The International Journal of Organizational Analysis
1996, Vol. 4, No. 3 (July), pp. 252–267

PRODUCT-MARKET/INTERNATIONAL DIVERSIFICATION AND CORPORATE PERFORMANCE

Paul G. Simmonds
Bruce T. Lamont
Florida State University

The performance effects of product-market and international diversification were examined in a sample of 156 U.S. corporations. Three sets of performance measures were used: (1) profitability, (2) risk-adjusted returns, and (3) growth. Results suggest independent effects on profitability, and interactive effects on risk-adjusted returns and growth. Results also clarify seemingly conflicting findings on product-market and international diversification effects on performance.

Performance effects of product-market expansion choices are of central interest in the strategic management (SM) and international business (IB) fields. Emphasizing similar performance variables (e.g., growth, profitability, and risk), the primary difference between IB and SM researchers is a traditional focus on different strategic variables.

In strategic management, the idea of diversification generally suggests product-market expansion tendencies of firms in a national economy (Wrigley, 1970; Rumelt, 1974, 1982; McDougall & Round, 1984; Grinyer & Yasai-Ardekani, 1981; Nguyen, Seror, & Devinney, 1990; Grinyer, Al-Bazzaz, & Yasai-Ardekani, 1986; Luffman & Reed, 1982; Suzuki, 1980). This limited definition of diversification fails to recognize the importance of national boundaries as a strategic variable. In contrast, international business primarily identifies diversification as geographic expansion across national boundaries (Bergsten, Horst, & Moran, 1978; Rugman, 1976; Agmon & Lessard, 1977; Bilkey, 1978; Beamish & Newfield, 1984; Franko, 1987; Calvet, 1981; Mathur & Hanagan, 1983; Aggarwal, Mikhail, & Shawky, 1980). This approach addresses the shortcoming of strategic management but fails to consider fully the essential strategic idea of synergy, the degree to which the combined use of firm resources produces results greater than is possible by individual components (Ansoff, 1965). Each field considers diversification strategy a significant determinant of firm performance; therefore, it is important to understand whether the two diversification dimensions interactively or independently affect firm performance.

Three recent studies investigated performance effects of national and international expansion strategies (Buhner, 1987; Geringer, Beamish, & daCosta, 1989;

Kim, Hwang, & Burgers, 1989) with varied results. Buhner (1987) categorized 40 West German firms by level of foreign involvement and product-market diversification strategy. Performance measures were market risk-adjusted return, return on equity (ROE), and return on assets (ROA). Single business firms with high foreign involvement were higher performers than all other firms, primarily on the ROE measure, but performance between other firms and on other measures were not importantly different. Interactive effects between the two diversification dimensions were not found, but whether independent effects existed is unclear.

In a sample of sixty-two U.S. multinationals, Kim et al. (1989) used a continuous measure to identify related and unrelated product-market diversifiers with high and low internationalization. They found profit growth and profit stability of product-market diversifiers contingent on level of foreign involvement. Unrelated product-market diversifiers with high foreign involvement had higher profit growth than their domestic counterparts, and related product-market diversifiers with high internationalization had higher profit stability than domestic related product-market diversifiers. They found profit growth differences between domestic related and unrelated product-market diversifiers, but not for their international complement. The mixed results suggest interactive effects, at least in certain situations, in contrast to Buhner's (1987) study.

Geringer et al. (1989), using Rumelt's (1974) product-market diversification categories and a continuous measure of internationalization, found independent effects in a sample of 200 U.S. and European multinationals. Their results were based on return on sales and return on assets performance measures.

The above studies lack theoretical specification of the linkages between product-market/international diversification and the various performance dimensions (i.e., growth, risk, and profitability). This deficiency makes results appear contradictory. The intent of this investigation is to examine further the impact of product-market diversification and level of foreign involvement on corporate financial performance, explicitly addressing theoretical linkages between product-market and geographic diversification and three important performance categories: (1) profitability, (2) risk-adjusted returns, and (3) growth.

Theory and Hypotheses

Theoretical arguments using economies of scope and synergies in business operations (Rumelt, 1974), market power (Montgomery, 1979), and transaction cost economizing (Jones & Hill, 1988) have been used to explain the link between product-market diversification and performance. The theories suggest diversifying into areas related to the original or core business (i.e., using similar technologies or serving similar markets) provides the highest performance. Similarly, transaction costs (Rugman, 1979), portfolio effect (Mikhail & Shawky, 1979), market imperfection (Hymer, 1970), and resource efficiency (Porter, 1985) arguments suggest a positive relationship between level of international diversification and firm performance. Table 1 identifies diversification studies using the above theoretical jus-

tifications. The theories address efficient use of resources, but treat diversification dimensions independent of each other.

Table 1
Theoretical Justification for Product-Market (PD)/International Diversification (ID) and Performance Studies

Theory	PD Studies	ID Studies
Operating Synergies	Rumelt, 1974 Varadarajan & Ramanujam, 1987 Bettis, 1981 Bettis & Hall, 1982 Palepu, 1985	
Market Power	Montgomery, 1979 Christensen & Montgomery, 1981 Montgomery, 1985	
Transaction Cost	Jones & Hill, 1988	Rugman, 1979
Portfolio Effect (Risk reduction)		Solnik, 1974 Rugman, 1976 Mikhail & Shawky, 1979 Aggarwal, Mikhail, & Shawky, 1980 Miller & Pras, 1980 Michel & Shaked, 1986
Market Imperfection		Hymer, 1970 Caves, 1982 Kim & Lyn, 1986
Resource Efficiency		Wolf, 1977 Kogut, 1985 Porter, 1985 Grant, 1987 Walters & Toyne, 1989 Horaguchi & Toyne, 1990

Resource dependence theory (Pfeffer & Salancik, 1978; Thompson, 1967) provides an appropriate perspective for investigating interaction between the two diversification dimensions. According to Scott (1981) there are "reciprocal" ties or exchanges between an organization and its environment. Forces outside the organization supply resources to the organization in exchange for different resources from the organization. This "open system" view captures the interdependent nature of exchanges between an organization and its environment. Asymmetrical relationships develop in exchanges because of competition for resources and behavioral uncertainty of environmental actors. The "open system" view and asymmetrical interdependency are critical assumptions of resource dependence theory.

Pfeffer and Salancik (1978) suggest that organizations exist only through exchange relationships with the environment. In some relationships organizations experience dependence asymmetry, and they suggest three possible actions to manage dependence asymmetry: (1) extend control over vital activities in the environment, (2) increase organization dependence asymmetry over the environment, or (3) decrease unfavorable critical exchanges with the environment. Thompson (1967) suggests that an organization first seek to eliminate (or reduce) dependence asymmetry by developing other sources of exchange. Expanding product-market or country (national) domain represents two strategic methods of obtaining alternative sources of exchange.

Organizations perform better the closer product-market diversification is linked to current product-market domains (Rumelt, 1974, 1982; Montgomery, 1979; Palepu, 1985). This results from transferring internal skills and resources between market domains. Diversification into related product-markets reduces exchange dependence, but higher dependence reduction is possible from expansion into unrelated product-markets because of greater diversity between markets. Such diversity reduces organization dependence on any individual product-market for resource exchanges. However, unrelated product-market diversification is less efficient than related product-market diversification because internal resources and skills are more difficult to transfer between organizational units. Each product-market diversification strategy is effective for different reasons. Organizations competing in related product-markets view resource independence less critically than resource efficiency, while the opposite holds for organizations in unrelated product-markets.

Exchange dependence can also be reduced by diversifying across national boundaries. Organizations in related product-markets may reduce resource dependence but maintain efficiency by transferring related skills and other internal resources across national boundaries. Conversely, organizations in unrelated product-markets may utilize international diversification as a means of obtaining greater efficiency through selective international expansion in product-markets where internal skills and resources are transferable.

Product-market and international diversification studies in Table 1 use similar theoretical justification for performance outcomes. Except portfolio effects (Solnik, 1974; Rugman, 1976; Michel & Shaked, 1986), the theories focus on efficient use of assets through economies of scale or scope, with little attention to resource dependency. The theories are linked to the experience or learning curve (Porter, 1980), and suggest additive (independent) efficiency effects for product-market and international diversification. Related product-markets (low product-market diversification) are more efficient than unrelated product-markets (high product-market diversification), and high international levels are more efficient than low international levels. Therefore, the following hypothesis is offered:

Hypothesis 1: Product-market and international diversification are independent determinants of firm profitability.

When returns from individual assets (whether securities or real assets) in a portfolio of assets are highly correlated, returns are subject to substantial fluctuations. Exogenous shocks have the same general effect throughout the portfolio. Portfolio theory suggests that such risk may be reduced through asset diversification (Markowitz, 1991; Irwin, 1987). In resource dependence theory, risk reduction benefits are secured by developing alternative exchange sources (Pfeffer & Salancik, 1978). Unrelated product-market diversification achieves risk reduction by spreading industry-specific risk across several industries (Chang & Thomas, 1989). Therefore, unrelated product-market diversification results in greater risk reduction gains than related product-market diversification.

International diversification is also a way to reduce risk. Since national economies and markets are not perfectly correlated (Rugman, 1976), international diversification reduces national (economy) level risk. Empirical studies support this proposition whether investments are in security markets (Solnik, 1974), a national portfolio of assets (Aggarwal et al., 1980), or foreign direct investment (Miller & Pras, 1980; Rugman, 1976; Mikhail & Shawky, 1979). High international diversification provides greater risk reduction than low levels because there is higher resource independence. However, reduced risk is greater for low product-market diversification. The major risk reduction gain for low product-market diversification is expansion into less than perfectly correlated national markets. High product-market diversification is unlikely to achieve similar benefits through international diversification because unrelated product-market diversifiers typically operate in a diversified set of very stable domestic industries (Chang & Thomas, 1989; Bettis & Mahajan, 1985) and, therefore, low levels of risk. International diversification for high product-market diversifiers may cause performance instability because excessive diversification may increase firm risk (Rumelt, 1974). It seems reasonable, as a result, to expect risk-adjusted returns to be contingent on product-market and international diversification levels.

Hypothesis 2: Product-market and international diversification are interactive determinants of firm risk adjusted returns.

Product-market and international diversification are alternative means of firm growth (Buhner, 1987), affecting breadth and size of organizational activity. A major reason for product-market diversification is limited growth opportunities in the core business (Montgomery, 1979). Low product-market diversifiers still possess opportunities to exploit their core competencies in the domestic markets, and are able to leverage their capabilities through a global focus on apparent opportunities beyond domestic markets. This, coupled with greater vulnerability because of their dependence on core competencies, provides great motivation for low product-market diversifiers to aggressively pursue growth in other markets. Such arguments suggest systematically different growth rates along and between product-market and international diversification, and lead to the following hypothesis:

Hypothesis 3: Product-market and international diversification are interactive determinants of firm growth.

Method

The sample consists of 156 of 159 U.S. firms during the period 1975–77, originally in Montgomery's (1979) product-market diversification study. Three firms included in Montgomery's study were excluded because of inadequate international data. The sample allowed us to examine the additional performance effects of international diversification where product-market diversification effects were already known. The sample also provided Rumelt-styled product-market diversification strategy classifications, eliminating the need to assess subjectively each firm's product-market diversification strategy. Since the sample is a subset of Rumelt's (1974) original sample, and was used in several studies (Christensen & Montgomery, 1981; Montgomery, 1982, 1985; Montgomery & Singh, 1984), comparability with previous product-market diversification research is assured. The period of study partially overlaps Buhner (1987) and Geringer et al. (1989) studies.

The same comprehensive performance measures used by Montgomery (1979) were employed. The measures are average annual sales growth (GSALES), earnings per share growth (GEPS), return on invested capital (ROIC), return on assets (ROA), return on equity (ROE), and risk-adjusted return on invested capital (ROCRR). ROIC, ROA, and ROE were used for investigating hypothesis 1; ROCRR for hypothesis 2; and GSALES and GEPS for hypothesis 3. Montgomery used the 1973–77 period to evaluate GSALES and ROCRR, and 1975–77 for other performance variables. The 1975–77 period was used to evaluate all performance variables in this study.

This study used the same seven product-market diversification categories in the Montgomery study (see Appendix). The categories are: (1) single business (SB), (2) dominant vertical (DV), (3) dominant-constrained (DC), (4) dominant-linked (DL), (5) related-constrained (RC), (6) related-linked (RL), and (7) unrelated portfolio (UP). Low product-market diversification contains SB, DV, DC, DL, RC; and high product-market diversity includes RL and UP. The grouping reflects involvement in major product-market activity as defined by Rumelt (1974). Dominant vertical (DV) is an anomaly included in low product-market diversification. Consistent with Montgomery's (1979) study, DV's impact on results were examined.

International diversification was measured by the ratio of foreign sales to total sales, consistent with studies by Egelhoff (1982, 1988), Franko (1987), Geringer et al. (1989), Rugman (1976), Daniels, Pitts, and Tretter (1985), and Daniels and Bracker (1989). Available data precluded the use of a continuous measure. In data sources used, many firms only reported that foreign sales were less than ten percent of total sales. A categorical measure (high vs low) was adopted. High international diversification consisted of foreign sales exceeding twenty percent of total sales (Daniels et al., 1985). Dividing the sample at ten and thirty percent did not appreciably alter the results. Categorical international diversification measures were used in several other studies (Collins, 1990; Daniels & Bracker,

1989; Geringer et al., 1989), and represent a reasonable approach when continuous measures are not possible.

Data for performance measures were obtained from annual and 10–K reports, and *Moody's Industrial Manual*. Foreign sales data were secured from annual reports, 10–K reports and *Value-Line*.

Results

Table 2a reflect ANOVA results of the attempt to replicate Montgomery's product-market diversification findings. The purpose of this analysis was to insure the validity of sample assumptions. Results were generally consistent with those reported by Montgomery (1979) and Rumelt (1974). Dominant-constrained and related-constrained product-market diversification were associated with above average performance. In contrast with Rumelt's and Montgomery's findings, however, performance of unrelated product-market diversifiers was not importantly different from average. When the low performing verticals were omitted from the analysis, as reflected in Table 2b, average performance increased and differences from average were less pronounced, a finding consistent with Montgomery (1979).

Table 2a
Mean Performances by Product-Market Diversification Categories (Includes Verticals)

Category	GSALES	GEPS	ROIC	ROA	ROE	ROCRR
Single Business (18)	34.64	6.73	10.92	5.93	10.66	15.07
Dominant-Constrained (13)	38.44	46.21	14.13(+)*	8.38(+)*	14.48	14.49
Dominant-Linked (3)	34.45	246.47	12.20	6.39	11.85	7.37
Related-Constrained (39)	28.87	–43.81	13.39(+)**	7.16(+)*	14.60(+)**	20.09
Related-Linked (39)	30.33	38.43	12.20	6.28	12.51	16.16
Unrelated Portfolio (14)	35.88	98.90	10.73	4.73	10.91	27.18
Verticals (30)	25.27	–25.88	8.47(–)***	4.35(–)**	7.90(–)***	18.06
Overall Mean	30.74	11.92	11.66	6.13	11.94	18.07
F–ratio ($p <$)	.59	.84	.001	.001	.01	.55

Note: Numbers in parentheses denote sample size. The plus or minus following the category mean indicates a significant deviation (+ = positive deviation, – = negative deviation) from the overall mean. GSALES = Average annual sales growth, GEPS = Earnings per share growth, ROIC = Return on invested capital, ROA = return on assets, ROE = return on equity, and ROCRR = Risk-adjusted return on invested capital.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2b
Mean Performances by Product-Market Diversification Categories (Excludes Verticals)

Category	GSALES	GEPS	ROIC	ROA	ROE	ROCRR
Single Business (18)	34.64	6.73	10.92	5.93	10.66	15.07
Dominant-Constrained (13)	38.44	46.21	14.13	8.38(+)*	14.48	14.49
Dominant-Linked (3)	34.45	246.47	12.20	6.39	11.85	7.37
Related-Constrained (39)	28.87	–43.81	13.39	7.16	14.60(+)*	20.09
Related-Linked (39)	30.33	38.43	12.20	6.28	12.51	16.16
Unrelated Portfolio (14)	35.88	98.90	10.73	4.73(–)*	10.91	27.18
Overall Mean	32.05	20.92	12.42	6.55	12.90	18.07
F–ratio ($p <$)	.66	.84	.01	.03	.15	.49

Note: Numbers in parentheses denote sample size. The plus or minus following the category mean indicates a significant deviation (+ = positive deviation, – = negative deviation) from the overall mean. GSALES = Average annual sales growth, GEPS = Earnings per share growth, ROIC = Return on invested capital, ROA = return on assets, ROE = return on equity, and ROCRR = Risk-adjusted return on invested capital.
*$p < .05$.

Table 3 reflects ANOVA results used to test the three hypotheses. Independent effects between product-market and international diversification were significant on return on invested capital (ROIC), return on assets (ROA), and return on equity (ROE). Omitting the lower performing verticals from the analysis decreased the statistical significance. Further investigation using t–test procedures is shown in Table 4. Low product-market/high international diversifiers performed significantly higher than low product-market/low international diversifiers on the profitability measures. Table 5 shows high product-market/high international diversifiers were significantly higher performers on ROIC than high product-market/low international diversifiers. Although ROA and ROE were not significantly different for either group, results were directionally consistent. Taken together results provide support for hypothesis 1; therefore, we cannot reject the hypothesis.

Table 3
Independent and Interactive Effects of Diversification Strategy on Firm Performance (MANOVA Summary *F*–ratio)

Type Strategy	*df*	GSALES	GEPS	ROIC	ROA	ROE	ROCRR
Product-Market							
Diversification (DS)	6, 149	.69	.42	4.37**	3.15**	2.56*	.67
	(5, 120)	(.49)	(.42)	(2.07)	(2.15)	(1.85)	(1.13)
International							
Diversification (I)	1, 154	1.38	.45	8.87**	4.59*	1.50	1.66
	(1, 124)	(2.12)	(.56)	(7.73)**	(4.50)*	(.88)	(.01)
DS x I	6, 149	3.33**	.52	.75	1.37	1.04	2.01
	(5, 120)	(3.54)**	(.55)	(1.09)	(1.72)	(1.88)	(1.62)
Overall *F*–ratio	13, 142	1.97*	.47	2.98**	2.42**	1.78*	1.36
	(11, 114)	(2.02)*	(.50)	(2.14)*	(2.17)*	(1.77)	(1.25)

Note: Numbers in parentheses are with verticals excluded. GSALES = Average annual sales growth, GEPS = Earnings per share growth, ROIC = Return on invested capital, ROA = return on assets, ROE = return on equity, and ROCRR = Risk-adjusted return on invested capital.
*$p < .05$. **$p < .01$.

Table 4
Mean Performance of Low Product-Market with High International Diversification and Low Product-Market with Low International Diversification

Performance	Low Product-Market High International $n = 56$ ($n = 44$)	Low Product-Market Low International $n = 47$ ($n = 29$)	*t*–ratio
GSALES	34.55	25.02	–2.18*
	(37.68)	(23.96)	(–2.51)*
GEPS	–36.43	21.62	.70
	(–43.01)	(56.73)	(.94)
ROIC	13.05	9.84	–3.39**
	(13.93)	(11.25)	(–2.65)*
ROA	7.11	5.25	–2.64**
	(7.76)	(5.96)	(–2.12)*
ROE	13.19	10.28	–1.68
	(14.09)	(12.59)	(–.89)
ROCRR	23.00	11.04	–3.04**
	(20.41)	(12.67)	(–2.03)*

Note: Numbers in parentheses are with verticals excluded. GSALES = Average annual sales growth, GEPS = Earnings per share growth, ROIC = Return on invested capital, ROA = return on assets, ROE = return on equity, and ROCRR = Risk-adjusted return on invested capital.
*$p < .05$. **$p < .01$.

Table 5
Mean Performances of High Product-Market with Low International Diversification and High Product-Market with High International Diversification

Performance	High Product-Market Low International (n = 28)	High Product-Market High International (n = 25)	t–ratio
GSALES	35.28	27.89	1.06
GEPS	69.69	37.27	.49
ROIC	10.96	12.76	–1.69
ROA	5.40	6.40	–1.16
ROE	11.33	12.94	–1.10
ROCRR	24.43	13.07	1.96

Note: GSALES = Average annual sales growth, GEPS = Earnings per share growth, ROIC = Return on invested capital, ROA = return on assets, ROE = return on equity, and ROCRR = Risk-adjusted return on invested capital.

Table 3 shows interactive effect on risk-adjusted return (ROCRR). Results reflect the strong impact of vertical firms on the analysis, as their omission drives results statistically insignificant. Table 4 exhibits significantly higher ROCRR for low product-market/high international diversifiers than for low product-market/low international diversifiers. In further analysis high international vertical and dominant constrained diversifiers showed significantly higher ROCRR than their low international counterparts. Similarly, Table 5 shows high product-market/low international diversifiers with higher risk-adjusted returns than high product-market/high international diversifiers. Unrelated product-market/low international diversifiers were significantly higher on ROCRR than their high international counterparts. Although it appears interactive results were influenced by certain product-market diversification categories, hypothesis 2 cannot be rejected.

Neither interactive nor independent effects were found on growth in earnings per share (GEPS). GEPS is not a growth measure in the traditional sense. Its value depends on financing decisions as well as operating efficiency, and may not be an effective measure of growth. Interactive effects of product-market and international diversification were found on the other growth measure, average annual sales growth (GSALES). GSALES results were driven by low product-market/high international diversifiers (Table 4). Single business and dominant-constrained product-market diversifiers with high international involvement had significantly higher growth in sales than the other categories. We believe certain industry effects may be skewing the results, but we are unable to confirm this because of data limits. In view of the findings, hypothesis 3 cannot be rejected.

Discussion

The main focus of this investigation was whether product-market and international diversification provide independent or interactive effects on various measures of corporate performance. Effects of these two strategic dimensions on firm performance have only recently been given serious attention. Except dominant-linked product-market diversification, which was significantly lower ($p < .10$) than the mean for the other categories, Montgomery (1979) reported no significant difference between categories on foreign sales. Although the focus was on gains or losses from foreign exchange, it implied that internationalization did not significantly affect results. This study's findings suggest otherwise. Results reveal independent and interactive product-market and international diversification effects consistent with a resource dependency perspective. It is especially significant since, with minor exception, the sample of firms, time period and performance variables were those used by Montgomery (1979).

Studies concerning product-market and international diversification will assume increasing importance as heightened global competition requires greater flexibility to respond to shifting resource availability. An important contribution of this study is its demonstration that product-market and international diversification represent alternative means to reduce resource dependency, but with varying performance effects. Recent research studies (Kim et al., 1989; Geringer et al., 1989; Buhner, 1987) appear to provide conflicting evidence on performance effects of product-market and international diversification. However, current findings suggest the differences are due to the performance measures used in the studies.

Since firms generally make product-market diversification choices in the domestic market and later extend those choices across national boundaries, it is important to determine how performance is affected by international expansion. Selecting certain domestic product-market strategies has ramifications for the types of benefits that can be achieved from international expansion.

Strategic management researchers generally associate dominant-constrained and related-constrained product-market diversifiers with superior performance. Our results suggest superior performance by dominant-constrained diversifiers depends on level of foreign involvement. This is not the case for related-constrained diversifiers. Perhaps more importantly, the purported miserable performance of unrelated and vertical diversifiers is critically contingent upon level of foreign involvement. In our sample, vertical diversifiers with high international diversification and unrelated diversifiers with low international diversification performed quite well. The conclusion among international business researchers that high internationalization is positively related to performance also requires qualification. Our results are generally supportive of this position, but also suggest performance effects of international diversification is complexly a function of product-market diversification. This study, when combined with other product-market and international diversification studies, provides evidence that either diversification dimension is a necessary but not sufficient explanation of firm performance.

Future research, using different methods, should assess the robustness of our findings. The international diversification measure in this study may not capture the complete variability caused by differences in national economic structures. Although the measure is well established in international business studies (Egelhoff, 1982, 1988; Franko, 1987; Grant, 1987; Geringer et al., 1989; Rugman, 1976; Daniels et al., 1985; Daniels & Bracker, 1989), some researchers tried to capture the complexity of doing business in varying national economies by developing an international diversification index (Miller & Pras, 1980; Buhner, 1987; Kim et al., 1989) or categorical geographic diversification measures (Vachani, 1991). Each measure has certain limitations in fully capturing international differences. Still, using alternative measures would provide information on the sensitivity of findings to measurement choice. Also, and importantly, we consciously used a proven data base (sample and time frame). It may be meaningful to replicate the study using a later period and a different set of firms. As noted by Ramanujam and Varadarajan (1989) and Simmonds (1990), the time frame and sample dependent nature of our cumulative understanding of diversification-performance relationships represent an important challenge for researchers.

References

Aggarwal, R., Mikhail, A. D., & Shawky, H. A. (1980). Investment performance of U.S.-based multinational companies: Comments and a perspective on international diversification of real assets/a reply. *Journal of International Business Studies, 11,* 98–106.

Agmon, T., & Lessard, D. R. (1977). Investor recognition of corporate international diversification. *Journal of Finance, 32,* 1049–1055.

Ansoff, I. H. (1965). *Corporate strategy.* New York: McGraw-Hill.

Beamish, P. W., & Newfield, C. (1984). Diversification strategy and multinational enterprise performance. In M. Ragab & R. White (Eds.), *Proceedings of the Administrative Sciences Association of Canada conference, 5* (6), 3–12.

Bergsten, C. F., Horst, T., & Moran, T. H. (1978). *American multinations and American interests.* Washington, DC: Brookins Institution.

Bettis, R. A. (1981). Performance differences in related and unrelated firms. *Strategic Management Journal, 2,* 379–393.

Bettis, R. A., & Hall, W. K. (1982). Diversification strategy, accounting determined risk, and accounting determined return. *Academy of Management Journal, 25,* 254–264.

Bettis, R. A., & Mahajan, V. (1985). Risk/return performance of diversified firms. *Management Science, 31,* 785–799.

Bilkey, W. J. (1978). An attempted integration of the literature on the export behavior of firms. *Journal of International Business Studies, 9,* 33–46.

Buhner, R. (1987). Assessing international diversification of West German corporations. *Strategic Management Journal, 8,* 25–37.

Calvet, A. L. (1981). A synthesis of foreign direct investment theories and theories of the multinational firm. *Journal of International Business Studies, 12,* 43–59.

Caves, R. E. (1982). *Multinational enterprise and economic analysis.* Cambridge, MA: Cambridge University Press.

Chang, Y., & Thomas, H. (1989). The impact of diversification strategy on risk-return performance. *Strategic Management Journal, 10,* 271–284.

Christensen, H. K., & Montgomery, C. A. (1981). Corporate economic performance: Diversification strategy versus market structure. *Strategic Management Journal, 2,* 327–343.

Collins, J. M. (1990). A market performance comparison of U.S. firms active in domestic, developed and developing countries. *Journal of International Business Studies, 21,* 271–287.

Daniels, J. D., & Bracker, J. (1989). Profit performance: Do foreign operations make a difference? *Management International Review, 29* (1), 46–56.

Daniels, J. D., Pitts, R. A., & Tretter, M. J. (1985). Organizing for dual strategies of product diversity and international expansion. *Strategic Management Journal, 6,* 223–237.

Egelhoff, W. G. (1982). Strategy and structure in multinational corporations: An information-processing approach. *Administrative Science Quarterly, 27,* 435–458.

Egelhoff, W. G. (1988). Strategy and structure in multinational corporations: A revision of the Stopford and Wells model. *Strategic Management Journal, 9,* 1–14.

Franko, L. G. (1987, October). *Global competitive performance and the geographic location of corporate activity.* Paper presented at the Strategic Management Society Conference, Boston, MA.

Geringer, J. M., Beamish, P. W., & daCosta, R. C. (1989). Diversification strategy and internationalization: Implications for MNE performance. *Strategic Management Journal, 10,* 109–119.

Grant, R. M. (1987). Multinationality and performance among British manufacturing companies. *Journal of International Business Studies, 18,* 79–89.

Grinyer, P. H., & Yasai-Ardekani, M. (1981). Strategy, structure, size and bureaucracy. *Academy of Management Journal, 24,* 471–486.

Grinyer, P. H., Al-Bazzaz, S., & Yasai-Ardekani, M. (1986). Towards a contingency theory of corporate planning: Findings in 48 U.K. companies. *Strategic Management Journal, 7,* 3–28.

Horaguchi, H., & B. Toyne. (1990). Setting the record straight: Hymer, international theory and transaction cost economics. *Journal of International Business Studies, 21,* 487–494.

Hymer, S. (1970). The efficiency (contradictions) of multinational corporations. *American Economic Review, 60,* 441–453.

Irwin, S. (1987). Diversification dampens volatility to your 'satisfaction' level. *Futures: The Magazine of Commodities Options, 16* (4), 45–47.

Jones, G. R., & Hill, C. W. L. (1988). Transaction cost analysis of strategy-structure choice. *Strategic Management Journal, 9,* 159–172.

Kim, W. C., Hwang, P., & Burgers, W. P. (1989). Global diversification strategy and corporate profit performance. *Strategic Management Journal, 10,* 45–57.

Kim, W. C., & Lyn, E. O. (1986). Excess market value, the multinational corporation, and Tobin's q-ratio. *Journal of International Business Studies, 17,* 119–125.

Kogut, B. (1985). Designing global strategies: Comparative and competitive value-added chains. *Sloan Management Review, 26* (4), 15–28.

Luffman, G. A., & Reed, R. (1982). Diversification in British industry in the 1970s. *Strategic Management Journal, 3,* 303–314.

Markowitz, H. M. (1991). Foundations of portfolio theory. *Journal of Finance, 46,* 469–477.

Mathur, I., & Hanagan, K. (1983). Are multinational corporations superior vehicles for achieving international diversification? *Journal of International Business Studies, 14,* 135–146.

McDougall, F. M., & Round, D. K. (1984). A comparison of diversifying and nondiversifying Australian industrial firms. *Academy of Management Journal, 27,* 384–398.

Michel A., & Shaked, I. (1986). Multinational corporations vs. domestic corporations: Financial performance and characteristics. *Journal of International Business, 17,* 89–100.

Mikhail, A. D., & Shawky, H. A. (1979). Investment performance of U.S.-based multinational corporations. *Journal of International Business Studies, 10,* 53–66.

Miller, J. C., & Pras, B. (1980). The effects of multinational and export diversification on the profit stability of U.S. corporations. *Southern Economic Journal, 46,* 792–805.

Montgomery, C. A. (1979). *Diversification, market structure and firm performance: An extension of Rumelt's Model.* Unpublished doctoral dissertation, Purdue University, West Lafayette, IN.

Montgomery, C. A. (1982). The measurement of firm diversification: Some new empirical evidence. *Academy of Management Journal, 25,* 299–307.

Montgomery, C. A., & Singh, H. (1984). Diversification strategy and systematic risk. *Strategic Management Journal, 5,* 181–191.

Montgomery, C. A. (1985). Product-market diversification and market power. *Academy of Management Journal, 28,* 789–798.

Nguyen, T. H., Seror, A., & Devinney, T. M. (1990). Diversification strategy and performance in Canadian manufacturing firms. *Strategic Management Journal, 11,* 411–418.

Palepu, K. (1985). Diversification strategy, profit performance and the entropy measure. *Strategic Management Journal, 6,* 239–255.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective.* New York: Harper & Row

Porter, M. E. (1980). *Competitive strategy.* New York: Free Press.

Porter, M. E. (1985). *Competitive advantage.* New York: Free Press.

Ramanujam, V., & Varadarajan, P. (1989). Research on corporate diversification: A synthesis. *Strategic Management Journal, 10,* 523–551.

Rugman, A. M. (1976). Risk reduction by international diversification. *Journal of International Business Studies, 7,* 75–80.

Rugman, A. M. (1979). *International diversification and the multinational enterprise.* Lexington, MA: Heath.

Rumelt, R. P. (1974). *Strategy, structure, and economic performance.* Boston, MA: Harvard University Press.

Rumelt, R. P. (1982). Diversification strategy and profitability. *Strategic Management Journal, 3,* 359–369.

Scott, W. R. (1981). *Organizations: Rational, natural and open systems.* Englewood Cliffs, NJ: Prentice-Hall.

Simmonds, P. G. (1990). The combined diversification breadth and mode dimensions and the performance of large diversified firms. *Strategic Management Journal, 11,* 399–410.

Solnik, B. H. (1974). Why not diversify internationally rather than domestically? *Financial Analyst Journal, 30* (4), 48–54.

Suzuki, Y. (1980). The strategy and structure of top 100 Japanese industrial enterprises 1950–1970. *Strategic Management Journal, 1,* 265–291.

Thompson, J. D. (1967). *Organizations in action.* New York: McGraw-Hill.

Vachani, S. (1991). Distinguishing between related and unrelated international geographic diversification: A comprehensive measure of global diversification. *Journal of International Business Studies, 22,* 307–322.

Varadarajan, P. R., & Ramanujam, V. (1987). Diversification and performance: A reexamination using a new two-dimensional conceptualization of diversity in firms. *Academy of Management Journal, 30,* 380–393.

Walters, P. G. P., & Toyne, B. (1989). Product modification and standardization in international markets: Strategic options and facilitating policies. *Columbia Journal of World Business, 24* (4), 37–44.

Wolf, B. M. (1977). Industrial diversification and internationalization: Some empirical evidence. *Journal of Industrial Economics, 26* (2), 177–191.

Wrigley, L. (1970). *Divisional autonomy and diversification.* Unpublished doctoral dissertation, Harvard University, Boston.

Appendix

Product-Market Diversification Categories

The seven diversification categories used by Montgomery (1979) were taken from Rumelt (1974). The categories are determined by three ratios:

1. Specialization ratio (SR) = the proportion of a firm's revenues from its largest single business.

2. Related ratio (RR) = the proportion of a firm's revenues from its largest group of businesses that are related to each other in some way. If all members of the group is related to every other member in the group, it constitutes constrained relatedness. If each member in the group is related to at least one other member in the group, it is linked relatedness.

3. Vertical ratio (VR) = the proportion of a firm's revenues from all by-products, intermediate products, and final products of a vertically sequence of manufacturing operations.

The seven diversification categories represent the following combination of these three ratios:

1. Single Business (SB) = $SR \geq .95$.

2. Dominant Vertical (DV) = $SR < .95$, $VR \geq .7$.

3. Dominant-Constrained (DC) = $.95 \pm SR \geq .7$, $VR < .7$, and all members in the largest group of businesses are related to each other.

4. Dominant-Linked (DL) = $.95 \pm SR \geq .7$, $VR < .7$, and each member in the largest group of businesses is related to at least one other member in the group.

5. Related-Constrained (RC) = $SR < .7$, $VR < .7$, $RR \geq .7$, and all members in the largest group of businesses are related to each other.

6. Related-Linked (RL) = $SR < .7$, $VR < .7$, $RR \geq .7$, and each member in the largest group of businesses is related to at least one other member in the group.

7. Unrelated Portfolio (UP) = $SR < .7$, $VR < .7$, $RR < .7$.

Biographical Note

Paul G. Simmonds
Department of Management
College of Business
Florida State University
Tallahassee, FL 32306–1042
Phone/Fax: 904–644–8205/7843
E-mail: psimmon@cob.fsu.edu

Dr. Simmonds is an Assistant Professor of Management at Florida State University. He received his Ph.D. in Strategic Management from Temple University in Philadelphia, PA. His research interests include corporate diversification, international strategic management, small business management, and corporate governance issues.

Bruce T. Lamont is an Associate Professor of Management at Florida State University. He received his Ph.D. from the University of North Carolina, Chapel Hill. His research interests include corporate restructuring, international expansion, structural reorganization, and related issues in the effective management of strategic change.

Received: November 5, 1993
Accepted after two revisions: January 10, 1996

♥