointed out by Sullivan (1994a), single-item measures of firms' DOI may be less suitable than multi-criterion composites. Therefore, we urge future investigators to consider alternative conceptualization and operationalization techniques for the 'degree of internationalization' variable. Researchers who can select from a wide range of measures could also choose indicators that more purely reflect cultural dissimilarity (e.g., entropy measures or Herfindahl variants based on Hofstede's (1980) culture scores). Such replication would be able to directly assess the validity of our presumption that different forms of the DOI-performance link can be explained by country-specific types of expansion (culturally related versus unrelated).

With regard to the country of origin of data samples, we found that earlier investigators of a curvilinear DOI-performance relationship almost exclusively

relied on US-based companies. However, as argued above, there is reason to assume that MNCs from many European nations have been obliged to address organizational needs at high degrees of internationalization and in culturally diverse business environments at an earlier stage than their average US counterparts. To illustrate, in 1996 the average US firm exhibited a transnationality index (average of three ratios: foreign assets to total assets, foreign sales to total sales, and foreign employment to total employment) of about 43%, whereas the average companies from Switzerland and the Netherlands showed a degree of internationalization above 80% (UNCTAD 1999). As depicted in Table 2, the German companies in our sample had an average FSTS ratio of 60%. In Gomes and Ramaswamy's (1999) and Riahi-Belkaoui's (1998) study, the average US company exhibited a FSTS ratio of 42% and 37%, respectively. Signifying an even larger internationalization 'gap', Sullivan's (1994b) US sample had an average degree of internationalization (FSTS) of merely 27%.

Mainly because of their small home markets, MNCs located in many European countries have been forced to direct most of their business operations toward foreign countries. ABB (Switzerland/Sweden) and Nestlé (Switzerland), for example, have for many years successfully drawn more than 90% of their sales and employees from outside their headquarters' cultural setting. Given this, continuous limitation to US company samples may represent a major hurdle to advancing knowledge in this line of inquiry. Particularly, we may be able to simplify and speed up the identification of intra-firm organizational needs in the course of foreign expansion by examining European pioneers that have already managed to achieve a 'transnational' capability at high degrees of internationalization and in culturally diverse markets.

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