

## THE CHOICE BETWEEN MERGERS/ACQUISITIONS AND JOINT VENTURES: THE CASE OF JAPANESE INVESTORS IN THE UNITED STATES

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*This paper investigates the determinants of the choice between two alternative methods of pooling similar and complementary assets: the merger/acquisition and the greenfield equity joint venture. Two theories of the determinants of that choice are tested on a sample of Japanese investments in the United States. The results show that equity joint ventures are preferred over acquisitions when the desired assets are linked to undesired assets because the U.S. firm owning them is large and not divisionalized, when the Japanese investor has little previous experience of the American market and hence seeks to avoid postmerger integration problems, when the Japanese investor and the U.S. partner manufacture the same product, and when the industry entered is growing neither very rapidly nor very slowly.*

### INTRODUCTION

This paper investigates the determinants of the choice between two alternative methods of pooling similar and complementary assets: the merger/acquisition and the greenfield equity joint venture. This choice is of particular interest because it throws light on two competing theories of why joint ventures exist. Balakrishnan and Koza (1991, 1993) see joint ventures as a mechanism to reduce the transaction costs incurred when acquiring other firms. They predict that joint ventures will be preferred when the potential target and the acquirer belong to different industries, because in this case these transaction costs

are high. They are lower when the acquirer and the target firm are based in the same industry, and hence in that case they expect acquisitions.

Hennart (1988), on the other hand, argues that a firm will favor acquisitions over joint ventures when the assets it needs are not commingled with other unneeded assets within the firm that holds them, and hence can be acquired by buying the firm or a part of it. For Hennart, the 'digestibility' of the targeted assets, itself a function of the size and organizational structure of the firm that owns them, is the crucial determinant of the choice between joint ventures and acquisitions. Thus while Balakrishnan and Koza are concerned with transaction costs in the market for firms, Hennart's focus is on the costs of integrating the target firm's labor force (what has been called the postacquisition integration problem). Looking at the choice between joint ventures and acqui-

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Key words: joint ventures; acquisitions; foreign market entry strategies

sition hence allows us to sharpen our understanding of the strategic logic for the choice between these two forms of firm growth.

The next section positions the paper within the joint venture literature. We then examine the choice between acquisitions and greenfield joint ventures. The specific hypotheses derived in this section are tested in the following two sections on a sample of Japanese manufacturing entries in the United States. The results show that joint ventures are preferred over acquisitions when the desired assets are 'indigestible', i.e., when they are commingled with undesired assets because the U.S. firm owning them is large and not divisionalized. Joint ventures are also chosen when the Japanese investor has had no previous experience of the American market and hence seeks to avoid postmerger integration problems, when the Japanese investor and the U.S. partner manufacture the same product, and when the industry entered is growing neither very rapidly nor very slowly.

## JOINT VENTURES VS. ACQUISITIONS

Assume that a foreign investor plans to exploit some of its competencies in the U.S. market, but needs to combine them with U.S.-based inputs. If markets for *both* the competencies and the U.S.-based inputs are subject to high transaction costs, an equity joint venture will be the most efficient way to combine the complementary inputs (if one of the two inputs—say the U.S. input—could be obtained with low transaction costs by the foreign investor, then the foreign firm would set up a wholly-owned subsidiary on U.S. soil, and would obtain the complementary local input through spot sales or contract; if both inputs could be obtained with low transaction costs, then no foreign direct investment would take place) (Hennart, 1982, 1988).

There is, however, an alternative to joint ventures when markets for two or more inputs held by two or more separate firms are simultaneously failing. That solution is the merging of the firms holding the complementary inputs (in our case having the foreign investor buy the local firm which owned the U.S.-based inputs, the local firm buy the foreign investor, or having them merge).

Why then choose joint ventures over acquisitions? There are four main reasons.

### Indivisibilities

One potential impediment to acquisitions is when the desired assets are hard to disentangle from undesired ones (Hennart, 1988). Assume that a biotechnology firm needs access to a sales force to successfully introduce a new drug. If it were to buy a pharmaceutical firm to obtain its sales force, it would also be buying many assets which are not needed and which are difficult to disentangle from the sales force, and hence difficult to divest afterwards. For example, the need to vertically integrate drug manufacture and its distribution may make it impossible to acquire the sales force without acquiring drug manufacture as well. A small biotechnology company would be encumbered by these assets, and would incur high costs in managing them (Shan, 1988). By contrast, a joint venture allows the biotechnology firm to access the pharmaceutical firm's sales force without having to manage it. Hence the fact that a partner's desired assets are linked to its undesired assets, while it makes acquisitions costly, does not cause problems for joint ventures, since the flow of services from the assets counts as a contribution to the joint venture, yet is still available for the parent's other businesses. Joint ventures may therefore be preferred when the desired assets are not easily separable from the many other assets owned by the parent. This is likely to be the case when the parents are large and not divisionalized. Acquisitions, on the other hand, will be chosen when the parents are small, or if they are large, when they are organized in quasi-independent divisions which can be acquired separately from the rest of the firm, i.e., when they are divisionalized (Kay, Robe, and Zagnolli, 1987).

### Management costs

When a foreign firm acquires a local firm, it acquires an existing corps of employees, with their own routines and culture. Integrating such employees is difficult, particularly so if there are cultural differences between the two firms (Jemison and Sitkin, 1986). These cultural differences may arise because firms come from different industries or countries. In contrast, a joint venture safeguards the incentives that employees of both firms have to maximize the profits of the joint venture. The management of the joint

venture's labor force can therefore be left to the local partner (Kogut and Singh, 1988). Hence joint ventures may be preferred over acquisitions by firms which are inexperienced in managing a foreign labor force, and by firms venturing outside their core industry.

### **Difficulties in assessing the value of the target firm**

For Balakrishnan and Koza (1991, 1993), joint ventures are desired when acquirers do not know the value of the assets desired. A joint venture is an efficient vehicle for reducing these information costs because it makes it possible both to gather additional information on the value of the partner's assets and to rescind the relationship at relatively low cost. Hence joint ventures should be preferred to acquisitions when the firms combining assets have little knowledge of each other's business, i.e., when they are in different industries (Balakrishnan and Koza, 1991).

### **Governmental and institutional barriers**

In some countries foreign acquisitions are banned in some or all sectors, or are made difficult by legal restrictions on voting rights, cross-holdings (Japan), and bank and family control (Germany and Italy, respectively) (Lightfoot, 1992).

Kogut and Singh (1988) and Singh and Kogut (1989) provide the only empirical evidence on the factors that determine the choice between acquisitions and joint ventures. Kogut and Singh (1988) looked at entries by foreign multinational firms into the United States. They argued that a main disadvantage of entering through acquisition was the high management cost involved in integrating the target firm's labor force and that the disadvantage would be greater the greater the cultural distance between the investor's home base and the United States. As expected, they found that joint ventures were preferred to acquisitions when the entrant's home country was culturally distant from the United States. Joint ventures were also preferred when the U.S. operation was large and when the U.S. industry entered was R&D intensive. The parent's experience of the U.S. market was not significant.

The design and the data sources in Singh and Kogut (1989) are similar to Kogut and Singh (1988), but the emphasis is on the characteristics

of entering firms and on those of the U.S. sectors entered. Singh and Kogut hypothesized that the problems of valuing acquisitions were higher in R&D intensive industries and hence that entries in these industries were more likely to be joint ventures. They found that joint ventures were preferred to acquisitions when the U.S. industry entered was R&D intensive, when the foreign investor had little experience of the U.S. market, and when the targeted venture was large.

Neither of these two studies examined what can be called the 'digestibility' of the targeted U.S. assets. Kogut and Singh (1988) argue that acquisitions will be discouraged the larger the assets of the affiliate, but do not provide a rationale for this prediction. In Singh and Kogut (1989), the hypothesis is that large investments are more risky than small ones. Hence investors enter through joint ventures to share that risk with their partners. The size of the venture is defined as the assets of the acquired unit (in the case of acquisition) or that of the U.S. partner (in the case of joint ventures). This specification introduces a bias if, as we expect, acquisitions are systematically associated with small affiliate size (but not necessarily small partner size, since the acquired unit may be a division of a large firm). By measuring affiliate size by the assets of the acquired unit in the case of acquisitions, and by those of the partner in the case of joint ventures, the authors bias the test towards significance of their size variable. A correct specification should be neutral *vis-à-vis* the outcome, i.e., it should consider partner size in the case of both acquisition and joint ventures. Assets are also a poor proxy for the magnitude of postacquisition management problems. Because of this and other problems with the empirical analysis, further research into the determinants of the choice between acquisitions and joint ventures is warranted.<sup>1</sup>

<sup>1</sup> These two studies also failed to control for another important determinant of the choice between acquisitions and joint ventures: whether acquisitions were more likely when the U.S. investment represented a diversification for the parent. This variable was found to be significant in Hennart and Park (1993). Singh and Kogut also argue that the faster the rate of growth of the U.S. industry entered, the more likely entry through acquisition, neglecting the fact that acquisitions may be preferred in low growth industries because they allow entry without adding to capacity (Caves and Mehra, 1986). Lastly, the data set of these two studies includes entries in the manufacturing, extractive, and service industries. Since assets per employee are lower in services and higher in

## RESEARCH DESIGN AND TESTABLE PROPOSITIONS

The focus of our empirical analysis is the choice made by Japanese investors into the United States between full acquisitions of U.S. firms (hereafter acquisitions) and greenfield joint ventures between Japanese and American firms (henceforth joint ventures). This focus on Japanese entries in the United States has three main advantages. First, because the United States has both negligible government and structural barriers to acquisitions, we avoid the problem of having to control for them.<sup>2</sup> Second, studying parents based in a single country controls for the impact of national cultural differences in the mode of entry (Kogut and Singh, 1988), differences which are very difficult to model. Third, Japanese entries are less skewed towards acquisitions than those of other countries, hence giving us a more balanced sample.<sup>3</sup>

We define the American partner as the firm which holds the assets which the Japanese investor needs. When the entry is a joint venture, the partner is the American parent of the venture. When the entry is an acquisition, the American partner may or may not be the same as the acquired firm, as in some cases Japanese firms have acquired divisions of divisionalized U.S. parents. In that case, the partner is the divisionalized parent. If the U.S. partner is small,

it is likely that the assets desired by the Japanese investor make up 100 percent of the assets held by the U.S. firm. If the target firm is large but divisionalized, it is possible for the Japanese investor to acquire only the division that owns the desired resources. Acquisitions become problematic when the partner is large, but not divisionalized. Then it is difficult to separate desired from undesired assets, and an acquisition would involve having to operate at a scale and/or in industries which do not fit well with the Japanese firm's business. In contrast, services of the desired assets can be obtained through a joint venture without having to change the ownership of these assets, and hence without having to disentangle them from undesired assets. Hence:

*Hypothesis 1: Acquisitions will be preferred to joint ventures when the desired assets are 'digestible', i.e., when the size of the U.S. partner is small, or if it is large, when the U.S. partner is divisionalized.*

One of the main disadvantages of acquisitions relative to joint ventures is the high cost of integrating the target's firm's labor force. Such costs are likely to be particularly high for Japanese firms, because acquisitions are very rare in Japan, and hence purely domestic Japanese firms have very little experience with them.<sup>4</sup> By contrast, joint ventures with U.S. firms are a less risky way to test the feasibility of transferring the Japanese system to the United States, as the case of Toyota shows.

Japanese firms are likely to expect their postacquisition integration costs to be lower the longer they have been in the United States. Hence:

*Hypothesis 2: Acquisitions will be preferred to joint ventures when the Japanese investor has a long experience of the U.S. environment.*

Because company cultures and administrative rou-

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extractive industries, the size variable may reflect systematic interindustry patterns.

<sup>2</sup> The United States is one of the few countries which has minimal restrictions on foreign ownership, and none for manufacturing enterprises (Price Waterhouse, 1991). Even foreign acquisitions of high-technology firms have been unregulated. Until the passage of the Exon-Florio amendment to the Omnibus Trade and Competitiveness Act of 1988 the U.S. government had no power to block the acquisition of a U.S. firm when this was deemed to be a threat to national security. The Exon-Florio amendment stipulates that cases of potential concern are notified to the Committee on Foreign Investment in the United States (CFIUS) which initiates an inquiry. If the Committee recommends blocking the acquisition, the President can do so. However, since 1988 only 13 proposed investments (from 750 notifications) have received more than a cursory review, and only one has been blocked. The consensus of observers is that, in the period under study (1978–89), the United States had no really binding restrictions on foreign acquisitions of US firms in technologically advanced industries.

<sup>3</sup> For example, acquisitions made up only 31 percent of the 114 Japanese entries in the United States in the Kogut and Singh sample, compared to 54 percent for the all-nationality sample (Kogut and Singh, 1988, Table 2).

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<sup>4</sup> Many recent Japanese acquisitions of U.S. firms have fared poorly because of serious problems encountered in integrating the subsidiary. Sanyo was unable to transfer its work and production organization to the television plant it bought from Warwick in Forrest City, Arkansas, because of resistance by unions and by the U.S. management team it left in place. The company ended up shifting production of TVs to its other plants in the U.S. and Mexico (Kenney and Florida, 1993). The acquisition of Firestone by Bridgestone has also been painful (*Economist*, 1991).

tines differ systematically across industries, we would expect postacquisition integration problems to be lower for Japanese investors whose U.S. subsidiary manufactures the same product as they do. Therefore:

*Hypothesis 3: Acquisitions will be preferred to joint ventures when the Japanese investor is in the same industry as the planned subsidiary.*

As noted earlier, Balakrishnan and Koza have argued that joint ventures are a way to reduce the uncertainty concerning the value of the complementary assets brought together, and one implication they have drawn is that

joint ventures should occur more frequently between parents who are in industries that are relatively unrelated to one another. Firms that are in unrelated industries are not likely to have sufficient knowledge or may require costly 'help' to evaluate complementary assets. (Balakrishnan and Koza, 1991: 24)

Hence:

*Hypothesis 4: Joint ventures will be preferred to acquisitions when the Japanese and American partners are in a different industry.*

By contrast, Hennart's (1988) theory has no strong implications as to whether joint ventures are more or less likely to be preferred to acquisitions when the partners are in the same industry. Link joint ventures are often established to combine the knowledge assets of firms in two different industries. Partners in scale joint ventures are often in the same industry. The same goes for acquisitions. Hence whether or not the partners are in the same industry should have no impact on the way they choose to combine their assets.

Lastly, we must control for antitrust policies and the rate of growth of the target market. Kay *et al.* (1987), quoting Nelson (1982), argue that while U.S. antitrust authorities frown upon acquisitions and joint ventures between U.S. firms in concentrated industries, they are more tolerant of joint ventures if the partner is foreign. According to Berg and Friedman (1978), U.S. antitrust authorities see horizontal joint ventures in a more positive light than full horizontal acquisitions. If, as seems to be the case, the combination of two firms with market power, one domestic and one

foreign, attracts more opposition if it is achieved via an acquisition rather than via a joint venture, then:

*Hypothesis 5a: Joint ventures will be preferred to acquisitions for Japanese entries into concentrated U.S. industries.*

On the other hand, one advantage of acquisitions is that they do not create additional capacity, and hence are less threatening to incumbents.

*Hypothesis 5b: Acquisitions will be preferred to joint ventures when the entry is in a concentrated U.S. industry.*

Because of these two offsetting factors, the impact of concentration on entry is unclear. Because our study compares full acquisitions to greenfield joint ventures, we must control for factors that push firms towards acquisitions over greenfield entry (whether through wholly owned or joint ventured units). Acquisitions have two main advantages over greenfields: they permit faster entry, since it takes longer to build a subsidiary from scratch than to buy a going concern. In contrast to greenfield plants, acquisitions also do not add capacity. Hence acquisitions are encouraged when the U.S. industry entered grows either very fast or very slowly. Acquisitions are desired when the target industry grows very quickly, because then the opportunity cost of greenfield entry is high; acquisitions also make sense when the target industry is growing very slowly or is declining, because a greenfield entry would then add capacity which would depress profits (Caves and Mehra, 1986; Hennart and Park, 1993).

*Hypothesis 6: Acquisitions will be preferred to joint ventures when the U.S. industry entered is growing very rapidly or very slowly.*

## METHODOLOGY AND DEPENDENT VARIABLE

Our sample of Japanese manufacturing entries in the United States was obtained from two separate censuses undertaken periodically by Toyo Keizai and by the Japan Economic Institute. An acqui-

sition takes place when a Japanese parent fully acquires an existing U.S. manufacturing company or parts thereof. A joint venture occurs when a Japanese investor establishes a new manufacturing facility and shares the ownership with an American partner (hence partial acquisitions are excluded). The unit of observation is the entry.<sup>5</sup> There were 428 such entries established between 1978 and 1989, of which 244 were acquisitions (57%), and 184 were joint ventures (43%). Data for the independent variables were compiled from the *Directory of Corporate Affiliations*, the *Japan Company Handbook*, *Predicast's F&S Index Plus Text*, *Predicast's F&S Index Plus Text-International*, and the *Census of Manufacturers*.

Lack of information for the independent variables reduced our sample size to 175 observations.<sup>6</sup> This reduction in the sample did not result in a significant bias, since the proportion of joint ventures in our sample (42.9%) is comparable to that of the population as a whole (43%). The distribution of acquisitions and greenfield joint ventures for each entry year in our sample is shown in Figure 1.

At the time of entry, the Japanese subsidiaries in our sample operated in 16 different 2-digit SIC industries (see Table 1).<sup>7</sup> Most subsidiaries (138 out of 175 observations) were active in a single 4-digit SIC industry. U.S. partners range in size from 7 to 853,000 employees (between 7 and 367,000 for acquisitions, and between 85 and 853,000 for joint ventures). Slightly less than half the U.S. partners had a multidivisional structure.

Mode of entry is captured by a dummy variable which takes a value of 0 if the Japanese parent made an acquisition and one if it established a

greenfield joint venture with an American firm. We use a binomial logistic model in which the regression coefficients estimate the impact of the independent variables on the probability that the entry will be through a joint venture, with a positive sign for the coefficient meaning that the variable increases that probability.

Table 2 provides the mean and standard deviation of the variables.<sup>8</sup> The dummy INDIG captures the indigestibility of the assets coveted by the Japanese investor. INDIG is composed of SIZE, a dummy equal to 1 if the U.S. partner who holds them is large, and USSTRUC, a dummy equal to 1 if the U.S. partner is divisionalized. A large U.S. partner is a U.S. firm with more than 5000 employees.<sup>9</sup> The cut-off value was empirically estimated by looking at the size distribution of U.S. partners in our sample. Changing the cut-off value to other plausible values (1000 and 2500 employees) does not change the results. Number of employees was obtained from the issue of the *Directory of Corporate Affiliations* published in the year before the corresponding Japanese entry.

We ascertained whether the U.S. partner was divisionalized or not (USSTRUC) by looking at the firm's organizational structure, as described in the *Directory of Corporate Affiliations*. USSTRUC takes a value of 1 if the U.S. partner was divisionalized, and 0 if it was not. We would expect joint ventures to be favored when the U.S. partner is large and not divisionalized. Hence INDIG takes a value of 1 when the U.S. partner is not divisionalized (USSTRUC is 0) and large (SIZE is 1), and 0 otherwise (the American partner is small, or is large and divisionalized). INDIG should enter with a positive sign.

The Japanese investor's experience of the U.S. market at the time entry was made (JEXP) is measured by the number of years between entry

<sup>5</sup> Entries by Japanese trading companies were excluded because of the fundamental differences in strategies between Japanese trading firms and their manufacturing counterparts (Tsurumi, 1976).

<sup>6</sup> The reasons for the reduction from 428 to 175 are as follows: 57 observations were deleted because the Japanese parent was a trading company. Ninety-one of the remaining observations were deleted due to missing information on the U.S. partner. Fifty-one of the remaining observations had to be dropped due to missing information on size and/or organizational structure of the U.S. partner. Four additional observations were deleted because of lack of information on the products of the U.S. partners. Lack of information on the products of the Japanese investors led to 47 additional deletions. In one case we did not have the products of the subsidiary. Lastly, lack of information on the employment of the U.S. partner led to two additional deletions.

<sup>7</sup> For data consistency purposes, we used the 1972 Standard Industrial Classification and its 1977 supplement.

<sup>8</sup> Note that USEMPL and USSTRUC show a different *N* (number of observations). However, this does not present a problem because neither variable enters into the regression model directly, and the combined variable INDIG can, under certain circumstances, be computed with only one component present.

<sup>9</sup> We measure size by employees rather than by sales or assets because postmerger acquisitions difficulties arise from the need to integrate and motivate the labor force of the acquired firm (Sales and Mirvis, 1984). The larger that labor force, the greater the difficulties. Hence the cost of acquiring a firm should be proportional, everything else constant, to the number of its employees.

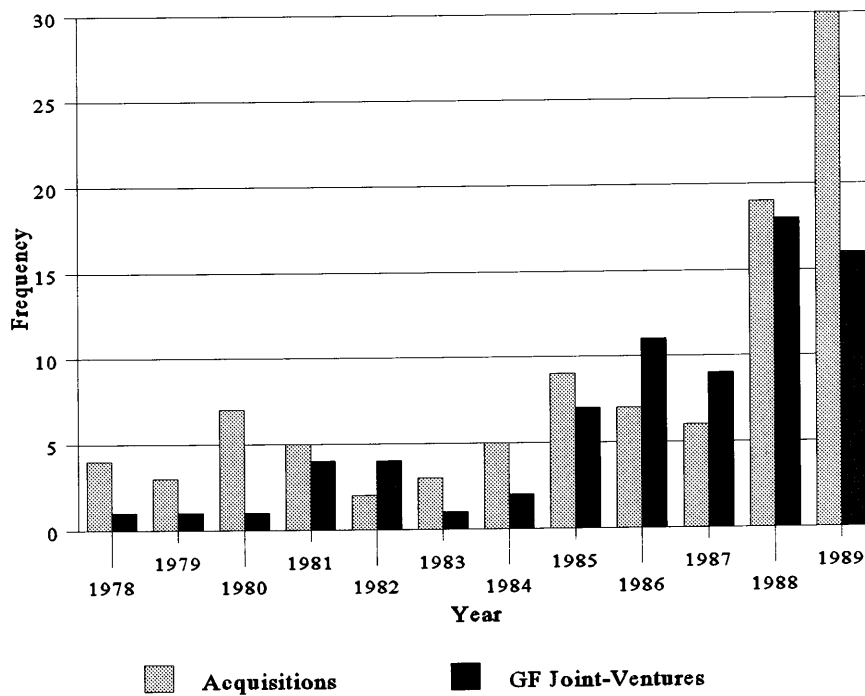


Figure 1. Distribution of joint ventures and acquisitions over time (sample only)

Table 1. Frequency count of Japanese entries into U.S. industries by 2-digit SIC (single industry entries only)

SIC Code:	Industry name <sup>a</sup>	Full acquisitions	Joint ventures	Total
20:	Food and Kindred Products	6	1	7
23:	Apparel and Other Textile Products	0	2	2
24:	Lumber and Wood Products	1	0	1
25:	Furniture and Fixtures	1	2	3
26:	Paper and Allied Products	1	2	3
27:	Printing and Publishing	1	0	1
28:	Chemicals and Allied Products	23	9	32
30:	Rubber and Miscellaneous Plastics Products	4	6	10
32:	Stone, Clay, and Glass Products	3	4	7
33:	Primary Metal Industries	3	10	13
34:	Fabricated Metal Products	0	12	12
35:	Machinery, Except Electrical	15	6	21
36:	Electric and Electronic Equipment	19	10	29
37:	Transportation Equipment	1	6	7
38:	Instruments and Related Products	4	1	5
39:	Miscellaneous Manufacturing Industries	1	0	1
Total		83	71	154

<sup>a</sup>Classification according to the 1972 *Standard Industrial Classification Manual* and its 1977 Supplement.

Table 2. Means and correlations (coefficient/(*t*-statistic)/cases)

	Mean	S.D.	Freq. <sup>a</sup> /N	JVAQ	CONCEN	USEMPL	USSTRUC	INDIG	JEXP	PARCOMMON	COMMON	GROWDEV
JVAQ			75/175	1.000								
CONCEN	611.996	512.703		0.025 (0.329)	1.000							
				N = 175								
USEMPL	42617	124064		0.288 (3.932)	0.188 (2.499)	1.000						
				173	173							
USSTRUC			81/174	0.293 (4.012)	0.179 (2.382)	0.287 (3.899)	1.000					
				174	174	172						
INDIG			23/175	0.347 (4.861)	-0.02 (-0.259)	-0.013 (-0.170)	-0.364 (-5.129)	1.000				
				175	175	173	174					
JEXP	5.211	5.803		-0.131 (-1.744)	-0.038 (-0.498)	0.058 (0.762)	0.047 (0.613)	-0.052 (-0.688)	1.000			
				175	175	173	174	175				
PARCOMMON			132/175	0.146 (1.936)	0.008 (0.100)	-0.106 (-1.394)	0.027 (0.356)	0.065 (0.855)	-0.144 (-1.918)	1.000		
				175	175	173	174	175	174			
COMMON			149/175	0.037 (0.488)	0.079 (1.046)	0.061 (0.802)	0.036 (0.468)	0.115 (1.522)	-0.026 (-0.347)	0.284 (3.897)	1.000	
				175	175	173	174	175	175	175		
GROWDEV	0.782	1.082		-0.153 (-2.032)	0.097 (1.283)	0.057 (0.744)	-0.017 (-0.220)	-0.076 (-1.000)	-0.021 (-0.279)	-0.06 (-0.795)	-0.052 (-0.690)	1.000
				175	175	173	174	175	175	175	175	

<sup>a</sup>Frequency count of dummy = 1.



and the establishment of the investor's first U.S. manufacturing subsidiary. The sign of JEXP should be negative. The difference in company culture between the Japanese parent and its subsidiary is proxied by COMMON, which is measured by a dummy variable equal to 1 if the Japanese investor and its affiliate manufacture one common product, and to 0 otherwise. COMMON should have a negative sign.

The extent to which the U.S. and the Japanese firms have divergent information concerning the value of the assets of the U.S. target firm is proxied by PARCOMMON, a dummy variable indicating whether the *Japanese and the American partners* were in the same industry. PARCOMMON was calculated by comparing the products manufactured by the Japanese investor and those manufactured by its U.S. partner. In the case of joint ventures, the partner is the U.S. joint venture partner. In the case of acquisitions, the partner is the parent firm of the acquired unit if the Japanese firm acquired a division or a part of a U.S. firm, or the acquired firm itself.<sup>10</sup> PARCOMMON was coded 1 if at least one of the products produced by the American partner was also produced by the Japanese parent. The sign of PARCOMMON should be negative.

The concentration ratio of the U.S. industry entered (CONCEN) is measured by the Herfindahl index for each 4-digit SIC U.S. industry, as published in the 1982 *Census of Manufactures*.<sup>11</sup> The arithmetic average of the concentration ratio was used for subsidiaries active in multiple SICs. No prediction is made for the sign of this variable.

Following Caves and Mehra (1986) we calculated GROWDEV to describe the conditions that encourage acquisitions. GROWDEV is the absolute value of GROWTH's deviation from its sample mean divided by its standard deviation, with GROWTH equal to the 3-year average annual growth rate of shipments of the 4-digit U.S. industry 2 years before entry (U.S. Department of Commerce, *U.S. Industrial Outlook*). Average industry growth rate was used for the few obser-

vations with multiple SICs. GROWDEV is high when the growth rate of the target U.S. industry is either very fast or very slow. Since a high value of GROWDEV should encourage acquisitions, its coefficient should be negative.

Table 2 displays the correlation coefficients for all variables. The matrix of the independent variables suggests little collinearity. Almost all correlations are low, the two highest coefficients being the ones between INDIG and USSTRUC (-0.36) and between PARCOMMON and COMMON (0.28).

## RESULTS

The results of the binomial logistic regression model are presented in Table 3. A positive coefficient for an independent variable means that it tends to increase the probability that a Japanese firm entered through a joint venture. The model has a high overall explanatory power, with a chi-square of 31.55 ( $p = 0.0001$ ). Table 4 shows that our model correctly classifies 62.3 percent of the observations, a rate higher than that which would be expected by chance.<sup>12</sup>

With the exception of PARCOMMON, all significant variables have the predicted signs. As predicted by Hypothesis 1, the coefficient of INDIG, our measure of the extent to which an acquisition would involve the purchase of unwanted assets, is positive and significant at the 0.1 level. Joint ventures are therefore desired when the U.S. firm that holds the assets needed by the Japanese entrant is large and is not divisionalized.<sup>13</sup>

PARCOMMON is weakly significant (at 0.10), but enters with a positive sign, suggesting that Japanese investors tend to prefer joint ventures to acquisitions when the Japanese and American partners are in the same industry. This contradicts Balakrishnan and Koza's (1991) prediction (Hypothesis 4) that joint ventures should be preferred when parents are in different industries. Our findings indicate that acquisitions are more likely if the partners are in different industries,

<sup>10</sup> In the latter case, PARCOMMON and COMMON are identical.

<sup>11</sup> The Herfindahl index is calculated by squaring the concentration ratio for each of the top 50 companies or the entire universe (whichever is lower) and summing those squares to a cumulative total. See 'Concentration Ratios in Manufacturing', 1987 *Census of Manufactures*, p. X.

<sup>12</sup> That rate, equal to  $a^2 + (1-a)^2$ , where  $a$  is the proportion of acquisitions (Morrison, 1974), is 51 percent.

<sup>13</sup> We also ran the model replacing INDIG with a dummy for size (SIZE is equal to 1 for American partner firms with more than 5000 employees). The results were similar.

Table 3. Parameter estimates for binomial logit model: Greenfield JVs vs. acquisitions (joint ventures = 1)

Variable name	Description	Coefficients ( <i>t</i> -statistic)
Intercept		-0.4533 (0.80)
CONCEN	Concentration ratio of U.S. industry entered	0.0002 (0.60)
INDIG	Indigestibility of target firm. Dummy for U.S. partners which are large and not divisionalized	2.464*** (3.74)
JEXP	Number of years of presence of the Japanese partner in the U.S. market	-0.043* (1.43)
PARCOMMON	U.S. and Japanese partners have one common product	0.642* (1.52)
COMMON	Japanese parent and subsidiary have one common product	-0.278 (0.58)
GROWDEV	Deviation from the average of the growth of shipments of the U.S. industry entered	-0.371** (1.67)
model chi-square: 31.555 <i>n</i> = 175		<i>p</i> value: 0.0001

\*\*\**p* < 0.01; \*\**p* < 0.05; \**p* < 0.1 (one tailed).

Table 4. Classification table

		Predicted		Total
		JV	Acquisition	
True	JV	20	55	75
	Acquisition	11	89	100
	Total	31	144	175
Sensitivity		26.7%		
Specificity		89.0%		
Correct		62.3%		

and restating them this way points out to a likely explanation: there is a strong connection between diversification and acquisitions, since acquisitions allow entrants to purchase going firms. This is often an expensive option, but it is attractive if entrants do not possess the assets needed to operate in the industry, i.e., if they are diversifying (Caves and Mehra, 1986).

The coefficient of JEXP is negative and significant at the 0.10 level. As per Hypothesis 2, the longer Japanese firms have been in the United States, the more likely they will choose an acquisition over a joint venture. GROWDEV, the coefficient of the absolute value of the deviation from the mean in the growth of shipments in the

target U.S. industry, is negative and significant (at 0.05). As hypothesized in Hypothesis 6, acquisitions are favored when the target industry experiences either very high or very low growth rates.<sup>14</sup>

The coefficient of the concentration ratio of the target U.S. industry is insignificant. The coefficient of COMMON is not significant, suggesting that similarity of products between the parent and the venture does not increase the probability that the Japanese entrant will opt for an acquisition, as we had hypothesized in Hypothesis 3. Yamawaki (1992) found that Japanese investors choose acquisitions over greenfield entries when the investment is into a new industry. Our results suggest that acquisitions and joint ventures are both ways to acquire complementary assets, in contrast to greenfield investments, which are used to exploit the parent's advantages.<sup>15</sup> The relative

<sup>14</sup> Hennart and Park (1993) found this to be also true in their study of the choice between greenfield entries (both wholly-owned and joint ventures) and acquisitions by Japanese investors in the United States, while Caves and Mehra (1986) found this variable significant for a sample of foreign firms entering the United States.

<sup>15</sup> This is consistent with Kogut and Chang (1991), who found that differences across industries in the number of greenfield investments was influenced by the Japanese industry's level of R&D expenditures, while this variable had no influence on entries through joint ventures and acquisitions.

efficiency of these two modes is determined by the significant variables in our model.

## CONCLUSIONS

In this paper we investigate the choice between joint ventures and acquisitions in the context of Japanese investments in the United States. We compare and contrast two theories of joint ventures. Balakrishnan and Koza (1991, 1993) argue that joint ventures arise to reduce the transaction costs involved in purchasing firms. Hennart (1988), on the other hand, contends that joint ventures are favored when the desired assets are linked to undesired assets, thus making an acquisition undigestible (see also Shan, 1988, and Kay *et al.*, 1987).

Controlling for other relevant factors, our results failed to support Balakrishnan and Koza's view that joint ventures are a mechanism to reduce the information costs of acquisitions. They support Hennart's (and Kay's) prediction that joint ventures will be chosen when the desired assets are packaged in a way that would raise the costs of managing the merged unit. In other words, our results suggest that a joint venture is primarily a device to obtain access to resources which are embedded in other organizations.

The results also show that the greater the Japanese's investor experience of the U.S. market, the more likely they will choose acquisitions over joint venture, confirming the view that a major constraint to the successful combination of inputs through acquisitions comes from the difficulty of integrating the labor forces of the two organizations (Kogut and Singh, 1988; Haspeslagh and Jemison, 1991).

One additional interesting finding is the positive and significant sign of PARCOMMON, which suggests that Japanese investors tend to joint venture with U.S. partners which manufacture the same products. This is consistent with the view that joint ventures with established local firms are a privileged way to enter foreign markets when scale economies are large and domestic firms have a dominant position.<sup>16</sup>

<sup>16</sup> This is suggested by the high ratio of joint ventures to acquisitions in the metal and transportation equipment industries (see Table 1).

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