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**INTERNATIONAL COMPETITIVENESS
AND THE CHOICE OF ENTRY MODE:
JAPANESE MULTINATIONALS IN U.S.
AND EUROPEAN MANUFACTURING
INDUSTRIES**

by

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**International Competitiveness and the Choice of Entry
Mode: Japanese Multinationals in U.S. and European
Manufacturing Industries**

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Abstract

This paper analyzes the probability of Japanese entry in the U.S. and European manufacturing industries through acquisition by using a newly constructed data on 371 U.S. subsidiaries and 198 European subsidiaries that were established after 1980. The Logit regression model is estimated to test the hypothesis that Japanese firms that do not own technological and competitive advantages are more likely to enter these markets through acquisition to seek them in the asset bundle of going concerns. With parent and entered-industry characteristics controlled, the statistical model finds evidence supporting this hypothesis for both the entries in the United States and Europe.

I. Introduction

Japanese firms beginning the mid-1980's have vastly expanded their presence in the U.S. manufacturing sector through foreign direct investment (FDI). The flow of Japanese manufacturing FDI in North America surged from US \$ 1.2 billion in 1985 to US \$ 4.8 billion in 1987 and peaked in 1989 with the amount of US \$ 9.6 billion. Indeed, the investment flow during the 1985-90 period alone accounted for approximately 85% of the cumulative flow of Japanese manufacturing FDI into North America between 1967-1990. The presence of Japanese firms now extends from food processing, chemical products, and steel products to general and electrical machinery and automobiles.

This growing presence of Japanese firms is not peculiar to the U.S. markets. Japanese firms started investing extensively in European manufacturing industries as well during the 1980's. The flow of direct investment in manufacturing from Japan to Europe grew rapidly after 1987 and continues to grow beyond 1990. Japanese firms are now present in various member states of the European Community extending from the United Kingdom and Germany to Spain and Portugal¹.

While Japanese manufacturing firms spurred their FDI activity during the 1980's, their penetration through FDI to the U.S. and European markets started much earlier and particularly during the 1970's (Tsurumi, 1976). The early investments, however, are distinguished significantly from the investments during the late 1980's on several important aspects. First, the finding of Drake and Caves (1992) shows that the interindustry variation of Japanese FDI in the United States during the 1970's is explained by a set of factors which are different from those explaining the variation of FDI during the late 1980's. The importance of sales promotion and R&D to an industry became significant determinants of Japanese FDI during the late 1980's. The findings of Kogut and Chang (1991) and Hennart and Park

¹ For a general overview on the pattern of Japanese FDI in recent years, see Dunning (1986); Graham and Krugman (1989); Froot (1991); Akimne (1991); Micossi and Viesti (1991); Jacquemin and Buigues (1991); and Yamawaki (1994). The determinants of Japanese FDI have been examined, among others, by Heitger and Stehn (1990), Mann (1990), and Drake and Caves (1992). Caves (1993) provides a survey of the most recent literature on Japanese FDI in the United States.

(1992a) are consistent with this finding and reinforce the hypothesis that the accumulation of intangible assets in Japanese firms and their base industry motivates Japanese FDI during the 1980's (Caves (1993)).

Another significant characteristic of Japanese FDI during the 1980's, which is distinguished from the pattern observed before 1980, is the more frequent use of acquisitions by Japanese firms to enter U.S. and European manufacturing industries (Froot, 1991; Yamawaki, 1994). Japanese firms now enter into a broad range of U.S. and European manufacturing industries not only by establishing "green-field" plants but also acquiring existing local concerns. This observed pattern of entry mode and the findings on the changing determinants of Japanese FDI converge to suggest that the investments in the late 1980's do differ from those in the preceding periods in their patterns and the forces underlying these patterns.

One of the important forces that determine the recent pattern of entry of Japanese firms into U.S. and European markets is the competitive conditions of the host country. As Kogut and Chang (1991) have found, Japanese entry into U.S. markets is determined not only by the characteristics of the home-base industry but also by the characteristics of the target U.S. industry. Indeed, they found that R&D expenditures in U.S. industries attracted Japanese entry into the United States. To the extent that Japanese firms seek intangible assets in the host country to augment assets they accumulated in the home-base industry, the competitive conditions of the target industry again appear to play an important role in explaining the currently observed patterns of international diversification and acquisitions of local concerns by Japanese firms.

The purpose of this paper is twofold: the first goal is to examine the pattern on the choice of the Japanese firm between acquiring a going firm and building a new plant when it enters the U.S. or European market and to identify the factors that determine the choice. The second goal is to address the question of whether the decision of the Japanese firm concerning the mode of entry is determined by the same factors when it enters the U.S. market and when it enters the European market. To accomplish these goals this paper develops a new data set by matching up the entry data at the subsidiary level with the data on the characteristics of parent firms and industries entered for the U.S. and European markets.

The next section explains the data set and describes the general patterns of the method of entry used by Japanese firms in the U.S. and European markets. Section 3 develops the hypothesis on the determinants of the choice between entry through green-field investment and entry through acquisition, particularly focusing on the factors specific to Japanese FDI in the U.S. and European markets. It then introduces the statistical model and variables, and presents the estimation result. Finally, section 4 summarizes the findings and provides some conclusions.

2. The Data and Descriptive Statistics

2 -1. The Data

The data set for this study is constructed from the individual subsidiary level data collected in Toyo Keizai, *kaigai shinshutsu kigyo soran*: 1991 (Directory of Japanese Multinational Corporations: 1991). This corporate directory lists 5,300 Japanese firms and their 12,500 subsidiaries and affiliates distributed among 130 countries for which Toyo Keizai conducted an annual survey based on questionnaires in December 1990. The sample in this survey comprises subsidiaries and affiliates that are more than 10 % owned by Japanese firms and distributed among manufacturing as well as non-manufacturing industries. The information provided for individual subsidiary in this directory is qualitative rather than quantitative, but includes such items as percentage shares controlled by parent firms, the mode of entry, the year of entry, the amount of equity capital, the number of employees, sales², and the line of business. While the Ministry of International Trade and Industry (MITI) conducts a more detailed survey on the behavioral pattern of Japanese firms abroad and publishes the summary of its results every three years³, the information on individual firms and subsidiaries collected for this survey is not easily accessible. For this reason, the Toyo Keizai survey data are used in this study⁴.

² Sales figures are however incomplete and are not recorded for every subsidiary. For some subsidiaries total assets or value of output are instead recorded.

³ MITI, *Kaigai jigyo katsudo kihon chosa: kaigai toshi tokei soran*.

⁴ The Toyo Keizai data have been used by some previous reserchers for statistical analysis, see Hennart (1991), and Yamawaki (1994).

Out of the 12,522 subsidiaries of Japanese firms listed in the Toyo Keizai survey, 3,282 subsidiaries are located in the United States, and 2,549 subsidiaries are located in Europe. A further breakdown by sectors reveals that 1,054 U.S. subsidiaries and 524 European subsidiaries of Japanese firms are in the manufacturing sector. From this sample of 1,054 U.S. manufacturing subsidiaries and 524 European manufacturing subsidiaries, 631 U.S. subsidiaries and 336 European subsidiaries, whose parents are also in manufacturing⁵ and for which data are available, were further selected to construct the data set for this study.

2-2. Method of Entry

Table 1 reports the distribution of U.S. and European subsidiaries by method of entry and diversification strategy. A general pattern that emerges from this table is that Japanese firms prefer green-field investments to acquisition and capital participation. Indeed, 77 % of total number of subsidiaries in each area, or 489 out 631 U.S. subsidiaries and 258 out of 336 European subsidiaries were established through green-field investments, while the remaining 23 % of subsidiaries were established through acquisitions and capital participation⁶. Of the 142 subsidiaries that entered the U.S. market through acquisition and capital participation, 111 of them are through acquisition, and 134 of these acquisitions and capital participation took place after 1980. In Europe, of the 78 entries through acquisition and capital participation, 47 entries are through acquisition, and 71 of these acquisitions and capital participation were carried out after 1980.

This similarity on the choice of method of entry between the United States and Europe is weaker when the breakdown is made between horizontal and diversifying entries. To examine this, Table 1 classifies the methods of entry according to whether the subsidiary's product line differs from the parent's product line. In Table 1, a diversifying entry is identified if the subsidiary's principal product is classified into the two-digit industry that does not contain the parent's principal product. All other types of entry are simply categorized here as "horizontal" entry. The most remarkable observation that emerges from this is the fact that entry through acquisition and capital participation is more frequently associated with diversifying

⁵ This procedure eliminates the subsidiaries of general trading companies from the sample.

⁶ For a similar result obtained for the pattern of method of entry by Japanese firms abroad, see Tsurumi (1976), pp. 194-195.

entry in the United States than in Europe. In fact, 26 % of the total number of entry in the United States through acquisition and capital participation is diversifying entry, while the corresponding figure for Europe is only 5 %. In other words, 95 % of the entries through acquisition and capital participation in Europe are horizontal entries.

Another important finding from Table 1 is the difference in the importance of diversifying entry between acquisition and capital participation, and green-field investments in the United States. Diversifying entry accounts for 26 % of total number of entries through acquisition and capital participation, but it accounts for 12 % of entries through green-field investments in the United States. Correspondingly, horizontal entry accounts for 88 % of total number of entries through green-field investments, while it accounts for 74 % of entries through acquisition and capital participation. Thus, diversifying entry appears to be more often associated with acquisition and capital participation than green-field investments in the United States. By contrast, such difference in the relative importance of diversifying entry between acquisition and capital participation, and green-field investments does not exist in Europe, where more than 90 % of entries through green-field investments and acquisition and capital participation are accounted for by horizontal entry.

Table 2 shows how these data on the mode of entry vary over time by comparing the subsidiaries established before and after 1980. The most important finding from Table 2 is the increase in the number of entries through acquisition and capital participation both in the United States and Europe. Before 1980, less than 10 % of the entries were through acquisition and capital participation both in the United States and Europe. By comparison, after 1980, the entries through acquisition and capital participation accounted for roughly a quarter of the total entries recorded for that period. This clearly indicates that acquisition and capital participation have become more popular among the Japanese multinationals during the 1980's.

The average statistics in Tables 1 and 2 do not provide information on the patterns of entry through acquisition and capital participation across industries. Tables 3 and 4 report the numbers of green-field entries, acquisition and capital participation in the U.S. and European markets across the two-digit industries to which the subsidiary's principal product is

classified. In the U.S. markets (Table 3), Japanese firms are more likely to use acquisition and capital participation than green-field investments as methods of entry in food processing, apparel, furniture, chemicals, rubber products, and stone, clay, and glass products. This general pattern across industries can be observed similarly in the European market (Table 4). One exception to the general pattern is that acquisition and capital participation are more frequently observed in the automobile industry in Europe than in the United States. In fact, capital participation is a relatively more important method of entry in that industry. This tendency is not observed in the U.S. automobile industry.

3. The Empirical Model

3-1. Hypotheses

One of the most important findings from the descriptive statistics in the preceding section is that Japanese firms in food, apparel, chemicals, rubber products, and stone, clay, and glass tend to use acquisition relatively more often than those in electric and electronic equipment, machinery, transportation equipment, and instruments. And this pattern is observed more distinctively in the United States than in Europe. Interestingly, food, apparel, chemicals, rubber products, and stone, clay, and glass are the industries where Japanese firms are relatively less competitive vis-à-vis their rivals from the United States and Europe in the world export markets. Indeed, in these industries the share of Japanese exports in the total amount of exports from the United States, the EC, and Japan in these three areas was relatively small during the 1970's and the early 1980's⁷.

An interesting and important question arises from these two strands of facts: whether the Japanese firms whose primary industry lacks competitive edge over its U.S. and European counterparts are more likely to enter the U.S. and European markets by acquisition than the firms whose industry possesses competitive edge over its U.S. and European counterparts. Since the international competitiveness of an industry is determined by the relative possessions of intangible assets such as

⁷ See, for example, Audretsch, Sleuwaegen, and Yamawaki (1989) for a more detailed account on this observation.

technology, goodwill, and various other skills between the domestic and foreign countries (Yamawaki and Audretsch, 1988), the parent firm that pursues the goal of becoming an international competitor takes certainly these factors into consideration when it decides on the mode of entry. If the parent firm does not possess intangible assets such as technology, goodwill, and other skills to compete in the U.S. and European markets, it will have the incentive to seek them in the asset bundle of a going local concern. Hence, entry by acquisition is motivated by the potential of sourcing the U.S. and European competitive advantages in intangible assets.

The most recent empirical literature on the determinants of foreign direct investment (Kogut and Chang, 1991; and Drake and Caves, 1992) has emphasized the importance of distinguishing between the relative possessions of intangible assets created by research expenditures by the home and the host countries. The study by Kogut and Chang (1991) has addressed the question of whether Japanese direct investments in the United States are motivated by the sourcing of the U.S. advantages in technology and presented the results of a statistical model to explain the numbers of Japanese entries by acquisition, joint-venture, and new plant investment across U.S. industries. While they found some evidence that the number of Japanese entries into U.S. industries by joint-venture was negatively related to the difference in R&D expenditures between Japan and the United States, they did not find the same effect on entry by acquisition⁸.

3-2. The Statistical Model and Variables

The hypothesis that Japanese parent firms are motivated to enter the U.S. and European markets by acquiring going local firms when they are less competitive than their U.S. and European rivals and therefore have the incentive to source the U.S. and European advantages, is tested by estimating a model of the choice of mode of entry. The sourcing of local advantages became particularly important for Japanese firms during the 1980's (Kogut and Chang (1991)) when they are motivated to augment their home-grown intangible assets (Drake and Caves (1992)) as a consequence of rivalry at home. For this reason, the statistical analysis

⁸ Cantwell (1989) has observed a general pattern that technologically advanced countries draw the MNEs that source technological capabilities.

below tests this hypothesis by using uniquely the data on subsidiaries established during the 1980's. While the study of Hennart and Park (1992b) tackles the issue of the choice between greenfield and acquisition by Japanese firms, the present study focuses more on the hypothesis addressed specifically on the acquisition of local advantages.

The statistical model below follows the model developed by Caves and Mehra (1986) and used by Kogut and Singh (1987 and 1988). Because the information concerning the choice of mode of entry is qualitative, the probability of entering the U.S. (European) industry by acquisition is estimated by the Logit model and explained by the characteristics of the parent firm and the entered industry. The unit of observation in this analysis is an individual subsidiary. The dependent variable equals one if the entry occurred through acquisition and capital participation; zero if the entry occurred through green-field investment.

The probability of entry through acquisition was related to the following sets of independent variables:

International Competitiveness

To test the main hypothesis of this paper described above, two different variables that measure the degree of international competitiveness of the parent's primary industry were used: a variable that measures the degree of technological advantage, TA, and a variable that measures the degree of comparative advantage, CA. TA is constructed from the data on the number of patents granted in the United States and is defined as

$$TA_{ijt} = (P_{ijt} / \sum_j P_{ijt}) / (\sum_i P_{ijt} / \sum_i \sum_j P_{ijt})$$

where P_{ijt} is the number of patents granted in the United States in industry i to residents of country j in period t . This variable is constructed for the Japanese industry at the three-digit level to which the parent's product is classified, and it is the average over the seven-year period, 1980-86. Thus, this variable measures the technological advantage of Japanese industries

vis-à-vis their rivals abroad⁹. When this index has a value greater than one, the Japanese industry has a comparative advantage in technology.

Another variable, CA, is constructed from the data on export flows between the United States, the EC, and Japan and defined as follows:

$$CA_{ijt} = X_{ijt} / \sum_j X_{ijt}$$

where X_{ijt} is exports of country j to other two-regions in industry i in period t ¹⁰. Thus, this is the export share of country i in industry j and measures the relative competitiveness of each of the three regions vis-à-vis the other two¹¹. CA is constructed for the Japanese industry at the three-digit level to which the parent's primary product is classified and is the average over the ten-year period, 1975-84. These two variables, TA and CA, are expected to measure the degree of international competitiveness of Japanese parents and to have negative relations to the probability of entry through acquisition. A negative coefficient for TA implies the sourcing of U.S. and European technological advantages by Japanese parents.

Characteristics of the Parent Firm

To control for the characteristics of the parent firm, the following variables are included in the specification:

SIZEPAR= Employment in the subsidiary divided by total employment of the Japanese parent.

EXPERIENCE= Number of countries in which parent firm has subsidiaries.

SPEC= Share of sales of the Japanese parent accounted for by the

⁹ This variable is a cross-industry index of revealed technological advantage that has been used in the previous literature. See Cantwell (1989). The recipients of U.S. patents include all the non-US residents as well as US firms.

¹⁰ This index was used in the study by Audretsch, Sleuwaegen and Yamawaki (1989) and is constructed in the same spirit as the revealed comparative advantage index. Only the original six EC countries (France, Germany, Italy, Belgium, the Netherlands, and Luxemburg) are included to measure the export flows to and out of the EC.

¹¹ One qualification is that this measure does not at all indicate the performance of exports in markets outside of these three areas. For certain industries export competition in third-party markets may be more significant than in the markets on these major trading partners.

parent's principal two-digit industry.

DIVENTRY= Dummy variable equal to one if the subsidiary's principal two-digit industry is different from the parent's principal two-digit industry; zero otherwise.

SIZEPAR is intended to control for the scale of entry. If the parent firm prefers to enter the market in a large scale and avoids the risk associated with a large-scale green-field investment, the parent will have the incentive to enter by acquiring an existing local firm. Caves and Mehra (1986) have found that the initial size of entry relative to the size of the parent is positively and significantly related to the possibility of entry through acquisition¹². Hence, SIZEPAR is expected to have a positive coefficient. While it is desirable to construct SIZEPAR from data on the initial scale of entry, due to the unavailability of data, SIZEPAR is constructed from data on the subsidiary's size in 1990. Because large majorities of entries in the samples (approximately 90 % in the U.S. sample and 80 % in the European sample) occurred after 1985, the measurement problem caused by this procedure is expected to be minimal.

EXPERIENCE is intended to measure the extent of the parent's previous experience abroad. Caves and Mehra (1986) have tested the hypothesis that the mature parent with the previous experience abroad has the incentive to enter through green-field investment because the previous foreign experience enhances the parent's ability to establish and manage subsidiaries abroad. Contrary to their expectation, Caves and Mehra found that the previous foreign experience is positively related to the probability of entry through acquisition. The study by Kogut and Singh (1988), however, did not find any significant relation between the previous experience and the choice of mode of entry.

The parent's diversification is controlled by SPEC, which measures the degree of specialization of the parent firm. The smaller is the value of SPEC, the higher is the extent of diversification. The previous studies (Wilson, 1980; and Caves and Mehra, 1986) have confirmed the hypothesis that the probability of entry by acquisition is increased with the extent of

¹² Kogut and Singh (1988) have shown that the size of the partner in the United States affects the choice of mode of entry by foreign MNEs. They found that the larger the size of the American partner, the more likely to joint-venture than acquire.

parent's diversification¹³. The explanation given for this pattern is that the diversified firm is more likely to have acquired its subsidiaries through buying going concerns and therefore have adopted an organizational structure to make acquisitions (Caves, 1982). Thus, SPEC is expected to have a negative relation to the probability of entry through acquisition.

DIVENTRY is expected to capture the extent of the parent's experience with the subsidiary's new product market. This variable identifies the diversified entry into the foreign market by the parent. If the parent does not possess various skills and intangible assets to use in the new business abroad, the risk and uncertainty associated with this new business are large. Then, the parent is more inclined to acquire an existing local firm and thereby to obtain access to a stock of these skills and intangible assets (Caves and Mehra, 1986)¹⁴. DIVENTRY is hence expected to have a positive coefficient in the regression.

Characteristics of the Entered Industry

While the variables, TA and CA, that measure the extent of international competitiveness are constructed for the parent's primary industry, two additional variables are introduced to control for other industry characteristics. These variables are defined as:

SIZEIND= Employment in the subsidiary divided by the total employment of the U.S. (European) three-digit industry entered.

GROWTH= Rate of growth of shipments in the U.S. (European) three-digit industry entered.

These two variables are constructed for the U.S. and EC industry to which the subsidiary's primary product is classified.

SIZEIND is intended to control for the effect that a large-scale entry inflicts on the market price. Entry through the construction of a large-scale plant adds capacity to the industry and depresses the market price given the demand condition. On the contrary, entry through acquisition does not

¹³ However, Kogut and Singh (1988) do not confirm this hypothesis.

¹⁴ Caves (1982, pp. 81-85) provides a survey on this issue.

cause this problem because industry capacity remains unchanged (Caves and Mehra, 1986). This hypothesis suggests that SIZEIND should have a positive relation to the probability of entry by acquisition.

The growth rate of shipment in the entered industry, GROWTH, provides a control for the demand condition in the industry. With SIZEIND included, GROWTH is expected to be negatively related to the probability of entry through acquisition because slow growth amplifies the extent to which a large scale entry depresses the market price¹⁵.

From the original sample of 631 subsidiaries in the United States and 336 subsidiaries in Europe, 371 U.S. subsidiaries and 198 European subsidiaries that were established after 1980 and for which parent and industry data were available, were further selected to construct the sample for the statistical analysis. Table 5 lists the independent variables defined above and their values at the sample mean with standard deviations.

Due to the difference that exist between the U.S. and European data sources, the time periods used to construct the industry variables, SIZEIND and GROWTH, differ between the U.S. and European samples. Since the U.S. data were obtained from the Census of Manufactures, the census years, 1982 and 1987, were used for these two variables. For Europe, the latest observation year available, 1988, was used to construct the variables. Since industry data at the three-digit level are not available for all the twelve member states of the European Community, only the data for the four largest members, Germany, France, the United Kingdom, and Italy, were used to represent the European market. This procedure certainly overestimates the subsidiary's market share in the European market. The two major variables in the statistical analysis, TA and CA, were constructed by using the annual data through the mid-1980's. This procedure was adopted here to take into account some lagged effects of these variables on the choice of mode of entry. As mentioned above, most of the entries in the sample occurred after 1985.

¹⁵ Caves and Mehra (1986) suggest an alternative hypothesis that rapid growth may encourage rapid entry through acquisition.

3-3. The Statistical Results

Table 6 reports the logit results to explain the probability of entry by acquisition in the United States. Logit equation 6.1 includes parent-characteristics variables only, while equations 6.2-6.4 include industry-characteristics variables as well. In all the equations the estimated coefficients have the expected signs.

The coefficients for the variables that measure the degree of international competitiveness, TA and CA, are statistically significant and have predicted negative signs in equation 6.3 and 6.4. The coefficient for TA is significant at the 5 percent level, while the coefficient for CA is highly significant at the 1 percent level¹⁶, supporting the hypothesis that the Japanese firm from the industry that does not hold technological and comparative advantages is more likely to enter the U.S. market through acquisition. Thus, this result suggests that the Japanese firm is motivated to enter the U.S. market to source the U.S. technological and other competitive advantages by acquiring a going firm when it does not own such advantages.

Among the variables that represent parent characteristics, the coefficients of SIZEPAR and DIVENTRY are most robust and highly significant at the 1 percent level. The positive coefficient for SIZEPAR confirms that the probability of acquisition increases with the scale of entry. The significant and positive coefficient for DIVENTRY supports the hypothesis that the Japanese parent who does not possess various skills and intangible assets usable in the new activity abroad has the incentive to acquire these assets from an existing local firm. This evidence is quite consistent with the pattern of the sourcing of U.S. technological and competitive advantages suggested by the coefficients of TA and CA above.

Another parent-specific variable that is statistically significant is EXPERIENCE which has a negative coefficient. This result indicates that Japanese firms with greater foreign experience are more likely to enter the U.S. market by establishing green-field plants, and is in contradiction with the previous result by Caves and Mehra (1986) but consistent with the

¹⁶ TA and CA are relatively highly correlated with the simple correlation of 0.60. When TA and CA are included in a same equation, CA dominates the negative effect.

hypothesis. The coefficient of SPEC is not significant, although its sign is as predicted.

The coefficient for the remaining two industry variables, SIZEIND and GROWTH tend to be significant but erratic depending on the model specification. In equation 6.4 where CA is included, the coefficients for SIZEIND and GROWTH are both significant with predicted signs indicating that firms that enter with large market shares and enter slow-growth industries are more likely to acquire existing firms.

Table 7 presents the Logit results of the probability of acquisition in Europe in a manner analogous to Table 6. Logit equation 7.1 includes parent-characteristics variables only; equations 7.2-7.4 include industry-characteristics variables as well. Overall explanatory power of the model is lower for Europe than for the United States in Table 6. All the coefficients except for DIVENTRY have the expected signs.

Examining the coefficients of TA and CA which are the main concerns of this paper, one can confirm again the negative effects of these variables on the probability of entry by acquisition. In the European markets like in the U.S. markets, Japanese firms are motivated to enter by acquisition when they do not possess technological and comparative advantages. It seems that they are likely to source these advantages in Europe as well. However, the magnitude of the sourcing of European technological advantage is smaller than that in the United States since the coefficient for TA in Europe (equation 7.3) is smaller and less significant than that in the United States (equation 6.3).

Among the parent specific-variables, SIZEPAR has a significant and positive coefficient as found in the U.S. regressions. EXPERIENCE has a negative coefficient as predicted, but its significance is erratic in contrast with the result in the United States. The coefficient for SPEC is not significant at all as in the case of the United States.

The most significant difference between the United States and Europe arises in the coefficient of DIVENTRY, which is positive and highly significant in the U.S. regression, but is negative and marginally significant in the European regression. This result seems to indicate that some important underlying difference exists between the motivations to diversify

into the European industry and the U.S. industry. In fact, as the descriptive statistics presented in Section 2 indicate (Table 1), diversifying entry is less frequently observed in Europe than in the United States. And its pattern across industries differs between the two areas (Yamawaki, 1994).

Finally, the industry variable, SIZEIND, has a highly significant and positive coefficient, which is much more robust than the U.S. coefficient. Whether this is due to the measurement problem associated with the European variable (discussed in section 3-2 above) or to the difference in the underlying market structure between Europe and the United States, cannot be unequivocally be ascertained here.

4. Conclusions

This paper has analyzed the probability of Japanese entry by acquisition in the U.S. and European manufacturing industries by using a newly constructed data at the subsidiary level. The Logit analysis was conducted to identify the factors that determine the probability of entry through acquisition. The statistical result found evidence that supports the paper's main hypothesis that Japanese firms enter the U.S. and European markets by acquiring going local concerns when Japanese parents do not possess technological and comparative advantages vis-à-vis their rivals in the United States and Europe. This result implies that Japanese firms are motivated to enter the U.S. and European markets through acquisition by the potential of sourcing the U.S. and European technological and other competitive advantages. While this pattern was found, for both the U.S. and European markets, the incentive to source technological advantages was found to be stronger in the United States than in Europe. This finding of sourcing U.S. technology through acquisition appears to be consistent with the previous finding on entry through joint venture by Kogut and Chang (1991). While the statistical results of this paper imply the sourcing of U.S. and European technological and other competitive advantages by Japanese firms through acquisition, it suggests at the same time that Japanese firms that possess these advantages invest in and establish new plants in the United States and Europe.

The statistical result also found that there exists some difference in the pattern of entry through acquisition between the U.S. and the European markets. In particular, Japanese firms are more likely to use acquisition when they diversify into U.S. industries than European industries. This finding, along with the finding on the sourcing of local technology, suggests that the U.S. market is most favored by Japanese firms when they seek to obtain access to stocks of various skills and intangible assets in new activities.

While the observed difference in the pattern of entry mode between the United States and Europe suggests that Japanese firms in general prefer U.S. technologies more, it also reflects the underlying difference in the institutional settings in these two areas. The existence and function of market for corporate control and thus the easiness and openness to make acquisitions are certainly different between the United States and the EC member states particularly on the Continent.

While the paper has focused on the effect of international competitiveness on the choice of entry mode and found it as an important determinant, it is certainly not the only factor that explains the decision on entry mode. Some of the factors that were not examined in the context of this paper but suggested by the previous theoretical literature to be important particularly for Japanese acquisitions include the role of market structure and oligopolistic competition in the target industry (Gilbert and Newbery (1992)), and the extent of protection in the entered industry (Bhagwati, Dinopolous, and Wong (1992)). The latter explanation may be particularly relevant for the case of Japanese firms acquiring U.S. and European firms. When the entrant invests in the foreign market to reduce or eliminate future protection ("quid pro quo investment"), the entrant may prefer greenfield investment to acquisition to avoid the backlash caused by acquiring a local firm. Future research is needed to test the relative importance of these hypotheses which complement the hypothesis proposed in this paper.

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Table 1 Summary Data on Entry Mode and Diversification Strategy

Location of Subsidiaries	Total number of subsidiaries	Green-field Entry		Acquisition and capital participation		
		Total	Horizontal	Diversifying	Total	Horizontal
United States	631 (100 %)	489 (77.4 %) (100.0 %)	430 (87.9 %)	59 (12.1 %)	142 (22.5 %) (100.0 %)	105 (73.9 %)
Europe	336 (100 %)	258 (76.8 %) (100.0 %)	234 (90.7 %)	24 (9.3 %)	78 (23.2 %) (100.0 %)	74 (94.9 %)
						4 (5.1 %)

- Notes : 1) Diversifying entry is identified if the subsidiary's principal product is classified into the two-digit industry that does not contain the parent's principal product.
- 2) Shares of total number of subsidiaries are in parentheses of rows 2 and 5.
Shares of total number of subsidiaries for each entry mode and in each location are in parentheses of rows 3 and 6.
- 3) Percentages may not sum up to 100.0 because of rounding errors.

Table 2 Number of Subsidiaries by Entry Mode and Year of Entry

Location of Subsidiaries	Total number of subsidiaries	Subsidiaries Established before 1980			Subsidiaries Established after 1980		
		Green-field		Acquisition and capital participation	Green-field		Acquisition and capital participation
		Total			Total		
United States	631 (100 %)	114 (18.1 %) (100.0 %)	106 (93.0 %)	8 (7.0 %)	517 (81.9 %) (100.0 %)	383 (74.1 %)	134 (25.9 %)
Europe	336 (100 %)	81 (24.1 %) (100.0 %)	74 (91.4 %)	7 (8.6 %)	255 (75.9 %) (100.0 %)	184 (72.2 %)	71 (27.8 %)

Table 3 Distribution of Subsidiaries by Method of Entry and across Industries, The United States.

Industry	Number of Subsidiaries		Method of Entry					
			Green-field		Acquisition		Capital participation	
Food Processing	40	(100.0%)	22	(55.0%)	13	(32.5%)	5	(12.5%)
Textiles	7		6	(85.7)	0	(0.0)	1	(14.3)
Apparel	3		2	(66.7)	1	(33.3)	0	(0.0)
Lumber	1		1	(100.0)	0	(0.0)	0	(0.0)
Furniture	5		3	(60.0)	2	(40.0)	0	(0.0)
Paper	3		3	(100.0)	0	(0.0)	0	(0.0)
Printing	2		2	(100.0)	0	(0.0)	0	(0.0)
Chemicals	58		39	(67.2)	17	(29.3)	2	(3.4)
Rubber Products	7		4	(57.1)	3	(42.9)	0	(0.0)
Plastic Products	29		25	(86.2)	3	(10.3)	1	(3.4)
Stone, Clay and Glass	19		11	(57.9)	8	(42.1)	0	(0.0)
Iron and Steel	20		16	(80.0)	2	(10.0)	2	(10.0)
Nonferrous Metals	27		22	(81.5)	3	(11.1)	2	(7.4)
Fabricated Metals	8		7	(87.5)	1	(12.5)	0	(0.0)
Nonelectrical Machinery	88		66	(75.0)	15	(17.0)	7	(8.0)
Electrical Machinery	147		117	(79.6)	25	(17.0)	5	(3.4)
Transportation Equipment	127		113	(89.0)	9	(7.1)	5	(3.9)
Instruments	13		9	(69.2)	3	(23.1)	1	(7.7)
Miscellaneous	27		21	(77.8)	6	(22.2)	0	(0.0)
Total	631		489	(77.5)	111	(17.6)	31	(4.9)

Notes : Shares of total number of subsidiaries in each industry are in parentheses. Percentages may not sum up to 100.0 due to rounding errors.

Table 4 Distribution of Subsidiaries by Method of Entry across Industries, Europe.

Industry	Number of Subsidiaries		Method of Entry					
			Green-field		Acquisition		Capital participation	
Food Processing	6	(100.0%)	3	(50.0%)	3	(50.0%)	0	(0.0%)
Textiles	9		8	(88.9)	1	(11.1)	0	(0.0)
Apparel	9		4	(44.4)	3	(33.3)	2	(22.2)
Lumber	0		0	(0.0)	0	(0.0)	0	(0.0)
Furniture	2		1	(50.0)	0	(0.0)	1	(50.0)
Paper	0		0	(0.0)	0	(0.0)	0	(0.0)
Printing	0		0	(0.0)	0	(0.0)	0	(0.0)
Chemicals	33		24	(72.7)	6	(18.2)	3	(9.1)
Rubber Products	6		2	(33.3)	3	(50.0)	1	(16.7)
Plastic Products	16		14	(87.5)	2	(12.5)	0	(0.0)
Stone, Clay and Glass	8		3	(37.5)	2	(25.0)	3	(37.5)
Iron and Steel	3		2	(66.7)	1	(33.3)	0	(0.0)
Nonferrous Metals	6		6	(100.0)	0	(0.0)	0	(0.0)
Fabricated Metals	1		1	(100.0)	0	(0.0)	0	(0.0)
Nonelectrical Machinery	61		42	(68.9)	12	(19.7)	7	(11.5)
Electrical Machinery	99		90	(90.9)	5	(5.1)	4	(4.0)
Transportation Equipment	35		21	(60.0)	6	(17.1)	8	(22.9)
Instruments	13		12	(92.3)	1	(7.7)	0	(0.0)
Miscellaneous	29		25	(86.2)	2	(6.9)	2	(6.9)
Total	336		258	(76.8)	47	(14.0)	31	(9.2)

Notes : Shares of total number of subsidiaries in each industry are in parentheses. Percentages may not sum up to 100.0 due to rounding errors.

Table 5. Independent Variables and their Means and Standard Deviations

Independent Variable	Sample	
	United States	Europe
<i>International Competitiveness</i>		
TA	1.189 (0.443)	1.327 (0.584)
CA	0.418 (0.204)	0.442 (0.244)
<i>Parent Firm Characteristics</i>		
SIZEPAR	0.095 (0.170)	0.089 (0.135)
EXPERIENCE	10.181 (8.195)	12.677 (9.282)
SPEC	84.197 (19.298)	89.288 (16.244)
DIVENTRY	0.21 (0.408)	0.096 (0.295)
<i>Entered Industry Characteristics</i>		
SIZEIND	0.005 (0.019)	0.003 (0.008)
GROWTH	0.35 (0.327)	0.801 (0.457)
Sample Size	371	198

Notes : SPEC is percentage. GROWTH for the U.S. sample is the growth rate for the 1982-87 period, but GROWTH for the European sample is the rate for the 1981-88 period.

Table 6. Logit Analysis of Entry by Acquisition, the United States.

Independent Variable	6.1	6.2	6.3	6.4
Constant	-1.516 (2.288)b	-1.259 (1.837)c	-0.861 (1.207)	-0.456 (0.628)
SIZEPAR	3.365 (4.152)a	2.567 (3.088)a	2.48 (3.031)a	2.194 (2.679)a
EXPERIENCE	-0.035 (1.939)c	-0.05 (2.506)b	-0.041 (2.046)b	-0.042 (2.027)b
SPEC	0.003 (0.492)	0.006 (0.829)	0.009 (1.225)	0.008 (1.067)
DIVENTRY	1.147 (3.747)a	1.289 (4.064)a	1.352 (4.204)a	1.367 (4.202)a
SIZEIND		13.996 (1.530)	17.361 (1.866)c	20.801 (2.152)b
GROWTH		-1.059 (2.613)a	-0.56 (1.208)	-1.129 (2.636)a
TA			-0.805 (2.360)b	
CA				-2.617 (3.968)a
Log Likelihood	-200.399	-195.081	-192.181	-186.727
Chi-Square	56.76	62.03	64.98	70.43
No. of Observations	371	371	371	371
No. of Acquisitions	104	104	104	104

Notes : Numbers in parentheses are t-statistics. The levels of significance for a one-tailed t-test are : a=1 percent; b=5 percent; and c=10 percent.

Table 7. Logit Analysis of Entry by Acquisition, Europe.

Independent Variable	7.1	7.2	7.3	7.4
Constant	-0.74 (0.744)	-0.329 (0.296)	-0.137 (0.123)	0.012 (0.011)
SIZEPAR	5.931 (3.719)a	3.684 (2.164)b	3.878 (2.248)b	4.131 (2.288)b
EXPERIENCE	-0.016 (0.789)	-0.062 (2.152)b	-0.048 (1.613)	-0.033 (1.064)
SPEC	-0.004 (0.352)	0.001 (0.093)	0.003 (0.296)	0.005 (0.467)
DIVENTRY	-1.744 (1.657)c	-1.643 (1.538)	-1.651 (1.574)	-1.885 (1.725)c
SIZEIND		20.966 (2.859)a	19.832 (2.804)a	23.26 (3.047)a
GROWTH		-0.799 (1.769)c	-0.406 (0.831)	-0.826 (1.820)c
TA			-0.684 (1.830)c	
CA				-2.734 (2.988)a
Log Likelihood	-106.468	-95.799	-94.063	-90.766
Chi-Square	30.77	41.44	43.18	46.47
No. of Observation	198	198	198	198
No. of Acquisition	61	61	61	61

Notes : Numbers in parentheses are t-statistics. The levels of significance for a one-tailed t-test are : a=1 percent; b=5 percent; and c=10 percent.

Appendix

The information on the subsidiary was obtained from Toyokeizai (ed.), Kaigai Shinshutsu Kigyo Soran: 1991 (Directory of Japanese Multinational Corporations: 1991), Tokyo: Toyokeizaishinposha. Mode of entry, employment, line of business at the subsidiary level, number of countries in which parent firm has subsidiaries, were taken from this data source. To construct SIZEPAR and DIVENTRY, this data were matched with the data on the subsidiary's parent firm in Japan. The major source of the parent data was Nihonkeizaishinbunsha, Nikkei Kaisha Joho (Tokyo: Nihonkeizaishinbunsha). SPEC was also constructed from this data source. The industry variables, SIZEIND and GROWTH, were constructed from U.S. Bureau of the Census, Census of Manufactures for the United States, and Statistical Office of the European Communities, Structure and Activity of Industry for Europe. The level of aggregation used is at the three-digit for both regions. The parent's primary industry is chosen according to the share of sales accounted for by its primary product.

TA was constructed from the number of patents granted in the United States. This was taken from U.S. Patent and Trademark Office, Patenting Trends in the United States: 1963-1986, Washington, D. C.: U.S. Patent and Trademark Office, 1987. TA is constructed for the parent's three-digit industry. CA was constructed from the annual report of the Organization for Economic Co-operation and Development, Trade by Commodities (Market Summaries): Exports, Paris: OECD. To construct TA, the subsidiary's principal product was assigned to the SITC three-digit industry.