

MERGER/ACQUISITION VS. DE NOVO CONSTRUCTION :
DIRECT FOREIGN INVESTMENTS IN
U.S. MANUFACTURING INDUSTRIES

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ABSTRACT

This study explores the underlying determinants of the entry mode choice when making foreign direct investment, namely: indirectly through mergers/acquisitions or directly by establishing de novo plants.

There exist specific patterns of entry strategy for firms from different countries. Due to cultural and geographical proximity, firms from the U.K. are the most active acquirers in the U.S., while the Japanese and the Germans favor de novo entry. Foreign firms with superior managerial and technical capability will take advantage of the economies of scale in both physical capital and human resources by acquisition entry. Those U.S. industries characterized by rapid technological changes provide opportunities for the foreign firms adopting acquisition entry. Highly concentrated industries with potential anti-competitive actions from government and oligopolistic reactions by indigenous firms force foreign firms to enter directly by building new plant

facilities.

This study finds no evidence that low dollar exchange rates or depressed stock market prices in the U.S. industrial sectors influence entry choice.

I. INTRODUCTION

The most prominent characteristic of recent foreign direct investments in the U.S. is the rising trend toward the use of acquisition, instead of newly established subsidiaries or plants, as the major mode of entry. In the early 1970s, foreign investments in the U.S. consisted largely of new plant construction. Prior to 1974, acquisitions accounted for less than 25% of all investments. During 1979-1983, acquisition of existing U.S. firms became the dominant form of direct investment (47% as compared to 38% for new construction). In both 1979 and 1980, foreigners accounted for 1 out of every 5 acquisitions occurring in the U.S. These purchases represented an annual inflow of \$10.4 billion and about 90% of the total dollar value of new foreign investments in the U.S. At the same time, the average dollar value of individual acquisitions has exceeded that of new plant constructions. In 1979, each of the top 12 foreign acquisitions costs more than \$100 million, while the average cost of newly established plants was \$19 million. The shifting emphasis of entry mode choice has spurred great interest among practitioners and academicians alike.

Calvet (1982) claims that vast amounts of literature on foreign direct investment and export behavior have dealt with the underlying motivations and strategic characteristics of firms that went abroad. However, the study of the specific "means" by which firms engage in international investment, particularly through the takeover of existing foreign firms, has been neglected. This paper attempts to explore the underlying determinants of foreign entry mode choice between merger/acquisition and establishment of brand new plants or new subsidiaries using data on foreign direct investments into the

U.S. from four countries (Canada, West Germany, Japan, and the U.K.). Specifically, this study examines the following questions:

- (1) Whether there is any idiosyncratic pattern of entry strategies exhibited by firms from different countries?
- (2) What is the role of host country stock market performance and foreign exchange position in explaining entry choices by foreign firms?
- (3) Which market structure variables seem to predominate each category of entry strategies?
- (4) Which competitive advantages of firms best differentiate between firms adopting different expansion paths?

The remainder of this paper is organized as follows. In the next section, a model is developed and prior research related to the entry mode choice are summarized. Various hypotheses to be tested are also presented. Section III describes the sample along with the test for sample representativeness. Section IV specifies the operational definitions of variables. The framework of analysis is also outlined. The results of the analysis are presented in Section V. Conclusions that can be drawn from these results are discussed in Section VI.

II. LITERATURE REVIEW AND MODEL DEVELOPMENT

Calvet (1982) calls for the integration of domestic merger and foreign direct investment theories in dealing with issues of foreign acquisition. As an act of foreign direct investment, entry choice must comply with the existing theory of foreign direct investment. The studies on multinational corporations' monopolistic advantages can be used to explain the advantages enjoyed

by non-U.S. MNCs in the U.S. Two groups of intangible advantages have been identified: (1) those based on advanced technology, marketing and other types of skills, and (2) those based on large size and the ability to undertake investment in sectors marked by plant-level economies of scale and the existence of multiplant operations. Dubin (1975), however, contends that the latter two production-related advantages are unimportant in the case of foreign acquisition entry.

On the other hand, as a viable strategy, foreign take-over activities must also be consistent with the theories of merger. According to the economic disturbance theory of merger as proposed by Gort (1969), the waves of merger were spurred by dynamic economic changes, such as innovations and technological changes. The "valuation gap" thus created between foreign investors and the indigenous firms should be consistent with the pattern of domestic merger phenomenon. For foreign acquisitions to be materialized, the relative performance of financial markets (e.g., stock market and currency market) also play important roles in widening the gaps and activating the foreign investment decisions.

To successfully integrate the two lines of reasoning and make them operational in explaining the phenomenon of foreign acquisition, a standard capital-budgeting technique, discounted cash flow, is adopted. It was first used by Rugman (1982) as a new approach to evaluate the choice between export, licensing, and direct investment. Khoury (1980) extends Rugman's model and claims that *de novo* expansion versus merger/acquisition by foreign firms may be viewed as a special problem within the general theory of investment under uncertainty. In this regard, a discounted cash flow framework becomes the relevant analytical construct. Gilbert (1974) suggests that the basic components of such a framework are estimates of expected cash flows from new assets and the risk-adjusted discount rate. Various categories of explanatory variables which are presumed to reflect the major risk and return dimensions of entry investment analysis are: (1) firm's expansion capacity which measures the financial risk associated with foreign expansion, (2) firm's

patterns of growth which reflect the history of expansion, such as operational experience in foreign market, (3) market structure which reflects the competitive environments, and (4) market growth potential. In addition, the economic disturbances, such as technological changes and changes in the performance of financial markets alter the risk-return profile of investment alternatives also have an impact on the time dimension of entry mode choice.

The five categories of factors mentioned above are re-organized into three categories, e.g., country-, industry-, and firm-specific factors. This classification scheme is also in line with Dunning's eclectic approach toward foreign direct investment. Various testing hypotheses are also listed under the relevant headings for easy reference.

1. Host country-specific factors:

(1) Cultural/geographical proximity:

The greater risk of making foreign investment by the foreign firms may cause these firms to select locations that help reduce various aspects of risk. Proximity to the United States (e.g., Canada or Mexico) would involve familiar environment and less risk to the acquiring firms from these countries. Also, countries with similar language or customs to the U.S. (e.g., the United Kingdom) would also help reduce risk (Dubin 1975). The greater tasks in integrating the post-merger systems pose further difficulties for firms from distant lands. It is likely, therefore, that firms from Canada and the United Kingdom would be more equipped to invest in the U.S. through acquisition entry, while those from Japan and West Germany (esp. Japan) would tend to construct new plants.

H1: Due to cultural proximity, firms from the U.K. will have a higher propensity to acquire; due to geographical proximity, firms from Canada will have a higher propensity to acquire; firms

from West Germany and Japan (esp. Japan) will have a lower propensity to acquire.

(2) Currency and stock markets:

In examining the German multinationals and their direct investment activities in the U.S., Stopford (1980) maintains that the depreciation of the dollar and the decline in the U.S. stock market have made the entry into the U.S. by acquisition more attractive. A study on foreign banking in the U.S. by the General Accounting Office (1979) also concludes that "because of recent declined dollar value and depressed U.S. bank stock prices, acquisition has become one of the foreign banks' favored methods of gaining a base of operations in the U.S.". In particular, as U.S. banks' P/E ratios fell, it has become more attractive for foreign investors to acquire U.S. firms, rather than setting up agencies or branches. Goldberg and Saunders (1981) hypothesized that the falling value of the U.S. dollar in the exchange market, combined with falling stock prices, make U.S. firms the prime targets for takeovers by foreign investors.

H2: Depreciated dollar values provide a cheaper alternative for foreign investors to acquire existing U.S. firms than to build de novo plants.

H3: Depressed U.S. stock market prices provide greater incentives for acquisition entry by foreign firms.

2. *Industry-specific factors (market structure):*

Market structure is likely to influence foreign acquisition in ways independent of the effects of parent characteristics (Dubin 1975). Industry structure variables which reflect the nature and the heights of entry barriers, such as research & development intensity, advertising intensity, and concentra-

tion ratio are also suggested by Porter (1980) as the major determinants of corporate strategic choice of entry into particular markets.

(1) Barriers to entry (degree of concentration):

Yip (1982) pointed out that the higher the barriers to entry, the more likely the adoption of acquisition mode by firms attempting entry. However, according to the doctrine of potential competition, for those industries with significant economies of scale or high concentration ratios, the rate of acquisition was typically low (Gilbert 1974).

H4: U.S. industries characterized by higher degrees of concentration are less conducive to acquisition entry by foreign firms.

(2) Product differentiation:

High acquisition rates were found in product differentiated industries and in industries characterized by high levels of instability or rapid technological changes. Industries characterized by product differentiation might stimulate higher rates of acquisition for two reasons: (1) the potential for acquisition to generate additional returns from under-utilized resources, (2) the ability of acquisition to reduce the risk of surmounting the high barriers to entry (or expansion) within the industries (Dubin 1975).

H5: U.S. industries characterized by higher levels of product differentiation are more conducive to foreign acquisition.

(3) Technological changes:

Technological changes in R&D intensive industries create new opportunities and economic disturbances which prompt mergers and acquisitions

(Gort 1969). However, Chakrabarti and Burton (1983) show that firms in the less R&D-intensive industries are more active acquirers. Larger firms in less R&D-intensive industries are more active in acquisition activities.

H6: U.S. industries characterized by rapid technological changes are more conducive to foreign acquisition entry.

(4) Market growth:

Yip (1982) argues that rapid market growth should reduce the impact of entry barriers by creating disequilibrium conditions, and therefore encouraging direct entry. In the more mature, slower growth markets, a larger number of acquisition candidates should be available. However, Root (1982) argues that the most evident advantages of indirect entry through acquisition is for firms to accelerate the speed of expansion into rapidly growing markets, which is in line with the major findings concerning the motives behind the recent surge of foreign investments in the U.S.

H7: U.S. industries characterized by rapid market growth are more conducive to acquisition entry by foreign firms.

3. Firm-specific factors:

(1) Firm size:

The firm size of the acquirer is the all-encompassing measure of expansion capacity of the firms. Firm size has been shown to correlate strongly with the level of foreign direct investment and to have had a significant influence on foreign acquisition activities (Wilson 1980). Firm size has, among its many effects, an important influence on the perceived level of risk in making foreign investment (Dubin 1975). The potential volatility in the income

streams of a foreign investment may have a substantially greater effect on the overall income pattern of a small firm (especially when the foreign investment is large in scale compared to the size of the parent firm). Therefore, firm size is hypothesized to be negatively correlated to the propensity to acquire. It is the small firms, relatively inexperienced abroad that turned actively to acquisition. Size was also cited by Yip as the major force in entry mode choice. Larger firm size favors the adoption of direct entry due to the greater resources available to overcome direct entry barriers and potential antitrust actions against acquisitions.

H8: Foreign firms with larger size have a lower propensity to expand via acquisition in the U.S.

(2) Managerial efficiency:

The failing-firms and efficiency hypotheses for mergers/acquisitions imply that acquirers demonstrated greater managerial capabilities embodied in the planning and execution of various functional programs, such as marketing and production. Thus, firms exhibiting higher profitability and productivity, implying more efficient and effective managerial capability, might take over the less efficient firms to exploit the superior managerial talents (Dubin 1975). However, from the resource availability point of view and the acquiring firms' desire to improve the return on investment, a firm with a relatively low level of return on investment would acquire instead of building a new establishment.

H9: Foreign firms characterized by higher returns on investment have higher propensity to expand by acquisition in the U.S.

H10: Foreign firms characterized by higher asset productivity levels have higher propensity to expand by acquisition in the U.S.

(3) Nature of Technology:

Theories of foreign direct investment strongly emphasize that superior technology is absolutely essential in overcoming barriers to entry onto foreign soil. Firms tend to exploit the advantages by internalizing these information asymmetries and reducing uncertainty and dependency. New plant construction will seem to be a better way of protecting the intangible assets than forming new firms through acquisition in the foreign countries. By the same token, firms without technological advantage and/or marketing expertise will seek acquisition to tap the resource base and gain access to the existing marketing networks, material resources, and even the existing clientele of the acquirees. Dubin (1975) assumes that firms with higher assets-to-sales ratios are more technologically-advanced. The capital-labor ratio has been widely used by economists to represent technology. Guerard (1982) claims that capital expenditure (a proxy for technology) is of great interest to the acquiring firm's management. The capital expenditure/sale ratio falls (signaling the existence of economies of scale or excess capacity in physical capital) for the acquiring firms relative to the non-merging firms following merger.

H11: Foreign firms with higher capital-labor ratios will have lower propensity to expand by acquisition in the U.S.

H12: Foreign firms with higher fixed assets-to-sales ratios will have lower propensity to expand by acquisition in the U.S.

In spite of the importance, both from the viewpoints of merger and foreign direct investment theory (and theory of growth of firms in general), little research has been done on the entry mode choices by both the U.S. and foreign investors. In terms of model construction, Harris, Stewart, and Carleton (1982) focus only on financial characteristics. No attempt has been

made to include product-market attributes, such as the degree of oligopolistic competition. Wilson (1980) also deals with a limited set of firm-specific variables and no market structure variable was included. On the other hand, Yip (1982) and Dubin (1975) assume away all the financial characteristics and put great emphasis on the impact of entry barriers. They postulate that market structure will be the dominant factor in entry strategy choice. Financial factors, such as an entrant's balance sheet and profit/loss position were omitted.

As for the scope of investigation, Wilson and Dubin investigate the phenomenon of U.S. outbound investments in manufacturing sectors. Goldberg and Saunders (1981) focus on the foreign banking activities in the U.S. Yip and others examine the U.S. domestic entry choices. With the exception of Wilson, all of the above research are single country studies. In methods of empirical analysis, Wilson uses aggregate measures of acquisition activities which can only reflect the average decision results of the firms. By applying probit analysis, Yip could partially explain the variances in individual choices, but with a small sample size of 59.

This study examines the individual investment decision by foreign firms, using each incident as the unit of analysis and incorporates various return and risk elements. Furthermore, by comparing the entry mode choices across nations, with a relatively large sample size, makes it possible to test the generalizability of the research results.

III. THE SAMPLE AND DATA

1. Sample:

This study examines the foreign direct investments in the U.S. manufacturing industries by four major developed countries: Canada, Japan, West Germany, and the United Kingdom from 1981 to 1983. These four countries

accounted for the bulk of foreign direct investments in the U.S. manufacturing industries, both in terms of the number of cases and dollar values of the investments. On average, these four countries accounted for 58% of the total number of cases and 88% of the dollar amounts during the same period.

The sample consists of 377 foreign investment activities, which is approximately 80% of the total 477 events in the population under consideration. The data is taken from the listings of "Foreign Direct Investment In the U.S. (1981-1983 Transactions)", compiled by the International Trade Administration of U.S. Department of Commerce. Among the 377 cases, 205 used mergers and 172 constructed new plants. In general, firms from Japan and Germany are larger in terms of sales and assets compared with those from the U.K. and Canada. De novo plant builders from Canada are especially small as compared with acquiring firms.

2. Representativeness of the sample:

Two separate chi-square tests were performed to test the goodness-of-fit with regard to the industrial composition and country distribution between the sample and the population. The chi-square value for the testing of goodness-of-fit for industrial composition is 29.7 with 17 degrees of freedom which is not significant at $\alpha = 0.01$ level of significance; the chi-square value for country composition is 11.66 which is also not significant at $\alpha = 0.01$ with 3 degrees of freedom. Thus the representativeness of the sample can be assured.

IV. METHODOLOGY

1. Measurements.

A binary variable is constructed to represent whether merger/acquisi-

tion (coded as 1) or de novo plant construction (coded as 0) has been used in each investment event. This variable served as a dependent variable in the probit analysis reported in the subsequent sections. Three sets of independent variables have been identified from section II:

(1) Country-specific factors:

- (A) Country of origin -- Four dummy variables (DUMB, DUMC, DUMG, and DUMJ) were constructed to represent the countries under consideration, where DUMB, DUMC, DUMG, DUMJ denote the U.K., Canada, West Germany, and Japan respectively.
- (B) Changes in exchange rate -- average exchange rate changes (EX) between investing countries and the U.S. prior to the year of investment were taken from the International Financial Statistics as published by IMF.
- (C) Stock market performance -- average returns on the stock market for each major industrial group in the U.S. were calculated using industrial stock market indexes adopted from the statistical section of the Moody's International Manuals. (STMKT).

(2) Industry structure factors:

- (A) Extent of market power of incumbents -- measured by the four-firm concentration ratio (C4). This information is available from The Structure of American Business (Gould and Paykin 1982).
- (B) Product differentiation -- the measure of the degree of product differentiation as suggested by Dubin (1975) is the percentage of R&D expenditure allocated to new product development. It reflects the true content of product-market dynamics than the traditional advertising-to-sale ratio (NEW).

(C) Technological changes -- measured as the percentage of R&D expenditure allocated to new process development. The common variable used is R&D intensity (R&D expenditure as a percentage of net sales) cannot reflect the dynamics of technology. A more refined proxy is needed to distinguish among various forms of efforts (as devoted to new product development, new processes, the improvement of existing products). The data on the above three variables were taken from The Business Week Almanac (PROCESS).

(D) Market growth rate -- the average growth rate (GROW) in industrial sales at the 4-digit SIC level during 1977-1981, compiled from Industrial Outlooks (1984 edition).

(3) Firm-specific factors:

The firm-specific data was compiled from various editions of the Moody's International Manuals (1981-84). For each company, the data prior to the year of investment was used because the elapsed time between entry decision and realized past performance should at least be one year.

(A) Firm size -- Sales volume in logarithmic form is used to correct the skewness of the distribution. It implicitly measures the expansion capacity of the firm (SALES).

(B) Managerial competency (profitability and productivity) -- measured by net income after tax/net worth and net sales/total assets (ROI, and EFFECT).

(C) Nature of technology -- Dollar value of fixed assets per employee (K/L) is used as the proxy for capital-labor ratio to represent the technical nature of the firm. Guerard and Dubin both suggest using capital expenditure-to-sales or fixed asset-to-sales to represent the nature of the technology utilized by the firms. Fixed assets were derived at cost basis (not replacement values) which

may understate their true market values. Also, various elements of fixed assets, e.g., machinery, plant and equipment, were not distinguishable and may not reflect the technical aspects of the assets. Another limitation to be considered is that the fixed assets-to-sales ratio can also be a measure of asset productivity (its converse is sales-to-assets). As such, careful interpretation should be noted. However, due to its explorative nature and the availability of data, the latter will be used (TECH).

2. Framework of analysis:

Given that the dependent variable is binary in nature and is a direct function of the values of the explanatory variables rather than prior classification criteria, binary regression is more suitable than discriminant analysis for the purpose of the study. Assuming that the random components of alternatives are multivariate normally distributed, thereby producing the multinomial probit model. This model permits tastes to vary among individuals with identical observable characteristics, and it allows for the effects of unobserved variables to be correlated across alternatives. Thus, multinomial probit will be used in the current study.

Table 1, 2, and 3 present the correlation coefficients among macro-level data, between micro- and macro-level data, and among micro-level data, respectively.

In order to obtain accurate estimates of the impact of different factors (e.g., country-, industry-, and firm-specific) separately, it must first be assured that the three sets of factors are independent. Examining Table 2, it is clear that independency can be fairly assured due to low correlations among the three set of variables.

A series of probit regressions were performed using, in turn, three country dummies, two financial market indicators, four market structure variables, and five firm-specific characteristics as predictors of membership in the two dif-

Table 1. Correlation Coefficients among Macro-level Data

	C4	NEW	PROCESS	GROW	EX	SPMKT	DUMC	DUMG	DUMJ	DUMB
C4	1.000									
	0.00									
NEW	0.018	1.000								
	0.73	0.00								
PROCESS	0.034	-0.511	1.000							
	0.51	0.00	0.00							
GROW	0.077	0.198	-0.084	1.000						
	0.14	0.00	0.10	0.00						
EX	-0.064	-0.052	-0.016	-0.08	1.000					
	0.21	0.31	0.75	0.14	0.00					
SPMKT	-0.018	0.161	-0.021	0.045	0.196	1.000				
	0.72	0.00	0.69	0.38	0.00	0.00				
DUMC	-0.113	0.014	0.027	-0.026	0.015	0.064	1.000			
	0.03	0.78	0.60	0.61	0.78	0.22	0.00			
DUMG	0.013	-0.024	-0.025	-0.048	0.442	0.037	-0.170	1.000		
	0.78	0.64	0.63	0.35	0.00	0.47	0.00	0.00		
DUMJ	0.205	0.139	-0.076	0.061	-0.263	0.048	-0.259	-0.324	1.000	
	0.00	0.01	0.14	0.24	0.00	0.35	0.00	0.00	0.00	
DUMB	-0.134	-0.126	0.075	-0.004	-0.102	-0.119	-0.285	-0.356	-0.544	1.000
	0.01	0.01	0.15	0.94	0.05	0.02	0.00	0.00	0.00	0.00

Source: the study

Note: Figures under correlation coefficients are $\text{PROB} > |R|$

Table 2. Correlation Coefficients between Micro- and Macro-level Data

	C4	NEW	PROCESS	GROW	EX	SPMKT	DUMC	DUMG	DUMJ	DUMB
SALES	0.134	-0.008	-0.066	-0.001	0.013	-0.013	-0.263	0.260	0.271	-0.328
	0.07	0.92	0.37	0.98	0.86	0.86	0.00	0.00	0.00	0.00
ROI	-0.176	0.014	0.032	-0.032	-0.161	-0.028	0.237	-0.334	-0.235	0.361
	0.02	0.86	0.67	0.66	0.03	0.70	0.00	0.00	0.00	0.00
EFFECT	-0.107	-0.116	0.071	-0.129	0.084	-0.009	-0.102	0.205	-0.074	-0.023
	0.15	0.22	0.34	0.08	0.26	0.90	0.16	0.01	0.32	0.75
K/L	0.112	0.004	-0.022	-0.047	-0.112	-0.149	-0.030	-0.126	0.327	-0.221
	0.13	0.96	0.77	0.52	0.13	0.04	0.68	0.09	0.00	0.00
TECH	0.094	0.139	-0.031	0.026	-0.070	-0.071	0.412	-0.098	-0.205	0.055
	0.20	0.06	0.68	0.73	0.35	0.34	0.00	0.19	0.01	0.45

Source: the study

Note: Figures under correlation coefficients are $\text{PROB} > |B|$ under $H_0: RH_0 = 0$.

Table 3. Correlation Coefficients among Micro-level Data

	SALES	ROI	EFFECT	K/L	TECH
SALES	1.000				
ROI	0.00				
ROI	-0.343	1.000			
	0.00	0.00			
EFFECT	0.086	0.045	1.000		
	0.24	0.54	0.00		
K/L	0.652	-0.266	-0.089	1.000	
	0.00	0.00	0.23	0.00	
TECH	-0.136	-0.006	-0.524	0.178	1.000
	0.06	0.93	0.00	0.02	0.00

Source: the study

Note: Figures under correlation coefficients are $\text{PROB} > |R|$ under $H_0: \rho_{H0} = 0$.

Table 4. Profit Maximum-likelihood Estimates of Entry Choice Models

	(1)	(2)	(3)	(4)	(5)
INTERCEPT	0.680* (5.92)	0.127 (1.59)	-0.103 (-0.35)	-0.592 (-0.68)	-1.097 (-0.99)
DUMC	-0.123 (-0.54)				0.810 (1.35)
DUMG	-0.871* (-4.51)				-0.487 (-1.26)
DUMJ	-1.17* (-7.13)				-1.231* (-4.05)
DUMB					
EX		-0.003 (-0.42)			-0.0183 (-1.43)
SPMKT		-0.002 (-0.78)			-0.003 (-0.07)
C4			-0.882* (-2.25)		-0.972 (-1.55)
NEW			0.074 (1.26)		0.021* (2.05)
PROCESS			0.012* (2.64)		0.025* (2.99)
GROW			0.045 (0.479)		0.005 (0.30)
SALES				-0.140 (-1.61)	-0.004 (-0.036)
ROI				6.207 (1.50)	-1.75 (-0.34)
EFFECT				0.708* (2.51)	0.402 (1.38)
K/L				0.673 (0.582)	2.182 (1.679)
TECH				1.689* (3.00)	0.563 (0.85)
2 X Log-Likelihood	62.46	0.96	11.69	21.10	56.48
D.F.	3	2	4	5	14
R ²	0.33	0.00	0.09	0.21	0.33

Source: the study.

Note: $R^2 = 1 - L(B)/L(B^H)$, where $L(B)$ is the log-likelihood of the unconstrained model and $L(B)^H$ is that of the model as defined by the null hypothesis. Figures in parentheses are t-statistic. With one-tailed test, "*" denotes significance at the 0.05 level.

ferent entry groups (acquisition versus new plant construction). Finally, the whole model that incorporates all the variables will be tested to explore the relative importance of the various influences on entry mode choice.

V. FINDINGS

Table 4 summarizes the results from probit analysis.

1. Country of origin and entry strategy:

The three intercept dummies used to represent the entrant's nationalities in probit regression clearly indicate that there are different patterns of entry strategy for each country (Table 4, eq. 1). Just as expected, firms from the U.K. have the highest propensity to acquire U.S. firms (as reflected in the sign of intercept in the regression equation), while the Japanese tend to establish their footholds via de novo plants. The same is also true for the Germans. The coefficient for Canada is not significant. The result confirms the notion that competitive advantages of firms may well be endowed from cultural and/or geographical origins.

The overall goodness-of-fit of the model can be tested using the value of the statistic: (-2) times log-likelihood ratio, which is distributed as chi-square distribution. For the country model, the value is 62.46 with 3 degrees of freedom which is significant at $\alpha = 0.01$ level. The likelihood ratio index, sometimes referred to as "Pseudo- R^2 " is 0.33 (See footnote in Table 4).

2. Financial market conditions and entry strategy:

In order to test the effects that performance in financial markets have upon the nature of entry mode choice, the average rates of change in exchange rates and stock market returns for individual sectors were entered as inde-

pendent variables. The result was shown in Table 4, equation 2. The coefficients for both variables are insignificant. The overall model also shows no significant explanatory power at the level of significance of $\alpha = 0.05$. Because of the lengthy process of entry mode choice it is difficult to identify the relevant time-frames of the decision and the preceding financial market situations that prompt the decision.

3. Market structure and entry strategy:

Before discussing the evidence relating industrial characteristics to entry choices, it is important to point out that the level of correlations among the industry variables were fairly low (see Table 1).

The probit coefficients between four predictor variables and entry choice are presented in Table 4, equation 3. Examining the sign of the coefficient of each variable in the probit function, various hypothesized relationships can be confirmed. The relative importance of each element in the determination of entry choice is revealed in the magnitude of the maximum-likelihood coefficient.

The prime market structure variables which successfully distinguish between direct and indirect entry strategy are the degrees of concentration and the pace of technological changes in the industry. Industries characterized by rapid technical innovations due to intensive R&D efforts are more conducive to acquisition entry. Contrary to what Yip (1982) had argued, highly concentrated industries leave foreign firms with no other choice but to build foot-holds from scratch. Two major reasons may well be at work: the anti-competitive effects and oligopolistic reactions from indigenous firms.

A positive relationship between entry choice and new product development cannot be confirmed. The growth rate of the market is not of major concern in the making of entry strategy. The reason may be that market growth is important in the initial decision as to whether to invest or not. Once the decision has been made, the concern shifted toward the detailed

evaluation of the competitiveness of the market and the nature of that growth.

4. Firm-specific characteristics and choice of entry strategy:

Reviewing the probit coefficients (Table 4, eq. 4), the fixed asset-to-sale ratios of firms seem to be the most important factor in predicting entry choice. Those firms with higher physical capital intensity adopt the acquisition route in foreign direct investments. Following Guerard (1982), a high capital-to-sales ratio may well mean the existence of idle capacity in capital (includes intangible technical capability) or potential economies of scale in capital. Firms will exploit their organizational slacks through acquisitions rather than by building additional facilities. The synergistic use of plant capacity makes a strong argument for indirect expansion.

A positive sign between entry mode choice and productivity implies the existence of economies of scale in management and efficiency motive for merger/acquisition. The profitability measure does not show a significant effect on entry choice. The reason may be that the year-to-year volatility of profits makes it an unstable predictor.

As a rule, competing on an international scale requires large size, and the quickest way for total sales to mushroom is through merger/acquisition. The emphasis on growth, subject to a minimum level of profitability, prompts firms of smaller size and slower growth to aggressively engage in acquisition entry. In this study, no significant relationship can be found between firm size and entry choice. It may be explained that firms are profit-maximizers rather than growth-maximizers as suggested in various studies on merger (Khoury, 1980). Even though the acquiring firms' objectives for international investments are the rapid penetration and expansion in the U.S. market or acquisition of new technology, the maximization of the rate of return is still of major concern, especially for the smaller firms. A moderate and negative correlation between firm size and profitability provides some clue regarding the underlying expansion motivations (or results) of firms with different

size (see Table 3). The overall explanatory power of firm-specific model is significant at $\alpha = 0.01$. The pseudo-R square is 0.21.

5. Combined model of choice of entry mode:

In order to explore the relative importance of country, industry, and firm factors in determining entry mode choice, a whole model that incorporates all the variables in the current study was constructed (Table 4, equation 5).

Country of origin continues to be the most important determinants of entry decision. Two of the market structure factors (the pace of technological changes and the degree of product differentiation of the industry) also show significant impacts. However, no firm-specific factor was significant in the model. The overall explanatory power of the whole model is significant at $\alpha = 0.05$, (chi-square value = 56.48, degrees of freedom = 14). The pseudo-R square is 0.33. Exhibit 1 summarizes the various results obtained from the current study.

V. CONCLUSIONS

The purposes of this study have been to analyze the idiosyncratic entry patterns exhibited by firms from different countries of origin; to assess the impacts of market structure, the characteristics of firms on the adoption of acquisition or new plant establishment as the preferred entry strategy when engaging in foreign investment.

The findings indicate that each of the three sets of characteristics namely: market structure, firm-, and country-specific factors, partially explain the entry choices. Viewed separately, the country of origin is the most informative one followed by strategic profiles of the firms and the market structure of the host country (in this case, the U.S.).

Exhibit 1. Summarized Results

Variable	Hypotheses	Empirical result
Country of Origin:		
Canada	+	N.S.
West Germany	—	—
Japan	—	—
U.K.	+	+
Financial Market Situations:		
Exchange market	—	N.S.
Stock market	—	N.S.
Market Structure:		
Concentration	—	—
Technical change	+	+
Product differentiation	+	N.S.
Market growth	+	N.S.
Firm Characteristics:		
Size	—	N.S.
Managerial Capability:		
Profitability	+	N.S.
Productivity	+	+
Nature of Technology:		
Capital-Labor ratio	—	N.S.
Fixed Assets-to-Sales	—	+

Source: the study

Note: N.S. = non-significant

Due to cultural and geographical proximity, the firms from the U.K. are the most active acquirers in the U.S. On the contrary, the Japanese and the Germans favor the de novo route. The precipitating circumstances such as the depreciation of the dollar and depressed stock markets fail to affect entry choice.

Physical capital intensity of acquiring firm seems to be the most powerful strategic factors in entry choice. High asset productivity encourages entry by acquiring existing U.S. firm to take advantage of economies of scale in managerial capability.

It is noted that the market structure also shows significant power in the explanation of entry mode choices. In particular, the technological changes and the degree of concentration in the industry are the most significant factors. Firms aiming at markets with strong market power of domestic firms and anti-competitive regulations by the U.S. government agencies have to start from scratch. Rapid changes in technical environments provide great opportunities for foreign firms to acquire technologically innovative U.S. firms in gaining technological footholds.

The results are consistent with the general theories of foreign direct investment that firms engaging in foreign entry should possess superior competitive advantages which are either cultivated through efficient managerial, technological capability or "inherited" from cultural, geographical background, strong science infrastructure, and favorable regulatory environments. Further research efforts should explore more on the sources of national competitiveness and their impacts on entry strategy.

Lacking information on the characteristics of acquired firms is one limitation of the study. By matching the attributes of both acquiring and acquired firms, further insights can be gained on international take-over activities. Further study should also focus on more firm-related factors, especially financial variables, such as capital structure, dividend policy, as related to the choice of entry mode.

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購併抑籌建新廠： 外人在美直接投資之策略選擇

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摘 要

本研究主要在探討外國對美國從事海外直接投資時，採購併或籌建新廠之決定因素。

整體觀之，各國對直接投資之進路策略顯然有脈絡可循。基於文化與地緣環境近似之故，英國積極從事合併及收購；日本及德國則泰半以自建新廠為主。

進入科技變動急劇之產業多採購併方式；由於可能遭受政府反托拉斯法管制及主要競爭廠商強烈反應之故，投資於產業集中度高之產業時則以建設新廠為主。

低美元匯率及低迷美國股市對海外投資進路策略之選擇並無影響。