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Location and Internalization Decisions
Sector Switching in Japanese Outward Foreign Direct Investment

Fukunari Kimura

3.1 Location and Internalization Decisions of Multinational Enterprises

The motivation for foreign direct investment (FDI) is often analyzed in the OLI framework (Dunning 1993). Considering an advantage based on the ownership (O) of firm-specific assets such as technology and managerial ability, a firm decides how far it internalizes activities (I) and where it locates them (L). The firm maximizes its profits by making decisions on internalization and location at the same time. The previous theoretical and empirical literature on FDI, however, has concentrated on location choices and has largely neglected internalization choices.

In theory, Horstman and Markusen (1992), for example, formalized endogenous investment decisions in the trade-off between arm's-length exports and FDI. However, they did not include possible vertical division of labor between a parent firm and a foreign affiliate. To the author's knowledge, the literature on vertical integration in industrial organization theory has not yet been incorporated into the international trade theory of division of labor in an operational format. As for empirical study, there is an extensive literature on location choices of FDI; Smith and Florida (1994) and Head, Ries, and Swenson (1995) are examples for Japanese multinational enterprises (MNEs) in the United States along this line. However,

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these studies generally treat location choices independent of internalization decisions. They analyze why an affiliate in a certain industry is located in country A instead of country B. However, they do not make any direct inference about the function of the affiliate in the business strategy of the firm group or the nature of transactions among the parent firms and affiliates. As Yamawaki (1998) argued, empirical studies of internalization have been much thinner and have not been fully integrated with studies of location.

Decisions about internalization take various forms in the international setting. A firm usually conducts a number of activities or functions. These consist of (1) a headquarters function including overall planning, financial management, personnel management, and legal services, (2) production activities including R&D, technology management, production control, quality control, and purchases and inventory control of parts and components, and (3) marketing activities including marketing surveys and planning, inventory control of products, logistics arrangement, advertisement, and others. Considering firm-specific assets and the saving of transaction costs, a firm decides what activities and functions are to be internalized and what to be left for other firms and at the same time geographically locates the internalized activities and functions. Particularly in the context of international operations, an important decision is whether the headquarters function is placed only at the parent firm or is partially dispersed across foreign affiliates. Internalization decisions about the value chain of production and distribution are also made while considering locational advantages all over the world. A firm decides the boundary of its activities over the value chain, slices the internalized activities, and disperses them over a number of locations. The upstream and downstream boundaries of the firm can be fuzzy if, for example, the firm has long-term outsourcing contracts with other firms.

Empirical studies of internalization face serious difficulties in statistical quantification. It is usually difficult to match statistical data for parent firms with those for their foreign affiliates. Even if we can match the data, it is almost impossible to obtain detailed information on differences in activities or functions of parent firms and affiliates. Moreover, we cannot quantify physical transactions between parent firms and their affiliates in many cases. In addition, internalization decisions are deeply rooted in the nature of firm-specific assets, and thus statistical aggregation is often difficult.

There is, however, statistically tractable internalization data in the case of Japanese MNEs. The Basic Survey of Business Structure and Activity conducted by Japan's Ministry of International Trade and Industry (MITI) provides detailed data on firms in Japan and their foreign affiliates with census coverage. The questionnaire-level microdata are matched between parent firms in Japan and their foreign affiliates. We can thus obtain

information on what sorts of Japanese firms have how many and what sorts of foreign affiliates. We place our focus on sectoral choices of parent firms and foreign affiliates over manufacturing and wholesale or retail trade. Some manufacturing parent firms have only manufacturing foreign affiliates while others have wholesale or retail trade foreign affiliates. Some wholesale or retail trade parent firms have manufacturing foreign affiliates, and others do not. These differences in affiliate-holding patterns come from differences in internalization decisions.

When a manufacturing parent firm has one or more nonmanufacturing foreign affiliates, or when a nonmanufacturing parent firm has one or more manufacturing foreign affiliates, we say that "sector switching" occurs. Sector switching of course does not necessarily imply that foreign affiliates conduct activities completely different from those of their parent firms. Parent firms usually have broader activities than their affiliates, and the secondary activity of a parent firm may be identical to the activity of its affiliate. However, from the concordance and discordance of major activities we can infer the width of internalization along the value chain of production and distribution. By incorporating the characteristics of parent firms, we can analyze internalization decisions in the context of the international operation of MNEs. This approach does not cover all features of internalization, but it provides a precious trial to capture an important cross section of internalization decisions.

There are a number of studies on the choice of activities of MNEs in the literature on management and international business, but they are mostly based on case studies or anecdotal evidence. It is thus worthwhile to try to capture the internalization behavior of MNEs with comprehensive statistical data. In this sense, MITI's data are an indispensable resource that deserves careful investigation. This paper proves that internalization decisions are an essential element in analyzing the behavior of MNEs and are particularly important to understanding the characteristics of Japanese firms.

Section 3.2 gives an overview of manufacturing and nonmanufacturing sector switching by Japanese parent firms and foreign affiliates and claims that internalization and location choices reveal some key features of Japanese MNEs. Statistical figures for U.S. MNEs are also presented for comparison. Section 3.3 analyzes statistical data on sector switching from the foreign affiliate side, while section 3.4 approaches from the parent side. Section 3.5 summarizes the findings and lists agenda for future research.

3.2 Sector Switching by Japanese Multinational Enterprises

In both the academic and journalistic literature, Japanese MNEs are claimed to be different from MNEs of other nationalities in some important ways. There is a set of anecdotal "stylized facts" on Japanese MNEs.

Although they are stylized in the sense that rigorous empirical confirmation remains to be done carefully, it is of interest that most of them are related to sector switching and internalization decisions.

First, it is well known that many Japanese manufacturers have wholesale trade foreign affiliates, particularly in developed countries. A large proportion of these parent firms belong to the general machinery, electric machinery, and transport equipment industries, in which products are differentiated, fringe and aftercare services are important, and capturing local market niches is the key to selling products. Having foreign affiliates in the wholesale trade sector is an example of downward internalization. Yamawaki (1991) claimed that wholesale trade affiliates of Japanese firms in the United States help to expand Japanese exports to the United States. However, if we interpret the issue as simply whether to make arm's-length exports or to sell exported products through wholesale trade affiliates, we may misunderstand the current stage of globalization of Japanese firms. Since the latter half of the 1980s, the international activities of Japanese firms have expanded dramatically. Large Japanese manufacturers, typically in the automobile, consumer electronics, and office machine industries, do not just have wholesale trade affiliates for exported goods but establish foreign affiliates for both production and distribution while taking strong home country effects into consideration. Since major MNEs have constructed extensive worldwide networks of production and distribution, a simple story of export versus FDI may not be entirely relevant. It is necessary to specify the activities of foreign affiliates and analyze the overall strategy of Japanese MNEs.

Second, Japanese MNEs are often claimed to export a vertical *keiretsu* structure formed by multiple Japanese companies. The competitive edge of the Japanese manufacturing sector is found in industries in which efficient subcontracting arrangements are established. With efficient subcontracting arrangements, small and medium-size enterprises (SMEs) do not have to internalize a wide range of activities but can concentrate on production activities while keeping themselves slim. In the globalization era, it is observed that SMEs, particularly competitive ones, move their production plants to foreign countries together with their major clients. They try to keep subcontracting relationships with customers, which can be interpreted as loose internalization arrangements. In this sense, the no-sector-switching cases of SMEs—that is, manufacturing to manufacturing—are also related to internalization, in contrast to the sector-switching cases of large MNEs. Although the agglomeration effect of Japanese FDI to the United States has been pointed out by Smith and Florida (1994) and Head et al. (1995), we must examine it in more detail to see whether the effect is generated in a horizontal manner or in the form of vertical subcontracting systems. In East Asia, it is more important for Japanese MNEs to transplant subcontracting systems because local indigenous supporting indus-

tries are immature. In Malaysia and Thailand, for example, Japanese SMEs have formed the first and second layers of subcontracting systems upstream of large Japanese MNEs, particularly in the electric and electronic machinery industries.[1]

Third, in a recent phenomenon a number of Japanese wholesale and retail trade companies have established manufacturing plants abroad and imported from them, particularly from East Asian countries. This is an example of upward internalization, which probably is not often observed for MNEs of different nationalities. It may be based partly on the tradition of product development by Japanese trading companies and partly on the desire to avoid the rent-capturing or inefficient existing distribution system in Japan. Although Kimura and Kohama (1997) tried to quantify this type of sector switching to some extent, there is certainly room for more formal investigation.

Fourth, general trading companies (GTCs) are one of the major components of the Japanese economic system (Yoshino and Lifson 1986). GTCs establish their affiliates and branches all over the world and set up networks of information and distribution. As discussed in Kimura and Kohama (1997), they seek economies of scope in terms of the number of commodities to handle and the functions to conduct. The functions include not only commodity trading but also matchmaking in setting up joint ventures, finance and insurance, construction and management of industrial estates, among others. As theoretically formalized in Kimura and Talmain (1994), GTCs work as a device through which other, client companies can avoid internalizing distribution functions. Statistical, comprehensive analysis of the activities of GTCs, however, is yet to come.

It is thus obvious that internalization is one of the key concepts in understanding the globalization pattern of Japanese firms. Sector switching or nonswitching between manufacturing and nonmanufacturing reveals some of the major characteristics of Japanese MNEs. Past analyses of this topic, however, have not been statistically comprehensive but rather anecdotal. What this paper relies on is data from MITI's Basic Survey of Business Structure and Activity. This survey was first conducted in fiscal year 1991, then in fiscal year 1994, and annually afterward. The main purpose of the survey is to capture an overall picture of Japanese corporate firms in terms of their activity diversification, internationalization, and strategy on R&D and information technology. The strength of the survey is the comprehensiveness of its samples and the reliability of its figures.

1. Since the subcontracting relationship is long term in nature, it sometimes works as an obstacle to the restructuring of industrial organization in Japan. An interesting anecdotal observation is that the globalization of interfirm relationships reshuffles rigid subcontracting relationships. Even if the match between upstream and downstream firms is the same, the prices of parts and components typically become more competitive abroad than in domestic transactions.

We must, however, be careful because the survey only covers large domestic firms and large foreign affiliates in specific industries. The domestic firms covered have more than fifty workers, have capital of more than 30 million yen, and own establishments in the mining, manufacturing, wholesale and retail trade, or restaurant industry. The foreign affiliates must have more than 50 percent Japanese ownership and capital of more than $1 million and must conduct mining, manufacturing, or commerce activities.[2] We will use the questionnaire-level fiscal year 1994 data. Because the survey does not yet provide long time-series data, it is difficult to analyze entry and exit decisions directly. However, it yields precious information on the connection between parent firms in Japan and foreign affiliates.

Before moving forward, we take an overview of the data on manufacturing and commercial affiliates of Japanese firms in comparison with such affiliates of U.S. firms (see table 3.1).[3] The Japanese data are from MITI's published report on the 1994 Basic Survey of Business Structure and Activity (hereinafter BS94) while the U.S. data are derived from a publication of the Bureau of Economic Analysis, U.S. Department of Commerce (hereinafter FAUSF94).

Note that figures for foreign affiliates of Japanese firms (FAJFs) are not perfectly comparable with those for foreign affiliates of U.S. firms (FAUSFs). FAUSF94 covers finance and a wide range of other service industries while BS94 does not. "Gross product"[4] is used for value added in the case of FAUSFs while value added is calculated by subtracting purchases from sales in the case of FAJFs. We also have to be careful because FDI between Japan and the United States is so asymmetrical that we cannot directly compare figures for FAJFs with those for FAUSFs.[5]

Despite a number of statistical reservations, table 3.1 suggests several important differences between FAJFs and FAUSFs. First of all, combinations of manufacturing parents and wholesale trade affiliates are indirectly observed for both Japanese and U.S. MNEs. A difference, however, is that wholesale trade FAJFs have small value-added ratios and large value-added productivity, compared with FAUSFs, which may imply that FAJFs handle large amounts of commodities at low cost. In addition, the value-

2. The data allow us to distinguish Japanese affiliates of foreign firms, but we do not exclude them from our data set.

3. A similar table for 1991 is presented in Kimura and Baldwin (1998).

4. Gross product is defined as the sum of employee compensation, profit-type return, net interest paid, indirect business taxes, and capital consumption allowances. It is thus slightly different from that for FAJFs.

5. In addition, the data from BS94 may be imprecise for several reasons. First, the number of FAJFs looks too small, which suggests that parent firms may not report all of their foreign affiliates. Second, by-destination sales shares may be biased toward exports because FAJFs may report exports even if they export through local affiliates of Japanese trading companies. The same bias may exist in the case of by-origin purchase shares. Moreover, official, contractual flows of commodities do not necessarily coincide with physical commodity flows, and we are not sure on which FAJFs base their answers.

Table 3.1 **Comparison of Manufacturing and Commercial Affiliates: Japan and the United States, 1994**

Industry	Affiliates		Sales		Value Added[a]		Employment		Average Number of Employees	Value-Added Ratio[b] (%)	Value-Added Productivity[c] ($)	By-Destination Shares in Sales (%)			By-Origin Shares in Purchases (%)	
	Number	Percent	Millions of Dollars	Percent	Millions of Dollars	Percent	Number	Percent				Local	Japan/U.S.	Third Countries	Local	Imports
Foreign Affiliates of Japanese Firms (FAJFs)																
By parent companies' classification																
All industries	2,480	100.00	526,518	100.00	56,925	100.00	779,851	100.00	314	10.81	72,995	70.68	12.25	17.06	34.55	65.45
Manufacturing	1,769	71.33	197,698	37.55	40,204	70.63	587,797	75.37	332	20.34	63,398	80.03	5.35	14.62	28.07	71.93
Wholesale and retail trade	697	28.10	328,477	62.39	16,721	29.37	190,450	24.42	273	5.09	87,797	65.03	16.42	18.55	37.80	62.20
Wholesale	650	26.21	327,163	62.14	16,321	28.67	182,107	23.35	280	4.99	89,623	64.99	16.39	18.63	37.70	62.30
Retail	47	1.90	1,314	0.25	400	0.70	8,343	1.07	178	30.45	47,946	75.84	23.71	0.45	70.63	29.37
By affiliates' classification																
All industries	2,480	100.00	526,518	100.00	56,925	100.00	779,851	100.00	314	10.81	72,995	70.68	12.25	17.06	34.55	65.45
Manufacturing	1,524	61.45	130,592	24.80	34,659	60.89	679,366	87.11	446	26.54	51,017	74.40	8.34	17.27	33.77	65.23
Wholesale and retail trade	946	38.15	395,462	75.11	22,130	38.88	99,911	12.81	106	5.60	221,499	69.47	13.51	17.01	34.77	65.23
Wholesale	866	34.92	392,732	74.59	21,343	37.49	91,072	11.68	105	5.43	234,457	69.41	13.59	17.00	34.76	65.24
Retail	80	3.23	2,730	0.52	787	1.38	8,839	1.13	110	28.82	89,020	78.49	2.57	18.94	36.35	63.65
Foreign Affiliates of U.S. Firms (FAUSFs)																
By parent companies' classification																
All industries	18,713	100.00	1,432,412	100.00	394,557	100.00	5,572,600	100.00	298	27.54	70,803	66.91	10.48	22.61	n.a.	n.a.
Manufacturing	13,370	71.45	1,161,856	81.11	331,965	84.14	3,996,400	69.03	299	28.57	83,066	64.07	11.25	24.68	n.a.	n.a.
Manufacturing excl. petroleum and coal products	12,318	65.83	973,045	67.93	246,797	62.55	3,846,500	69.03	312	25.36	64,161	62.37	11.31	26.31	n.a.	n.a.

(*continued*)

Table 3.1 (continued)

Industry	Affiliates		Sales		Value Added[a]		Employment		Average Number of Employees	Value-Added Ratio[b] (%)	Value-Added Productivity[c] ($)	By-Destination Shares in Sales (%)			By-Origin Shares in Purchases (%)	
	Number	Percent	Millions of Dollars	Percent	Millions of Dollars	Percent	Number	Percent				Local	Japan/U.S.	Third Countries	Local	Imports
							Foreign Affiliates of U.S. Firms (FAUSFs)									
Wholesale and retail trade	1,399	7.48	92,476	6.46	13,117	3.32	553,400	9.93	396	14.18	23,703	n.a.	n.a.	n.a.	n.a.	n.a.
Wholesale	1,159	6.19	63,468	4.43	6,294	1.60	192,700	3.46	166	9.92	32,662	n.a.	n.a.	n.a.	n.a.	n.a.
Wholesale excl. petroleum wholesale	933	4.99	48,598	3.39	7,070	1.79	185,700	3.33	199	14.55	38,072	69.76	8.97	21.27	n.a.	n.a.
Retail	240	1.28	29,008	2.03	6,823	1.73	360,700	6.47	1,503	23.52	18,916	n.a.	5.79	n.a.	n.a.	n.a.
By affiliates' classification																
All industries	18,713	100.00	1,432,412	100.00	394,557	100.00	5,572,600	100.00	298	27.54	70,803	66.91	10.48	22.61	n.a.	n.a.
Manufacturing	7,073	37.80	776,257	54.19	244,345	61.93	3,401,700	61.04	481	31.48	71,830	62.08	12.99	24.92	n.a.	n.a.
Manufacturing excl. petroleum and coal products	6,998	37.40	694,666	48.50	197,535	50.07	3,353,000	60.17	479	28.44	58,913	59.55	13.88	26.57	n.a.	n.a.
Wholesale and retail trade	5,476	29.26	422,423	29.49	73,846	18.72	1,006,900	18.07	184	17.48	73,340	71.52	n.a.	n.a.	n.a.	n.a.
Wholesale	5,123	27.38	387,718	27.07	65,416	16.58	560,600	10.06	109	16.87	116,689	69.17	6.08	24.75	n.a.	n.a.
Wholesale excl. petroleum wholesale	4,789	25.59	296,549	20.70	47,367	12.01	526,400	9.45	110	15.97	89,983	68.69	5.25	26.06	n.a.	n.a.
Retail	353	1.89	34,705	2.42	8,430	2.14	446,300	8.01	1,264	24.29	18,889	97.77	n.a.	n.a.	n.a.	n.a.

[a]Value added: for Japan, sales minus purchases; for United States, gross product.

[b]Value-added ratio: (value added)/sales.

[c]Value-added productivity: (value added)/employment.

added share of wholesale trade FAJFs is as high as 37 percent while that of wholesale trade FAUSFs is only 17 percent. This suggests that efficient wholesale activities may be a source of profitability for Japanese MNEs. Second, wholesale trade parents have a much heavier weight among Japanese firms than among U.S. firms. The value-added share of foreign affiliates of Japanese wholesale trade parents is 29 percent while that of U.S. wholesale trade parents is only 2 percent; the wholesale parents are much more important MNEs in Japan than in the United States. It should also be noted that foreign affiliates of Japanese wholesale or retail trade parents export large amounts to Japan, which suggests that the wholesale and manufacturing activities involved in sending products back to Japan are important components of their operations. Overall, the comparison between FAJFs and FAUSFs again suggests that sector switching of parent firms and foreign affiliates may reveal the characteristics of Japanese MNEs.

3.3 Sector-Switching Analysis from the Foreign Affiliate Side

In the following, we will go into the analysis of sector switching between parents and foreign affiliates by using the questionnaire-level data underlying BS94 (hereinafter the "MITI database"). In this section, we look at the data from the affiliate side and try to connect our discussion with traditional location choice analysis.

Table 3.2 presents the number of FAJFs in East Asia, North America, and Western Europe, which covers more than 90 percent of all FAJFs in the world in terms of the number of FAJFs. The row denotes the industry of the parent firm, and the column denotes the industry of the FAJF.[6] For industry codes, see the appendix. Because many FAJFs belong to the same industries as their parents, large numbers are naturally found in the diagonal cells of the table. In East Asia 673 FAJFs out of 975 (69 percent) are in the diagonal cells, in North America 409 out of 728 (56 percent), and in Western Europe 283 out of 552 (51 percent). The rest of the FAJFs belong to industries different from those of their parents. Most sector switching between parents and foreign affiliates occurs between the manufacturing sector (industries 120 to 340) and the wholesale trade sector (industry 481). In North America and Western Europe, many wholesale trade FAJFs have manufacturing parent firms. In East Asia, a considerable number of manufacturing FAJFs have wholesale trade parent firms.

Table 3.3 presents reorganized information on the activities of FAJFs by location of FAJF and by industries of parent firm and FAJF. To simplify the table, industries are aggregated up to manufacturing (M) and

6. The questionnaire of BS94 asks for a detailed sales composition of each parent firm, and its industry is assigned by following its largest sold commodity item. The industry of each FAJF is answered directly in the form of industry code.

Table 3.2 **Industries of Japanese Parent Firms and FAJFs, 1994 (number of foreign affiliates)**

East Asia: All Asian Countries East of Pakistan

Industry of Parent Firm	Industry of FAJF																										
	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	050	481	540	Other	Subtotal
120	12																											12
130	2	1																							1			4
140			7	1							2																	10
150			2	9									1															12
160					2																							2
170						5																						5
180							2																					2
190								7										2							1			10
200	1		14						71		4					1	2	1					1		10	1		106
210										1															1			2
220											25							2							1			28
230												15													1			16
240																												0
250														6				1							1			8
260															5	2	3	1	3						1			15
270									1							33	2		6						2			44
280												1				3	26	1	2				1			1		35
290															1		1	49	2	4	3				16			76
300			1						2		2				1			5	211	1	1				25			249
310																	1	1	2	45			1		3			53
320																			1		22				1			24
330																									1			1
340																	1						12					13
050																												0
481	4		3	10	3	1		2	3	1	7	1	1	7	5	1	6	6	56	2	4		5		94	2		224
540	1			1		1					1			1							1		1			13		20
Other				1																	2					1		4
Subtotal	20	1	27	22	5	7	2	9	77	2	41	17	2	14	12	40	42	69	283	52	33	0	21	0	159	18	0	975

North America: United States and Canada

Industry of Parent Firm	Industry of FAJF																										
	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	050	481	540	Other	Subtotal
120	15	2																							2			19
130	1	9																							5	1		16
140			4																									4
150				1																					1	1		3
160					1						2																	3
170						1																	1					2
180							5	1													1				1			8
190								4																	2	1		7
200		2	2					1	27		2						2		1						17			54
210																												0
220											11						1								1			13
230											1	8													4	1		14
240																												0
250														11				1							2			14
260					1										6	1			1					3	3			15
270												2				9	1	1		4					2			19
280												1				2	13		2	3					2	1		24
290									2									37	1	1			1		48	2		92
300									1		1			1				1	41	1	3		1		33	2		85
310																	1	4		69					22			96
320																					5				18			23
330																									2			2
340																			1	6					9	1		17
050																												0
481	8				2			3	2		1	1		3	1	1	1	2	10	5	1		6	1	123	6		177
540									1																3	9		13
Other				2																			2		3	1		8
Subtotal	24	13	6	3	4	1	5	9	33	0	18	12	0	15	7	13	19	46	57	89	10	0	11	4	303	26	0	728

(*continued*)

Table 3.2 (continued)

Western Europe: All Europe Excluding the Commonwealth of Independent States and Eastern European Countries

Industry of Parent Firm	Industry of FAJF																										
	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	050	481	540	Other	Subtotal
120	3								1																1			5
130		6							1																1			8
140			3																						1			4
150																									2	3		5
160											1																	1
170																									1			1
180																									1			1
190								1											1									2
200			2						16		1					1			1		1				15			37
210																									1			1
220											5																	5
230												7													3			10
240																												0
250																			1		1							2
260																									1			1
270												1				6									5			12
280																4	3											7
290																		38		1					61			100
300									2		1							1	44		1				40	6		95
310																		2	1	14					20			37
320									1										2		5				13	1		22
330																												0
340																			1				4		14	2		21
050																												0
481		1							2		3			4			1	3	18	2	1		4		119	6		164
540																										9		9
Other																							2					2
Subtotal	3	7	5	0	0	0	0	1	23	0	11	8	0	4	0	11	4	44	69	17	9	0	10	0	299	27	0	552

Data source: MITI database.

Note: For industry codes, see the appendix.

Table 3.3 **Foreign Affiliates of Japanese Parent Firms by Industries of Parent and Affiliate, 1994**

Location of Affiliate and Industries of Parent and Affiliate[a]	Affiliates		Sales		Value Added		Employment		Average Number of Employees	Value-Added Ratio (%)	Value-Added Productivity ($)	By-Destination Shares in Sales (%)			By-Origin Shares in Purchases (%)	
	Number	Percent	Millions of Dollars	Percent	Millions of Dollars	Percent	Number	Percent				Local	Japan	Third Countries	Local	Imports
East Asia																
Total	975	100.00	116,313	100.00	13,099	100.00	415.035	100.00	426	11.26	31,561	58.42	13.99	27.58	38.57	61.43
M/M	660	67.69	33,949	29.19	9,106	69.51	288,310	69.47	437	26.82	31,582	50.48	18.71	30.80	32.38	67.62
M/N	67	6.87	8,711	7.49	540	4.12	4,651	1.12	69	6.20	116,087	46.86	17.30	35.84	7.51	92.49
N/M	138	14.15	12,330	10.60	4,014	30.64	110,244	26.56	799	32.55	36,406	59.85	23.17	16.98	15.03	84.97
N/N	110	11.28	61,324	52.72	(560)	−4.28	11,830	2.85	108	−0.91	(47,351)	64.17	9.07	26.76	48.32	51.68
North America																
Total	728	100.00	226,795	100.00	27,543	100.00	217,220	100.00	298	12.14	126,800	78.64	12.12	9.23	39.39	60.61
M/M	343	47.12	42,825	18.88	11,053	40.13	148,413	68.32	433	25.81	74,472	94.76	1.94	3.30	40.63	59.37
M/N	187	25.69	58,556	25.82	8,189	29.73	35,773	16.47	191	13.99	228,927	96.90	1.08	2.02	22.22	77.78
N/M	51	7.01	12,545	5.53	1,848	6.71	20,396	9.39	400	14.73	90,630	96.63	2.94	0.43	15.21	84.79
N/N	147	20.19	112,868	49.77	6,453	23.43	12,638	5.82	86	5.72	510,601	61.05	22.74	16.21	49.58	50.42
Western Europe																
Total	552	100.00	149,625	100.00	12,771	100.00	97,201	100.00	176	8.54	131,389	73.28	7.35	19.37	24.78	75.22
M/M	185	33.51	18,006	12.03	5,371	42.05	52,844	54.37	286	29.83	101,635	58.06	1.31	40.63	42.02	57.98
M/N	192	34.78	25,048	16.74	3,486	27.29	16,607	17.09	86	13.92	209,898	82.21	3.45	14.34	17.27	82.73
N/M	41	7.43	4,125	2.76	1,253	9.81	17,309	17.81	422	30.37	72,373	90.76	2.24	7.00	41.08	58.92
N/N	134	24.28	102,445	68.47	2,662	20.84	10,441	10.74	78	2.60	254,944	73.07	9.57	17.36	23.74	76.26

Note: See table 3.1 notes for definitions of value added, value-added ratio, and value-added productivity.

[a]The industry of the parent firm is given first, then the industry of the affiliate. M stands for manufacturing, and N stands for nonmanufacturing. E.g., "M/N" means that the parent firm is in the manufacturing sector and the affiliate in the nonmanufacturing sector.

nonmanufacturing (N) sectors. Sectors of a parent firm and its FAJF are reported separated by a slash.

Cases in which both the parent firm and the FAJF are in the manufacturing sector (M/M) have a particularly large share in East Asia; in terms of number of FAJFs, 660 out of 975 (68 percent) follow this pattern. The shares in North America and Western Europe are only 47 and 34 percent, respectively. M/M-type FAJFs in East Asia sell a large portion of their products to Japan and third countries (the sales shares to Japan and third countries are 19 and 31 percent, respectively). These are consistent with the fact that East Asia has a strong locational advantage for manufacturing activities. From this table, however, vertical linkage among FAJFs cannot be detected directly.

Cases in which the parent firm is in the manufacturing sector while the FAJF is in the nonmanufacturing sector (M/N) are pervasive in North America and Western Europe. M/N-type FAJFs account for 26 and 35 percent of FAJFs in these regions. They sell their products predominantly to local markets, which indicates that these regions are attractive as large, matured markets for their products and it is thus worth setting up wholesale trade affiliates there. Their extremely high value-added productivity would be a reflection of their good commerce. In Western Europe, sales to local markets by M/N-type FAJFs are 82 percent while those by M/M-type FAJFs are 58 percent. Sales to third countries by M/N-type FAJFs, on the other hand, are only 14 percent while those by M/M-type FAJFs are 41 percent. This means that manufacturing FAJFs are located only in selected countries in Europe, but wholesale trade FAJFs tend to be located in each country. There are only 67 M/N-type FAJFs in East Asia, of which 50 are located in Hong Kong and Singapore (not shown in the table). The large share of sales to third countries and the large share of imports from abroad suggest that these FAJFs work as global distribution centers. East Asia is not yet a market attractive enough for Japanese MNEs to establish wholesale trade affiliates for local sales.

Cases in which the parent firm is in the nonmanufacturing sector and the FAJF is in the manufacturing sector (N/M) are particularly important in East Asia, where 138 FAJFs out of 975 (14 percent) are of this type. Their share in terms of value added is as high as 31 percent. These FAJFs are characterized by large numbers of employees (799 persons on average), high value-added ratios (33 percent), and large proportions of sales to Japan (23 percent). N/M-type FAJFs make up only 7 percent of FAJFs in North America and Western Europe.

Last, cases in which both the parent firm and the FAJF are in the nonmanufacturing sector (N/N) have shares of 11, 20, and 24 percent in East Asia, North America, and Western Europe, respectively, in terms of number of affiliates. N/N-type FAJFs in North America and Western Europe have very high value-added productivity and low value-added ratios,

which indicates that these FAJFs conduct pure trade intermediary functions with minimal storage functions. In addition, N/N-type FAJFs in East Asia and North America purchase a large portion of commodities from local markets and sell some of them to third countries and Japan. This suggests that some FAJFs of this type have purchasing functions. As for N/N-type FAJFs in Western Europe, their high local sales ratios and low ratios of sales to third countries suggest that FAJFs acting as distribution affiliates are located in each country, rather than selling from large-scale distribution centers for the whole of Europe.

In the usual location choice analysis, we simply check the industries and other characteristics of foreign affiliates and combine them with locational conditions. By introducing the industries of parent firms as we do here, the firms' strategies on location and internalization can be identified in a much richer manner.

3.4 Sector-Switching Analysis from the Parent Firm Side

Another way of looking at the same set of data is to analyze it from the parent firm side and to see what sort of foreign affiliates each parent firm has. Doing so, we can investigate the overall strategies of internalization and location of each firm group to a great extent. The MITI database provides precious information of this sort.

Table 3.4 presents the number of parent firms that have one or more than one foreign affiliates by industry of parent firm, together with the percentages of parent firms that have at least one nonmanufacturing foreign affiliate in the case of manufacturing parent firms and that have at least one manufacturing foreign affiliate in the case of nonmanufacturing parent firms. Out of 713 manufacturing parent firms, 408 have just one affiliate, only 13 percent of which have a nonmanufacturing affiliate. On the other hand, 47 percent of manufacturing parent firms with more than one affiliate have at least one nonmanufacturing affiliate. As for nonmanufacturing parent firms, 139 out of 232 have only one affiliate. The percentage having at least one manufacturing affiliate is 41 percent among parent firms with only one affiliate and 62 percent among parent firms with more than one affiliate.

We would like to emphasize that when a manufacturing parent firm has only one affiliate, sector switching hardly occurs. In addition, contrary to the conventional belief, parent firms in electric machinery (300) and transport equipment (310) do not show a particularly strong tendency to have nonmanufacturing foreign affiliates. These facts suggest that a considerable number of MNEs do not try to internalize wholesale trade activities but instead concentrate on production activities in affiliates in order to supply parts and components to other firms. Some parent firms, on the other hand, tend to have both manufacturing and wholesale trade affiliates

Table 3.4 **Foreign Affiliate Ownership Patterns of Japanese Parent Firms, 1994 (number of parent firms)**

Industry of Parent Firm	Total	With Only One Foreign Affiliate	With More Than One Foreign Affiliate
Manufacturing			
120	24 (16.67)	15 (0.00)	9 (44.44)
130	12 (41.67)	6 (16.67)	6 (66.67)
140	13 (7.69)	9 (0.00)	4 (25.00)
150	14 (28.57)	9 (11.11)	5 (60.00)
160	4 (0.00)	3 (0.00)	1 (0.00)
170	7 (14.29)	6 (0.00)	1 (100.00)
180	10 (20.00)	7 (14.29)	3 (33.33)
190	12 (25.00)	9 (22.22)	3 (33.33)
200	80 (25.00)	40 (10.00)	40 (40.00)
210	3 (66.67)	2 (50.00)	1 (100.00)
220	33 (6.06)	23 (8.70)	10 (0.00)
230	17 (35.29)	8 (25.00)	9 (44.44)
240	0 (n.a.)	0 (n.a.)	0 (n.a.)
250	22 (9.09)	18 (0.00)	4 (50.00)
260	17 (35.29)	14 (21.43)	3 (100.00)
270	29 (10.34)	13 (0.00)	16 (18.75)
280	36 (8.33)	20 (5.00)	16 (12.50)
290	91 (45.05)	47 (27.66)	44 (63.64)
300	145 (27.40)	84 (11.90)	61 (49.18)
310	91 (24.44)	50 (8.00)	41 (43.90)
320	28 (53.57)	13 (30.77)	15 (73.33)
330	1 (100.00)	0 (0.00)	1 (100.00)
340	24 (58.33)	12 (33.33)	12 (83.33)
Subtotal	713 (27.63)	408 (12.99)	305 (47.21)
Nonmanufacturing			
050	0 (n.a.)	0 (n.a.)	0 (n.a.)
481	190 (53.68)	105 (43.81)	85 (65.88)
540	32 (25.00)	26 (30.77)	6 (0.00)
Other	10 (50.00)	8 (37.50)	2 (100.00)
Subtotal	232 (49.57)	139 (41.01)	93 (62.37)
Total	945 (33.01)	547 (20.11)	398 (50.75)

Data source: MITI database.

Note: Numbers in parentheses are percentages of parent firms having affiliates in a different industry. "Different industry" means the nonmanufacturing sector for parents in the manufacturing sector and the manufacturing sector for parents in the nonmanufacturing sector.

and form global production-distribution networks. Internalization decisions are surely connected with the overall strategy of MNEs. For nonmanufacturing parent firms, the high percentage having manufacturing affiliates indicates that upward internalization is pervasive in the international context.

Because the number of foreign affiliates is expected to depend on the size of the parent firm, we classify parent firms by number of regular workers. Table 3.5 presents the data for manufacturing parent firms. The percentage of having at least one nonmanufacturing affiliate is again shown in parentheses. The table indicates that small parent firms tend to have a small number of FAJFs and that parent firms tend not to have nonmanufacturing affiliates when their number of affiliates is small. At the bottom of the table, the percentage of nonmanufacturing FAJFs is also shown, which goes up from 13 percent to more than 50 percent and then comes down to 40 percent as the number of affiliates increases. These figures suggest that the location and internalization strategies of Japanese manufacturing parent firms may be classified into two categories. One is to concentrate on manufacturing activities to supply intermediate goods to other firms, and the other is to establish a global production-distribution network by internalizing wholesale trade activities. Parent firms in the former category may maintain long-term relationships with clients even after establishing affiliates abroad.

Table 3.6 presents the data for nonmanufacturing Japanese parent firms in the same format as table 3.5. Again, small parent firms tend to have small numbers of foreign affiliates. A sharp contrast from the manufacturing parent firms is found in the percentage having affiliates in a different industry. Even if parent firms are small or even if the number of affiliates is small, there is still a strong tendency to have manufacturing affiliates. N/M activities may still be underestimated here because the BS94 data include only majority-owned affiliates and large parent firms. On the other hand, there are GTCs with a large number of affiliates, both manufacturing and nonmanufacturing. The percentage of manufacturing affiliates comes down to 28 percent as the number of affiliates increases (shown at the bottom of the table).

Table 3.7 summarizes major characteristics of Japanese manufacturing firms. In the table, firms located in Japan are classified into three groups: (a) firms without foreign affiliates, (b) firms with only manufacturing foreign affiliates (no sector switching), and (c) firms with at least one nonmanufacturing foreign affiliate (sector switching). The table reports the mean and standard deviation of each indicator for firms in Japan. Because the microdata have fat tails and some of the variables cannot be normally distributed, the means and standard deviations must be interpreted with caution.

Table 3.7 reveals various features of Japanese manufacturing firms in the context of international operations. We would like to note the following four points in particular. First, groups a, b, and c clearly differ in firm size and capital-labor ratio. Manufacturing firms without foreign affiliates tend to have fewer regular workers, smaller total sales, and smaller ratios of tangible assets to regular workers than do those with foreign affiliates.

Table 3.5 **Foreign Affiliate Ownership Patterns of Japanese Manufacturing Parent Firms, 1994 (number of parent firms)**

Number of Regular Workers of Parent Firm	Number of Affiliates										
	1	2	3	4	5	6	7	8	9	10	More Than 10
50 to 99	28	2									
	(3.57)	(0.00)									
100 to 199	54	8		1							
	(3.70)	(12.50)		(0.00)							
200 to 299	66	2	2	2							
	(12.12)	(0.00)	(0.00)	(0.00)							
300 to 499	54	14	6								
	(9.26)	(7.14)	(16.67)								
500 to 999	87	27	15	5	3			1			
	(12.64)	(29.63)	(26.67)	(80.00)	(33.33)			(100.00)			
More than 1,000	119	71	41	29	18	14	6	7	3	5	23
	(21.85)	(40.85)	(43.90)	(48.28)	(77.78)	(64.29)	(66.67)	(85.71)	(66.67)	(100.00)	(91.30)
Total	408	124	64	37	21	14	6	8	3	5	23
	(12.99)	(31.45)	(35.94)	(48.65)	(71.43)	(64.29)	(66.67)	(87.50)	(66.67)	(100.00)	(91.30)
Percentage of nonmanufacturing affiliates	12.99	21.78	19.27	27.03	34.29	28.57	54.76	43.75	33.33	66.67	39.90

Data source: MITI database.

Note: Numbers in parentheses are numbers of manufacturing parent firms having at least one nonmanufacturing affiliate.

Table 3.6 **Foreign Affiliate Ownership Patterns of Japanese Nonmanufacturing Parent Firms, 1994**

Number of Regular Workers of Parent Firm	Number of Affiliates										
	1	2	3	4	5	6	7	8	9	10	More Than 10
50 to 99	19	4		3							
	(68.42)	(100.00)		(66.67)							
100 to 199	19		2								1
	(58.89)		(50.00)								(0.00)
200 to 299	9	7									
	(44.44)	(85.71)									
300 to 499	21	6	2	2				1			
	(33.33)	(66.67)	(100.00)	(100.00)				(100.00)			
500 to 999	37	9	2	1	1		1				
	(37.84)	(55.56)	(0.00)	(0.00)	(100.00)		(100.00)				
More than 1,000	34	15	10	4	6	2	1	4		1	8
	(23.53)	(53.33)	(50.00)	(50.00)	(50.00)	(50.00)	(100.00)	(75.00)		(0.00)	(75.00)
Total	139	41	16	10	7	2	2	5		1	9
	(41.01)	(65.85)	(50.00)	(60.00)	(57.14)	(50.00)	(100.00)	(80.00)		(0.00)	(66.67)
Percentage of manufacturing affiliates	41.01	52.44	33.33	30.00	42.86	16.67	21.43	47.50		0.00	28.18

Data source: MITI database.

Note: Numbers in parentheses are numbers of nonmanufacturing parent firms having at least one manufacturing affiliate.

Table 3.7 **Characteristics of Japanese Manufacturing Firms, 1994**

Characteristic	Without Foreign Affiliates (a)	With Foreign Affiliates, No Sector Switching (b)	With Foreign Affiliates, At Least One Nonmanufacturing Foreign Affiliate (c)
Firm size			
Number of regular workers (number of persons)	311	1,452	6,060
	(1,073)	(2,277)	(11,270)
Total sales (million yen)	11,250	67,025	366,703
	(59,849)	(158,225)	(829,135)
Economic performance			
Ratio of tangible assets to regular workers (million yen per person)	9.16	12.09	16.57
	(13.06)	(10.47)	(19.20)
Ratio of operating surplus to total sales	0.0510	0.0494	0.0469
	(0.1368)	(0.0411)	(0.0420)
Foreign sales (1): 1 positive; 0 zero	0.2199	0.8152	0.9485
	(0.4142)	(0.3882)	(0.2211)
Foreign sales (2): ratio to total sales	0.0225	0.0891	0.2177
	(0.0811)	(0.1294)	(0.1967)

Product differentiation			
R&D expenditure (1): 1 positive; 0 zero	0.4851	0.8366	0.9742
	(0.4998)	(0.3700)	(0.1585)
R&D expenditure (2): ratio to total sales	0.0086	0.0195	0.0396
	(0.0207)	(0.0261)	(0.0301)
Ratio of advertisement expenditure to total sales	0.0045	0.0075	0.0110
	(0.0166)	(0.0202)	(0.0161)
Linkage			
Commissioning production: 1 yes; 0 no	0.7668	0.8774	0.9124
	(0.4229)	(0.3279)	(0.2828)
Using subcontractor(s): 1 yes; 0 no	0.5995	0.7393	0.7732
	(0.4900)	(0.4390)	(0.4188)
Working as a subcontractor: 1 yes; 0 no	0.3187	0.1907	0.0515
	(0.4660)	(0.3928)	(0.2211)
Number of foreign affiliates held	0.00	1.67	4.66
	(0.00)	(1.58)	(5.68)
N	12,473	514	194

Data source: MITI database.

Note: Figures are unweighted averages. Numbers in parentheses are standard deviations.

Firms with foreign affiliates, particularly with nonmanufacturing foreign affiliates, are large in size and capital intensive. The difference between groups b and c in size reflects the average number of foreign affiliates, too; group b has 1.67 foreign affiliates on average while group c has 4.66.

Second, R&D and advertisement expenditures also differ across the three groups. R&D expenditure (1) shows whether a firm has R&D expenditure or not. It assigns the value one if yes and zero otherwise. Hence, the mean of R&D expenditure (1) indicates the probability of having positive R&D expenditure. R&D expenditure (2), on the other hand, reports the ratio of R&D expenditure to total sales. The means of R&D expenditures (1) and (2) are smallest for firms without foreign affiliates and largest for firms with nonmanufacturing foreign affiliates. The ratio of advertisement expenditure to total sales shows the same pattern. These findings suggest that firms with foreign affiliates, particularly with nonmanufacturing foreign affiliates, think more about product differentiation than do firms without foreign affiliates. More product differentiation naturally generates more incentive for extensive internalization.

Third, foreign sales also reveal contrasts among groups a, b, and c. Again, foreign sales (1) indicates whether a firm has foreign sales or not, and thus the mean of foreign sales (1) is the probability of having positive foreign sales. Only 22 percent of firms without foreign affiliates have foreign sales, while 82 and 95 percent of firms with foreign affiliates (without and with nonmanufacturing foreign affiliates, respectively) have foreign sales. Foreign sales (2) reports the ratio of foreign sales to total sales, which shows a large difference between the no-sector-switching case (9 percent) and the sector-switching case (22 percent). Remember that these foreign sales include both arm's-length and intrafirm exports. Also note that the data are for just one time point and thus do not suggest any causal relation between exports and FDI. However, we can at least confirm that the tendency to export and the tendency to invest abroad are highly correlated.

Fourth, an interesting fact is that the mean ratios of operating surplus to total sales are almost the same for groups a, b, and c. This suggests that larger, more capital-intensive, more R&D- and advertisement-intensive, more foreign-exposed firms do not necessarily perform better. This observation may indicate a sharp contrast with U.S. MNEs. In the case of the United States, Doms and Jensen (1998) asserted that MNE establishments owned by U.S. nationals show superior performance, compared with both U.S. affiliates of foreign firms and indigenous establishments without foreign affiliates. Of course, here we check just one indicator of firm performance using a single year's data, so we must be careful in concluding anything definite. However, the finding at least suggests that the efficacy of small firms cannot be neglected. Firm size, capital intensity, degree of product differentiation, and foreign exposure are not direct indicators of firm performance but rather are choice variables indicating how firms

adapt themselves to the economic environment. Both small and large firms adapt to survive, but in different ways. The key to understanding Japanese firms is the interfirm relationship and the degree of internalization.

Table 3.8 displays the data for Japanese nonmanufacturing (wholesale and retail trade and restaurants) firms using the same format as table 3.7. We can again find a clear contrast between firms with and without foreign affiliates. Firms without foreign affiliates are on average smaller in terms of number of regular workers and total sales and have smaller R&D expenditure and smaller foreign sales. The contrast between the sector-switching and no-sector-switching cases, however, is not very clear. Although R&D expenditure and foreign sales are larger in the sector-switching case than in the no-sector-switching case, average firm size is almost the same. Again, the mean ratios of operating surplus to total sales are almost the same for groups a, b, and c.

We do not claim any simple causal relation among the indicators shown in tables 3.7 and 3.8. A firm is supposed to decide whether to have foreign affiliates or not and whether to have foreign affiliates in a different industry or not, jointly with decisions about its size, R&D, foreign sales, and other things. However, just to see the controlled correlation among variables, some regression analysis is conducted. Table 3.9 reports the result of logit estimation for Japanese manufacturing firms.[7] The dependent variable of the first two regressions is whether a firm has foreign affiliates or not. As expected, firms with foreign affiliates are likely to have large employment size, capital-intensive technology, large foreign sales, and large R&D expenditure. The coefficient for the ratio of advertisement expenditure is less significant than those for other variables. The second two regressions have as dependent variable whether or not a firm has nonmanufacturing foreign affiliates. Firms tend to switch sectors when they have large employment size, large foreign sales, and large R&D expenditure. Overall, the regressions confirm our casual observations about table 3.7, even after putting these variables together.

Table 3.10 shows the result of logit estimation for Japanese nonmanufacturing firms. It is confirmed that firms are likely to have foreign affiliates when they are large in employment size, have capital-intensive technology, and have large foreign sales. Whether sector switching occurs is only weakly explained by the explanatory variables used here.

3.5 Conclusion

MNEs make location and internalization decisions jointly, and thus it is necessary to develop an empirical research strategy to treat them jointly. To approach this task, this paper concentrates on sector switching

7. The probit estimation provides similar results.

Table 3.8 **Characteristics of Japanese Nonmanufacturing Firms, 1994**

Characteristic	Without Foreign Affiliates (a)	With Foreign Affiliates, No Sector Switching (b)	With Foreign Affiliates, At Least One Manufacturing Foreign Affiliate (c)
Firm size			
Number of regular workers (number of persons)	331	1,814	1,876
	(976)	(2,663)	(5,421)
Total sales (million yen)	20,805	592,162	551,309
	(176,644)	(2,236,198)	(2,258,510)
Economic performance			
Ratio of tangible assets to regular workers (million yen per person)	8.77	17.58	12.43
	(19.36)	(31.51)	(10.36)
Ratio of operating surplus to total sales	0.0298	0.0338	0.0322
	(0.0568)	(0.0532)	(0.0331)
Foreign sales (1): 1 positive; 0 zero	0.1480	0.7813	0.7890
	(0.3551)	(0.4134)	(0.4080)
Foreign sales (2): ratio to total sales	0.0110	0.0639	0.1578
	(0.0629)	(0.1140)	(0.2160)

Product differentiation			
R&D expenditure (1): 1 positive; 0 zero	0.2036	0.4583	0.6697
	(0.4026)	(0.4983)	(0.4703)
R&D expenditure (2): ratio to total sales	0.0026	0.0058	0.0115
	(0.0800)	(0.0213)	(0.0197)
Ratio of advertisement expenditure to total sales	0.0083	0.0146	0.0085
	(0.0985)	(0.0320)	(0.0198)
Linkage			
Commissioning production: 1 yes; 0 no	0.3081	0.3646	0.6330
	(0.4617)	(0.4813)	(0.4820)
Using subcontractor(s): 1 yes; 0 no	0.2540	0.2292	0.5505
	(0.4353)	(0.4203)	(0.4974)
Working as a subcontractor: 1 yes; 0 no	0.1085	0.0313	0.1101
	(0.3110)	(0.1740)	(0.3130)
Number of foreign affiliates held	0.00	2.55	3.84
	(0.00)	(6.75)	(8.06)
N	7,468	95	109

Data source: MITI database.

Note: Figures are unweighted averages. Numbers in parentheses are standard deviations.

Table 3.9 **Logit Estimation: Japanese Manufacturing Parent Firms, 1994**

	Dependent Variables			
	Having Foreign Affiliates = 1; Not Having Foreign Affiliates = 0		With Sector Switching = 1; Without Sector Switching = 0	
Variable	(1)	(2)	(1)	(2)
Constant	−5.24037**	−3.65014**	−4.36070**	−2.81511**
	(−39.8323)	(−61.1530)	(−7.1547)	(−13.4923)
Number of regular workers	0.00318**	0.00443**	0.00203**	0.00182**
	(12.3862)	(15.0583)	(6.4591)	(5.5336)
Ratio of tangible assets to regular workers	0.07417**	0.07507**	0.01208	0.20337**
	(3.4920)	(3.2360)	(1.8227)	(3.0620)
Foreign sales (1): 1 positive; 0 zero	2.51558**		1.43142**	
	(21.7900)		(3.5637)	
Foreign sales (2): ratio to total sales		4.14423**		4.40818**
		(15.9442)		(7.2494)
R&D expenditure (1): 1 positive; 0 zero	0.91096**		1.43660**	
	(7.2658)		(2.9420)	
R&D expenditure (2): ratio to total sales		8.92044**		12.3372**
		(6.94679)		(3.6575)
Ratio of advertisement expenditure to total sales	1.89845	4.95214**	7.05935	10.2399*
	(1.0665)	(3.0122)	(1.6692)	(2.3329)
Log likelihood	−1,966.85	−2,282.44	−347.263	−319.061
N	13,181	13,181	708	708

Data source: MITI database.

Note: Numbers in parentheses are *t*-statistics.

*Significant at the 5 percent level.

**Significant at the 1 percent level.

Table 3.10 **Logit Estimation: Japanese Nonmanufacturing Parent Firms, 1994**

	Dependent Variables			
	Having Foreign Affiliates = 1; Not Having Foreign Affiliates = 0		With Sector Switching = 1; Without Sector Switching = 0	
	(1)	(2)	(1)	(2)
Constant	−5.50060**	−4.06981**	−0.06514	−0.05951
	(−31.3683)	(−46.0116)	(−0.1633)	(−0.2462)
Number of regular workers	0.00304**	0.00331**	0.00002	−0.0003
	(7.6964)	(8.7640)	(0.0533)	(−0.0826)
Ratio of tangible assets to regular workers	0.05230**	0.04856**	−0.01188	−0.01176
	(3.0821)	(3.0754)	(−1.2608)	(−1.2479)
Foreign sales (1): 1 positive; 0 zero	2.85490**		−0.19957	
	(15.3308)		(−0.0560)	
Foreign sales (2): ratio to total sales		5.32898**		3.23859**
		(12.8725)		(2.9903)
R&D expenditure (1): 1 positive; 0 zero	0.86654**		0.87041**	
	(5.5079)		(2.9593)	
R&D expenditure (2): ratio to total sales		0.32472		13.0254
		(0.8022)		(1.4897)
Ratio of advertisement expenditure to total sales	0.32509	0.21017	−11.1986	−7.05755
	(0.6674)	(0.5242)	(−1.5971)	(−1.1088)
Log likelihood	−685.915	−826.71	−134.244	−130.727
N	7,673	7,673	205	205

Data source: MITI database.

Note: Numbers in parentheses are *t*-statistics.

*Significant at the 5 percent level.

**Significant at the 1 percent level.

of Japanese parent firms and foreign affiliates between manufacturing and nonmanufacturing. We find that the industries of parent firms and affiliates are often different and MNEs clearly choose internalization and location in a strategic manner. Large manufacturing parent firms tend to have both manufacturing and nonmanufacturing affiliates, the latter of which are mainly located in North America and Western Europe. Small manufacturing parent firms and firms with a small number of affiliates are apt to concentrate on production activities at their affiliates, particularly in East Asia. About half of nonmanufacturing parent firms have at least one manufacturing affiliate, usually located in East Asia. Large nonmanufacturing parent firms, mostly GTCs, have extensive networks of production and wholesale trade activities all over the world. Integrated studies of location and internalization decisions are essential to understanding the behavior of MNEs.

Although we must confront the limitations of statistical data, the MITI database at least allows us access to various characteristics of Japanese parent firms and interactions between parent firms and their related foreign affiliates. Further exploitation of this information is what we must work on in the future.

Appendix

Industry Classification of BS94

Manufacturing sector

120	Food processing
130	Beverages, tobacco, and animal feed
140	Textiles
150	Apparel
160	Wood and wood products
170	Furniture and fixtures
180	Pulp, paper, and paper products
190	Publishing and printing
200	Chemicals
210	Petroleum and coal products
220	Plastic products
230	Rubber products
240	Leather and leather products
250	Ceramics, clay, and stone products
260	Iron and steel
270	Nonferrous metal
280	Metal products

290 General machinery
300 Electric machinery
310 Transport equipment
320 Precision machinery
330 Arms
340 Other manufacturing

Nonmanufacturing sector
050 Mining
481 Wholesale trade
540 Retail trade
Other Services and other

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Comment Eiji Ogawa

Kimura uses microdata from MITI's Basic Survey of Business Structure and Activity to study empirically the location and internalization decisions made by Japanese multinational enterprises. He focuses on the sectoral choices of parent firms and foreign affiliates between manufacturing and nonmanufacturing including wholesale and retail trade.

Kimura points out some "stylized facts" about Japanese multinational enterprises in this paper. First, many Japanese manufacturers have wholesale trade foreign affiliates. This is downward internalization, that is, sector switching from manufacturing to nonmanufacturing (M/N type). Second, Japanese multinational enterprises keep subcontracting relationships as loose internalization arrangements. This is a no-sector-switching case (M/M type). Third, a number of Japanese wholesale and retail trade companies establish manufacturing plants, particularly in East Asia. This is upward internalization, that is, sector switching from nonmanufacturing to manufacturing (N/M type). Finally, GTCs are one of the major components of the Japanese economic system. The author points out that GTCs work as a device through which other, client companies can avoid internalization of the distribution function, that is, switching to nonmanufacturing.

These stylized facts suggest that Japanese multinational enterprises could display all types of sector switching. Kimura uses the microdata to analyze formally these stylized facts.

He obtains four findings. First, for the M/M type, both large and small manufacturing firms tend to have manufacturing affiliates, mainly located in East Asia. Second, for the M/N type of sector switching, large manufacturing parent firms tend to have nonmanufacturing affiliates, mainly located in North America and Western Europe. Third, for the N/M type,

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affiliates / parent firms	Manufacturing	Non-manufacturing
Manufacturing	M/M Large, Small → Asia	M/N Large → N. America, EU
Non-manufacturing	N/M Large, Small → Asia GTC → World	N/N GTC → World

Fig. 3C.1 Patterns of sector switching

about half of large and small nonmanufacturing parent firms have manufacturing affiliates, mainly located in East Asia. Last, GTCs have extensive networks of production and wholesale activities all over the world (N/N and N/M types). Thus the pattern of sector switching depends on the size of the parent firm and the location of affiliates. I summarize Kimura's findings in figure 3C.1.

I have two comments. The first is about the relation between parent firm size and sector switching. Figure 3C.1 shows that no small manufacturing firms have nonmanufacturing affiliates. Large manufacturing firms enjoy economies of scale and scope and can afford to take the risk of sector switching by diversifying the risk. Small manufacturing firms cannot take the risk of sector switching. Small manufacturing firms avoid taking the risk by using GTC networks. How does Kimura interpret the finding that small manufacturing firms have manufacturing affiliates but do not have any nonmanufacturing affiliates?

My second comment is related to the location of foreign affiliates. Both manufacturing and nonmanufacturing parent firms have manufacturing affiliates, mainly located in East Asia. In contrast, nonmanufacturing affiliates held by manufacturing parent firms are mainly located in North America and Western Europe. How do we explain the asymmetric location patterns of sector switching?

I will explain the asymmetry from the viewpoint of the fixed and sunk costs of setting up a wholesale and retail network or distribution network in a foreign country. These fixed and sunk costs give firms more incentive to invest in wholesale and retail affiliates in larger markets. Therefore,

manufacturing parent firms hold their own trading affiliates only in large markets such as North America and Western Europe. In small markets, such as in the Asian countries, they do not hold their own trading affiliates and use the wholesale networks of GTCs instead. How does Kimura explain the asymmetry?

Comment Hock Guan Ng

Kimura puts forward a challenging idea to treat the location and internalization decisions of MNEs jointly. It is claimed in the paper that sector switching or nonswitching between manufacturing and nonmanufacturing reveals such joint decision making by Japanese MNEs.

The data presented on the sector switching of Japanese MNEs that are grouped according to the location of their foreign affiliates reveal some interesting patterns. Of note is the observation that the M/N type of FAJFs are pervasive in the United States and Western Europe but are scarce in East Asia, with the exception of Hong Kong and Singapore. This suggests that manufacturing parents find it worthwhile to set up trade affiliates only in economies with strong purchasing power. Perhaps a breakdown according to countries sorted by per capita GNP will confirm this. Similarly, the N/M type of FAJFs are highly represented in East Asia but are hardly found in the United States and Western Europe. This indicates that nonmanufacturing parents seek to locate their manufacturing affiliates in countries with cheap labor, so sorting the locations by labor cost might be useful.

While it is obvious to expect larger parent firms to have more foreign affiliates, the strength of this relation is hard to gauge without any formal statistical test. Regressing the number of foreign affiliates on parent firm size (while controlling for other determinants) would be useful in this respect.

The relation between the number of foreign affiliates and the incidence of sector switching is also not investigated fully. The numbers in the last rows of tables 3.5 and 3.6 give the impression that any such relation is probably weak, but further statistical modeling is needed to confirm this.

In presenting the results of logit regressions in tables 3.9 and 3.10, the author concedes that he is not claiming any causal relation among the variables. The estimation equations as modeled, however, have to be interpreted as showing the determinants of parent firm decisions on whether to have foreign affiliates and whether to switch sectors. As such, it cannot be claimed that "firms with foreign affiliates are likely to have large em-

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ployment size, capital-intensive technology, large foreign sales, and large R&D expenditure." The estimated equation has assumed causality in the opposite direction.

To correctly model a joint decision about switching, firm size, R&D expenditure, and the like, a simultaneous-equation framework is required. Estimating a single-equation model does not allow any meaningful conclusions about the behavior of MNEs that make location and internalization decisions jointly.