

CHAPTER III

THE LARGEST TRANSNATIONAL CORPORATIONS AND CORPORATE STRATEGIES

Although there are many TNCs in the world, FDI is actually concentrated in relatively few of them. In many countries, only a small number of firms account for the bulk of outward FDI (UNCTAD, 1993). This chapter looks at the largest non-financial TNCs in terms of foreign assets, firstly in the world as a whole, then secondly in developing countries and – for the first time – in countries of Central Europe. It next proceeds to examine mergers and acquisitions, an activity in which the largest TNCs are leading actors and which was the driving force behind the growth of FDI in 1998. The chapter then turns to consider another way in which firms expand abroad, a way which is becoming increasingly important: strategic partnering, and examines how such partnerships, as well as M&As, affect the competitive environment of industries.

A. The largest transnational corporations

1. The world's 100 largest TNCs

a. *Highlights*

In 1997, General Electric again held the top position among the world's 100 largest non-financial TNCs (table III.1) ranked by foreign assets. Ford Motor Company regained the second position, pushing Royal Dutch Shell to third. Overall, however, stability predominates within the world's largest TNCs. Only a few changes have occurred among the top 10 largest TNCs: Daimler-Benz has replaced Mitsubishi Corporation and Nestlé has re-entered the top 10 while Mobil Corporation just left it (ranked 11th). Approximately 85 per cent of the top 100 TNCs list is dominated by firms that have been in the top 100 ranking during the past five years. A substantial part of these TNCs originate in the European Union, United States and Japan. For the list as a whole, 12 new entrants and corresponding exits were registered (table III.2). As in recent years preceding, in 1997 too, only two firms among the top 100 largest TNCs, Petroleos de Venezuela (PDVSA) and Daewoo Corporation, originate in developing countries. These two firms have strongly consolidated their position among the world's largest TNCs since 1995.

Table III.1. The world's top 100 TNCs, ranked by foreign assets, 1997
(Billions of dollars and number of employees)

Ranking by		Corporation	Country	Industry ^b	Assets		Sales		Employment		Transnationality index ^a (Per cent)
Foreign assets	Transnationality index ^a				Foreign	Total	Foreign	Total	Foreign	Total	
1	84	General Electric	United States	Electronics	97.4	304.0	24.5	90.8	111 000	276 000	33.1
2	80	Ford Motor Company	United States	Automotive	72.5	275.4	48.0	153.6	174 105	363 892	35.2
3	44	Royal Dutch/Shell Group ^c	Netherlands/United Kingdom	Petroleum expl./ref./distr.	70.0	115.0	69.0	128.0	65 000	105 000	58.9
4	91	General Motors	United States	Automotive	0.0	228.9	51.0	178.2	...	608 000	29.3
5	29	Exxon Corporation	United States	Petroleum expl./ref./distr.	54.6	96.1	104.8	120.3	...	80 000	65.9
6	75	Toyota	Japan	Automotive	41.8	105.0	50.4	88.5	...	159 035	40.0
7	55	IBM	United States	Computers	39.9	81.5	48.9	78.5	134 815	269 465	53.7
8	50	Volkswagen Group	Germany	Automotive	...	57.0	42.7	65.0	133 906	279 892	56.8
9	4	Nestlé SA	Switzerland	Food	31.6	37.7	47.6	48.3	219 442	225 808	93.2
10	71	Daimler-Benz AG *	Germany	Automotive	30.9	76.2	46.1	69.0	74 802	300 068	44.1
11	39	Mobil Corporation	United States	Petroleum expl./ref./distr.	30.4	43.6	36.8	64.3	22 200	42 700	59.7
12	74	FIAT Spa	Italy	Automotive	30.0	69.1	20.2	50.6	94 877	242 322	40.8
13	16	Hoechst AG	Germany	Chemicals	29.0	34.0	24.3	30.0	...	137 374	76.5
14	2	Asea Brown Boveri (ABB)	Switzerland	Electrical equipment	...	29.8	30.4	31.3	200 574	213 057	95.7
15	9	Bayer AG	Germany	Chemicals	...	30.3	...	32.0	...	144 600	82.7
16	48	Elf Aquitaine SA	France	Petroleum expl./ref./distr.	26.7	42.0	25.6	42.3	40 500	83 700	57.6
17	61	Nissan Motor Co., Ltd.	Japan	Automotive	26.5	57.6	27.8	49.7	...	137 201	51.1
18	5	Unilever ^d	Netherlands/United Kingdom	Food	25.6	30.8	44.8	46.4	262 840	269 315	92.4
19	57	Siemens AG	Germany	Electronics	25.6	67.1	40.0	60.6	201 141	386 000	52.1
20	10	Roche Holding AG	Switzerland	Pharmaceuticals	...	37.6	12.7	12.9	41 832	51 643	82.2
21	34	Sony Corporation	Japan	Electronics	...	48.2	40.3	51.1	...	173 000	62.8
22	78	Mitsubishi Corporation	Japan	Diversified	21.9	67.1	41.5	120.4	...	8 401	36.9
23	1	Seagram Company	Canada	Beverages	21.8	22.2	9.4	9.7	...	31 000	97.6
24	32	Honda Motor Co., Ltd.	Japan	Automotive	21.5	36.5	31.5	45.4	...	109 400	64.1
25	38	BMW AG	Germany	Automotive	20.3	31.8	26.4	35.9	52 149	117 624	60.7
26	31	Alcatel Alsthom Cie	France	Electronics	20.3	41.9	25.9	31.0	...	189 549	64.8
27	8	Philips Electronics N.V.	Netherlands	Electronics	20.1	25.5	33.0	33.5	206 236	252 268	86.4
28	21	News Corporation	Australia	Media	20.0	30.7	9.5	10.7	...	28 220	72.8
29	59	Philip Morris	United States	Food/Tobacco	19.4	55.9	32.1	56.1	...	152 000	51.1
30	42	British Petroleum (BP) *	United Kingdom	Petroleum expl./ref./distr.	19.2	32.6	36.5	71.3	37 600	55 650	59.2
31	58	Hewlett-Packard	United States	Electronics	18.5	31.7	23.8	42.9	...	121 900	51.1
32	20	Total SA	France	Petroleum expl./ref./distr.	...	25.2	23.4	31.9	...	54 391	73.2
33	68	Renault SA	France	Automotive	18.3	34.9	18.5	35.6	45 860	141 315	45.7
34	18	Cable and Wireless Plc	United Kingdom	Telecommunication	...	21.6	7.8	11.5	33 740	46 550	74.7
35	79	Mitsui & Co., Ltd.	Japan	Diversified	17.9	55.5	52.3	132.6	...	10 994	35.8
36	30	Rhone-Poulenc SA	France	Chemicals/pharmaceuticals	17.8	27.5	11.5	15.0	...	68 377	65.7
37	56	Viag AG	Germany	Diversified	17.4	32.7	15.9	27.6	...	95 561	53.3
38	41	BASF AG	Germany	Chemicals	...	26.8	23.9	32.2	...	104 979	59.5
39	82	Itochu Corporation	Japan	Trading	16.7	56.8	48.7	117.7	2 600	8 878	33.3
40	76	Nissho Iwai Corporation	Japan	Trading	16.6	40.4	32.3	75.5	2 068	6 398	38.8

Table III.1. The world's top 100 TNCs, ranked by foreign assets, 1997 (continued)

(Billions of dollars and number of employees)

Ranking by		Corporation	Country	Industry ^b	Assets		Sales		Employment		Transnationality index ^a (Per cent)
Foreign assets	Transnationality index ^a				Foreign	Total	Foreign	Total	Foreign	Total	
41	72	Du Pont (E.I.)	United States	Chemicals	16.6	42.7	20.4	39.7	...	98 000	41.8
42	25	Diageo Plc	United Kingdom	Beverages	...	29.7	17.6	22.6	63 761	79 161	71.0
43	19	Novartis	Switzerland	Pharmaceuticals/chemicals	16.0	36.7	21.0	21.5	71 403	87 239	74.4
44	94	Sumitomo Corporation	Japan	Trading/machinery	15.4	43.0	15.1	95.2	...	8 694	25.9
45	88	ENI Group	Italy	Petroleum expl./ref./distr.	14.6	49.4	12.5	34.3	23 239	80 178	31.7
46	86	Chevron Corporation	United States	Petroleum expl./ref./distr.	14.3	35.5	13.8	40.6	8 610	39 362	32.1
47	52	Dow Chemical	United States	Chemicals	14.3	23.6	11.3	20.0	...	42 861	56.4
48	69	Texaco Incorporated	United States	Petroleum expl./ref./distr.	14.1	29.6	22.3	45.2	...	29 313	45.3
49	62	BCE Inc.	Canada	Telecommunication	13.6	28.2	15.5	23.2	...	122 000	50.9
50	65	Xerox Corporation	United States	Photo equipment	13.5	27.7	9.0	18.2	...	91 400	48.7
51	45	Saint-Gobain SA	France	Industrial material	...	22.7	9.5	18.3	...	107 168	58.7
52	3	Thomson Corporation	Canada	Printing and publishing	13.0	13.3	8.3	8.8	46 300	49 800	95.1
53	77	Peugeot SA	France	Automotive	12.9	30.8	16.1	31.2	32 100	140 200	38.7
54	26	Montedison	Italy	Chemicals/agribusiness	...	18.1	9.7	13.9	18 354	27 135	68.5
55	83	Matsushita Electric	Japan	Electronics	12.2	62.7	23.6	59.7	...	275 962	33.2
56	99	Hitachi, Ltd.	Japan	Electronics	12.0	76.6	19.8	63.8	58 000	331 494	21.4
57	63	Motorola, Inc.	United States	Electronics	11.7	27.3	17.4	29.8	70 000	150 000	49.3
58	90	Marubeni Corporation	Japan	Trading	11.6	55.9	38.5	103.3	2 827	8 868	30.0
59	85	Fujitsu Limited	Japan	Electronics	11.2	38.8	14.1	37.7	...	180 000	32.6
60	17	Imperial Chemical Industries (ICI) Plc	United Kingdom	Chemicals	10.6	15.2	14.7	18.1	51 400	69 500	75.0
61	53	Daewoo Corporation	Korea, Republic of	Diversified	10.5	22.9	7.3	18.8	11 403	14 471	54.5
62	92	Veba Group	Germany	Diversified	10.4	45.0	16.0	46.2	32 178	129 960	27.5
63	40	Volvo AB	Sweden	Automotive	...	20.7	21.5	24.1	29 250	72 900	59.7
64	46	RTZ Cra Plc ^e	United Kingdom/Australia	Mining	10.2	16.7	5.8	9.4	27 297	50 507	58.6
65	23	Lafarge SA	France	Construction	10.1	16.0	5.1	7.0	28 936	37 097	71.3
66	66	Procter & Gamble	United States	Chemicals/cosmetics	10.0	31.0	17.9	37.2	...	110 000	47.7
67	49	McDonald's Corporation	United States	Restaurants	10.0	18.2	6.8	11.4	...	267 000	57.2
68	36	Ericsson LM	Sweden	Electronics	10.0	18.2	15.4	20.7	55 414	100 774	61.3
69	93	AMOCO Corporation *	United States	Petroleum expl./ref./distr.	9.9	32.5	8.0	31.9	...	43 451	25.9
70	64	Johnson & Johnson	United States	Chemicals/pharmaceuticals	9.5	21.1	10.9	22.6	...	90 500	48.8
71	81	Mitsubishi Motors	Japan	Automotive	9.1	25.1	10.9	28.3	19 600	75 300	33.7
72	14	Glaxo Wellcome Plc	United Kingdom	Pharmaceuticals	...	13.6	12.1	13.1	...	53 068	78.2
73	54	Robert Bosch GmbH	Germany	Automotive	9.0	19.5	17.7	27.0	89 071	179 719	53.8
74	70	Petroleos de Venezuela S.A.	Venezuela	Petroleum expl./ref./distr.	9.0	47.1	32.5	34.8	11 849	56 592	44.5
75	7	Electrolux AB	Sweden	Electrical appliances	...	10.1	13.6	14.3	...	103 000	89.4
76	43	Michelin	France	Rubber and plastics	...	13.6	11.3	13.3	...	123 254	59.0
77	37	British American Tobacco Plc	United Kingdom	Food/Tobacco	8.1	84.8	26.2	34.5	115 000	117 339	61.1
78	33	Crown Cork & Seal	United States	Packaging	8.1	12.3	5.1	8.5	...	40 985	62.9
79	87	Merck & Co., Inc.	United States	Drugs, cosmetics & health	8.1	25.7	6.5	23.6	20 000	53 800	31.9

Table III.1. The world's top 100 TNCs, ranked by foreign assets, 1997 (concluded)

(Billions of dollars and number of employees)

Ranking by		Corporation	Country	Industry ^b	Assets		Sales		Employment		Transnationality index ^a (Per cent)
Foreign assets	Transnationality index ^a				Foreign	Total	Foreign	Total	Foreign	Total	
80	95	Générale des Eaux	France	Diversified/utility	...	43.1	9.2	28.6	...	193 300	25.7
81	98	AT&T Corp.	United States	Telecomm./electronics	...	61.1	...	51.3	...	128 000	21.9
82	6	Solvay SA	Belgium	Chemicals/pharmaceuticals	...	8.5	8.0	8.4	...	34 445	92.3
83	15	L' Air Liquide Group	France	Chemicals	...	9.3	4.7	6.6	...	27 600	78.1
84	100	GTE Corporation	United States	Telecommunication	...	42.1	...	23.3	...	114 000	15.5
85	89	International Paper	United States	Paper	7.8	26.8	5.8	20.1	28 000	82 000	30.7
86	67	Mannesmann AG	Germany	Engineering/telecomm.	...	16.4	12.6	22.5	41 290	120 859	45.7
87	12	Akzo Nobel N.V.	Netherlands	Chemicals	...	10.6	11.4	12.3	51 300	68 900	79.5
88	47	Danone Groupe SA	France	Food	7.5	16.5	8.8	14.8	...	80 631	58.0
89	11	Holderbank Financiere Glarus AG	Switzerland	Construction materials	7.5	12.0	6.9	7.8	37 302	40 779	80.8
90	13	BTR Plc	United Kingdom	Plastics and foam	7.5	12.7	11.5	12.3	90 878	110 498	78.2
91	22	Royal Ahold NV	Netherlands	Retailers	7.4	9.9	18.2	26.6	148 872	209 591	71.5
92	97	Atlantic Richfield	United States	Petroleum expl./ref./distr.	...	25.3	3.5	18.6	4 400	19 600	23.3
93	51	Bridgestone	Japan	Rubber and plastics	7.2	13.3	9.8	16.7	...	13 049	56.4
94	24	Smithkline Beecham Plc.	United Kingdom	Drugs, cosmetics & health	7.1	13.4	11.5	12.9	...	55 400	71.1
95	35	LVMH SA	France	Diversified	7.1	16.3	6.5	8.0	...	33 511	62.1
96	60	Canon Electronics Inc.	Japan	Electronics	7.0	22.0	14.6	21.2	41 211	78 767	51.1
97	73	American Home Products	United States	Pharmaceuticals	6.9	20.8	6.1	14.2	...	60 523	41.3
98	96	Toshiba Corporation	Japan	Electronics	6.8	44.9	14.6	41.3	...	186 000	25.2
99	28	Gillette Company	United States	Drugs, cosmetics & health	6.8	10.9	6.4	10.1	31 600	44 000	65.9
100	27	Pharmacia & Upjohn, Inc.	United States	Pharmaceuticals	6.8	10.4	4.6	6.6	...	30 000	66.6

Source: UNCTAD/Erasmus University database.

^a The index of transnationality is calculated as the average of three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

^b Industry classification for companies follows the United States Standard Industrial Classification as used by the United States Securities and Exchange Commission (SEC).

^c Foreign assets, sales and employment are outside Europe.

^d Foreign assets, sales and employment are outside the United Kingdom and the Netherlands.

^e Part of the dual listed companies: Rio Tinto Lim. and Rio Tinto Plc, formerly known as RTZ CRA. Foreign assets, sales and employment are outside the United Kingdom and Australia.

... Data on foreign assets, foreign sales and foreign employment were not made available for the purpose of this study. In case of non-availability, they are estimated using secondary sources of information or on the basis of the ratio of foreign to total assets; foreign to total sales and foreign to total employment.

* Mergers between Daimler-Benz and Chrysler, resulting in Daimler-Chrysler and between British Petroleum and Amoco, resulting in BP-Amoco, are not documented yet as they took place in 1998.

Note: The list includes non-financial TNCs only. In some companies, foreign investors may hold a minority share of more than 10 per cent.

Here are the highlights:

- Foreign assets.** Between 1996 and 1997, the total amount of foreign assets held by the 100 largest TNCs (\$1.8 trillion) did not change much. They registered a small decrease of 0.8 per cent (table III.3), largely explained by the decrease of foreign assets of some European companies, e.g. British American Tobacco (formerly known as BAT Industries Plc), Holderbank Financiere Glarus, Novartis, Philips Electronics and Royal Dutch Shell. Contrary to this decline is the expansion of such North American and Japanese firms as Seagram Company, Hewlett-Packard, Honda Motor, Sumitomo Corporation, Motorola and The News Corporation, all experiencing a rise in foreign assets of between 20 and 38 per cent.
- Foreign sales.** Total foreign sales of the largest TNCs amounted to \$ 2.1 trillion and remained relatively unchanged between 1997 and 1996, registering a marginal decline of 0.7 per cent (table III.3). The largest increases in foreign sales were realized by TNCs from Japan: Honda Motor, Itochu Corporation, Sony, Fujitsu Limited and Mitsubishi Motors realized an increase in foreign sales of between 16 and 23 per cent.
- Foreign employment.** The total number of foreign employees of the largest TNCs (estimated at six million) increased by just 0.7 per cent, while total employment

Table III.3. Snapshot of the world's 100 largest TNCs, 1997

(Billions of dollars, number of employees and percentage)

Variable	1997	1996	Change 1997 vs. 1996
Assets			
Foreign	1 793	1 808	-0.8
Total	4 212	4 200	0.3
Sales			
Foreign	2 133	2 149	-0.7
Total	3 984	4 128	-3.5
Employment			
Foreign	5 980 740	5 939 470	0.7
Total	11 621 032	11 796 300	-1.5
Average index of transnationality			
	55.4	54.8	0.6 ^a

Source: UNCTAD/Erasmus University database.

^a The change between 1996 and 1997 is expressed in percentage points.

Table III.2(a). Newcomers to the world's top 100 TNCs, ranked by foreign assets, 1997

Ranked by foreign assets	Corporation	Country
37	Viag AG	Germany
42	Diageo Plc ^a	United Kingdom
53	Peugeot SA	France
60	Imperial Chemical Industries (ICI)	United Kingdom
62	Veba Group	Germany
65	Lafarge SA	France
79	Merck & Co., Inc.	United States
83	L'Air Liquide Group	France
91	Royal Ahold N.V.	Netherlands
94	Smithkline Beecham Plc.	United Kingdom
95	LVMH	France
99	Gillette Company	United States

Source: UNCTAD/Erasmus University database.

^a The merger of Guinness PLC and Grand Metropolitan PLC resulted in the new TNC Diageo.

Table III.2(b). Departures from the world's top 100^a TNCs, ranked by foreign assets, 1997

Ranked by foreign assets	Corporation	Country
59	Broken Hill (BHP)	Australia
69	Grand Metropolitan ^b	United Kingdom
75	Hanson PLC.	United Kingdom
78	Nippon Steel	Japan
80	Chrysler Corporation	United States
82	Coca-Cola	United States
85	Northern Telecom	Canada
86	Petrofina SA	Belgium
88	Pepsico, Inc.	United States
92	Kvaerner ASA	Norway
99	Eridania Beghin-Say SA	France
100	Société au Bon Marché	France

Source: UNCTAD/Erasmus University database.

^a This includes companies that could not be considered in 1998 because of the late arrival of a response to UNCTAD's questionnaire.

^b The merger of Guinness PLC and Grand Metropolitan PLC resulted in the new TNC Diageo.

declined again in 1997 (table III.3). Hence, the trend observed during the past eight years since the list was published – declining overall employment and rising foreign employment – continued in 1997. Companies expanding the number of foreign employees operating mainly in the automobile or telecommunications industry: Daimler-Benz, Volvo, Volkswagen Group, Ericsson, Fiat, Motorola and Siemens. General Electric increased its foreign employment by almost 32 per cent. As might be expected, companies demonstrating a decline in foreign assets (see above) have also decreased the number of

foreign employees. British American Tobacco, Novartis and Royal Dutch Shell decreased their foreign employment by between 18 and 22 per cent. Chevron showed a significant decline in foreign employment of close to 30 per cent.

Country and industry composition:

- The origin (or nationality) of the top 100 TNCs remains one of the stable factors in the ranking. No less than 89 per cent of the companies were headquartered in the Triad (table III.4). Since 1990, this percentage has always been between 85 and 87 per cent. Interestingly, contrary to what has been observed regularly between 1991 and 1996, the number of companies from the European Union increased from 41 to 45 between 1996 and 1997; this, however, is still below the number registered in 1990 (48). The shares of these firms in total foreign assets and foreign employment of the top 100 TNCs remained virtually unchanged, while their shares in sales registered a modest increase. The number of entrants from Japan and the United States remained almost stable.

Table III.4. Country breakdown of the world's top 100 TNCs, by transnationality index, foreign assets, foreign sales and foreign employment, 1996 and 1997
(Percentage)

Country	Average TNI		Foreign assets		Foreign sales		Foreign employment		Number of entries	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
European Union	64.8	62.5	41.0	40.9	40.1	41.8	51.2	51.4	41	45
France	59.7	58.4	9.2	9.8	7.6	8.3	10.2	10.1	11	13
United Kingdom ^a	71.2	70.8	11.4	11.2	11.7	12.1	13.6	13.8	10	11
Germany	56.9	55.7	10.9	12.7	11.3	13.8	13.4	15.0	9	11
Sweden	78.9	70.1	3.5	1.6	4.0	2.4	6.4	2.9	4	3
Italy	46.7	47.0	3.4	3.2	2.1	2.0	2.3	2.3	3	3
Netherlands ^a	77.9	77.7	7.8	7.3	7.7	8.3	10.5	12.3	4	5
Belgium	81.9	92.3	0.8	0.4	1.1	0.4	0.6	0.5	2	1
North America	47.8	47.9	35.0	35.1	29.7	27.5	29.5	27.7	32	30
United States	43.2	44.2	32.2	32.4	27.6	26.0	26.5	25.6	28	27
Canada	79.9	81.2	2.8	2.7	2.1	1.6	3.0	2.1	4	3
Japan	36.2	39.5	15.8	15.7	23.1	22.8	10.3	10.7	18	17
Remaining countries ^b	71.3	74.8	8.2	8.3	7.1	7.9	9.0	10.2	10	8
Total of all 100 listed TNCs	54.8	55.4	100	100	100	100	100	100	100	100

Source: UNCTAD/Erasmus University database.

^a Due to dual nationality, Royal Dutch Shell and Unilever are counted as an entry for both the United Kingdom and the Netherlands. In the aggregate for the European Union they are counted only once. For 1996, RTZ CRA is counted as an entry for both the United Kingdom and Australia.

^b Remaining countries are Australia, New Zealand and Norway (only in 1996), Republic of Korea, Switzerland and Venezuela.

- As in previous years, the list is dominated by a few industries. In 1997, about two-thirds of the companies were from four industries – automotive, electronics and electrical equipment, petroleum, as well as the chemicals and pharmaceuticals industry. The latter, with more than 20 per cent of the entries, clearly now dominates the group (table III.5).

b. Degree of transnationality

The index of transnationality compiled by UNCTAD since 1990 for the largest firms illustrates some aspects of the depth of a TNC's involvement abroad by comparing a firm's activities abroad and those in its home economy. Being a composite of three ratios – foreign assets/total assets, foreign sales/total sales, and foreign employment/total employment – it captures the importance of foreign assets, sales and employment in a firm's overall activities.¹

Since 1990, the average transnationality index of the top 100 TNCs has increased from 51 per cent to 55 per cent (figure III.1), largely a result of the growing internationalization of assets especially between 1993 and 1996. The increase in the index was, however, much smaller in 1997 than in the three previous years, indicating a slowing down of the transnationalization of the companies in the list and largely reflecting a decline in the ratio of foreign to total assets of a number of these companies.

Figure III.1. Average transnationality index of the world's 100 largest TNCs, 1990-1997

Table III.5. Industry composition of top 100 TNCs, 1996 and 1997

(Number of entries and average TNI)

Industry	1996		1997
	Number of entries	Average TNI	Average TNI
Chemicals and pharmaceuticals ^a	16	21	65.9
Electronics/electrical equipment	17	18	55.9
Automotive	14	14	46.7
Petroleum refining/distribution and mining	14	13	48.9
Food & beverages ^b	12	9	72.5
Diversified	4	7	42.3
Telecommunication/ utilities	5	4	40.7
Trading	4	3	34.0
Machinery & engineering	2	2	35.8
Metals	3	-	-
Construction	3	3	68.6
Media	2	1	72.8
Other	4	5	57.4
Total/average	100	100	55.4 ^c

Source: UNCTAD/Erasmus database

^a Chemicals also includes Montedison

^b Food and beverages also includes British American Tobacco, Phillip Morris and McDonalds.

^c Average transnationality index for the world's largest 100 TNCs.

Source: UNCTAD/Erasmus University database.

particularly prominently in the group of the 10 most transnationalized TNCs, which does not include any TNC from the United States and Japan. This reflects the wider phenomenon that TNCs originating in small domestic markets have on average a higher degree of transnationality (UNCTAD, 1998, pp. 45-46). For instance, firms from countries such as Canada, Netherlands

The list of the leading 10 corporations ranked by degree of transnationality changed very little as compared to last year (table III.6). The list is again led by the Canadian beverage and entertainment company Seagram. Holderbank Financiere Glarus of Switzerland and Michelin of France departed from the list of the 10 most transnationalized TNCs and Philips Electronics and Bayer AG – from, respectively, the Netherlands and Germany – entered it. TNCs originating in small industrial countries figure

Table III.6. The world's top TNCs in terms of degree of transnationality, 1997

Ranking by Transnationality index ^a	Foreign assets	Corporation	Country	Industry	Transnationality index ^a (Per cent)
1	23	Seagram Company	Canada	Beverages	97.6
2	14	Asea Brown Boveri (ABB)	Switzerland	Electrical equipment	95.7
3	52	Thomson Corporation	Canada	Printing and publishing	95.1
4	9	Nestlé SA	Switzerland	Food	93.2
5	18	Unilever N.V.	Netherlands	Food	92.4
6	82	Solvay SA	Belgium	Chemicals/pharmaceuticals	92.3
7	75	Electrolux AB	Sweden	Electrical appliances	89.4
8	27	Philips Electronics N.V.	Netherlands	Electronics	86.4
9	15	Bayer AG	Germany	Chemicals	82.7
10	20	Roche Holding AG	Switzerland	Pharmaceuticals	82.2

Source: UNCTAD/Erasmus University database.

and Belgium have averages ranging between 78 and 92 per cent (table III.4), firms from the European Union as a whole have an average transnationality index which, though slightly lower than in 1996, is still much above the average for the whole list (63 per cent against 55 per cent).

Media, food and beverages, construction, chemicals and pharmaceuticals and electronics and electrical equipments are the industries with the highest level of transnationality (table III.5).

c. Weight and economic significance of the top 100 largest TNCs

UNCTAD's list of the world's largest TNCs is one of the many rankings published each year on major companies in the world. Among these, the *Fortune Global 500* list is the oldest and a particularly well known listing.² The top 100 TNCs list is unique in that it ranks firms by foreign assets. A comparison between the two lists can be made in two ways: first, with the complete *Fortune Global 500* (financial and non-financial corporations); and then with the sub-set of the Fortune list composed of non-financial corporations only (371 firms in 1997) (table III.7). This sub-set is more comparable with the top 100 TNCs as the UNCTAD list consists of non-financial firms only. Of the biggest 100 non-financial corporations of the world, 56 are also among the list of top 100 TNCs. This means that more than half of the 100 biggest corporations in the world, in terms of revenues, are also the largest in terms of foreign assets.

An indication of the significance of the top 100 TNCs of the UNCTAD list can be obtained by comparing various aspects of these firms with those of the *Fortune Global 500* largest corporations: the total sales and employment of the top 100 TNCs are about one third of the sales and employment, respectively, of the *Fortune Global 500* (financial and non-financial).³ Comparing with the non-financial corporations on the *Fortune Global 500*, the importance of the top 100 TNCs in terms of assets and sales is still more striking: their assets and sales are equivalent to about 45 per cent of the total assets and sales of the non-financial corporations of the *Fortune 500* list (table III.7). In terms of employment, the ratio is 36 per cent. The top 100 TNCs hence represent a group of transnationally operating corporations with substantial economic weight.

It is also interesting to compare the top 100 TNCs to the universe of TNCs, in terms of sales, assets and employment. Indeed, while these are only 100 out of a universe of about 60,000 TNCs, the shares of their foreign assets, sales, and employment in the foreign assets, sales and employment of the TNC universe are quite significant: they are estimated to be at about 15, 22, and 19 per cent, respectively.⁴

Finally, an indication of the significance of the top 100 TNCs in the world economy can be obtained by examining their contribution to world GDP. No data are readily available on the value added of these corporations. However, assuming that value added amounts to between 30 and 50 per cent of total sales, the largest 100 TNCs in the world account for between four and seven per cent of world GDP.⁵

Table III.7. Comparison of the top 100 TNCs with Fortune Global 500, 1997^a
(Billions of dollars, thousands of employees and percentage)

Variable	Top 100 TNCs A	Fortune Global 500 ^a B	Fortune Global 500 Non-Financial ^b C	Ratio (%) (A/B)	Ratio (%) (A/C)
Total assets	4 212	34 064	9 278	12.4	45.4
Total revenues/sales	3 984	11 454	8 794	34.8	45.3
Total employees	11 621	36 925	32185	31.5	36.1

Source: UNCTAD/Erasmus University database.

^a Fortune Global 500 as published in *Fortune*, vol. 15 (August 1998), including financial as well as non-financial corporations.

^b Fortune Global 500 excluding the following: banks, insurance companies, securities and diversified financial companies.

2. The 50 largest TNCs from developing countries

The 1997 list of the top 50 non-financial TNCs from developing countries, ranked by foreign assets, once again features some of the best known enterprises from Africa, Asia and Latin America (table III.8). As in previous years, Daewoo Corporation (Republic of Korea) tops the list with \$10.5 billion of foreign assets. Right behind is Petroleos de Venezuela, S.A. (Venezuela). These two corporations in this list also figure among the world's largest 100 TNCs. The next three largest developing-country TNCs have foreign assets ranging between \$5.6 and \$6.7 billion, not too far from those of the lowest-ranked TNCs in the top 100 list (with foreign assets in the range of \$6.8 billion). In general, however, the size (in terms of foreign assets) of the biggest TNCs from developing countries is relatively small, their median foreign asset holdings being some \$1.4 billion – far below the asset level of the first six companies in the top 50 list (\$5 to \$10.5 billion) and even further below the median of the top 100 group (\$13.3 billion). In terms of the degree of transnationality, the top five companies in the list of the largest TNCs from developing countries are from Asia⁶ (table III.9).

The mobility of firms entering the list and departing from it stabilized in 1997, with seven new entrants (and corresponding exits) compared to 12 in 1996. The seven newcomer companies were China Harbor Engineering Company and China National Foreign Trade Transportation Corp. (ranked 37 and 40 respectively) from the construction and transportation industries in China; Enersis and Gener (ranked 24 and 29 respectively) from Chile's electric services sector; Perez Companc S.A. from Argentina's energy sector (ranked 34 in the list), food and beverage company Want Want Holdings Ltd. from Singapore (ranked 38), and for the first time, a TNC from Saudi Arabia's chemical sector, SABIC-Saudi Basic Industries Corporation (ranked 47). On the other hand, not included in the list this year were Bavaria S.A. (Chile), Cathay Pacific Airways, (Hong Kong, China). Compania de Telecomunicaciones de Chile S.A. (Chile), Dairy Farm International (Hong Kong, China), Malaysian Airlines Berhad (Malaysia), Panamerican Beverages (Mexico) and Plate Glass and Shatterprufe Ind. (South Africa). As with last year's list, the mobility of firms within the list – firms changing ranking within the list – was fairly high in 1997.

A snapshot of the 50 largest TNCs from developing countries (table III.10) indicates, as in the case of the top 100, a decrease in average transnationality index of about one percentage point compared with a growth of three percentage points the year before. Following years of significant increases in foreign assets and sales over 1993-1996, growth in these respects came to a halt in 1997. Interestingly, total sales fell too, by a significant amount. Foreign employment declined substantially, while total employment was resilient. The slowdown in transnationalization in 1997 could in part be attributed to the negative impact of the financial crisis in Asia on the activity of TNCs from that region. It remains to be seen whether this is just a pause in the transnationalization process in developing countries.

Indeed, in spite of the dampening of the transnationalization process noted above, it remains true that, over the five-year period 1993-1997, the group of the top 50 TNCs from developing countries has become overall more transnationalized (figure III.2). The trend-lines for the ratios relating to transnationalization (foreign to total assets, foreign to total sales and foreign to total employment ratios) show marked increases over the period 1993-1996, with, however, a slowing down in their growth rates already starting in 1996.

Since it was first published in 1995, the list has been dominated by firms from a small group of economies: Hong Kong, China; Republic of Korea; China; Venezuela; Mexico and Brazil (in descending order: figure III.3), altogether accounting for about 80 per cent of the foreign assets of the group of top 50. By far the largest number of leading firms in the list were from economies in Asia, with firms from Hong Kong, China accounting for an estimated \$26 billion in foreign assets, followed by the Republic of Korea (\$21 billion). For the first time since its publication, the top 50 list includes a major TNC from Saudi Arabia: SABIC-Saudi Basic Industries Corp. with \$536 million of foreign assets. The three African TNCs to make the 1997 list were Sappi Limited (\$3.8 billion in foreign assets), Barlow Limited and South African Breweries plc.,⁷ both with estimated foreign assets between \$600 and \$700 million.

Table III.8. The top 50 TNCs from developing countries, ranked by foreign assets, 1997
(Millions of dollars and number of employees)

Ranking by		Corporation	Country	Industry ^b	Assets		Sales		Employment		Transnationality index ^a (Per cent)
Foreign assets	Transnationality index ^a				Foreign	Total	Foreign	Total	Foreign	Total	
1	10	Daewoo Corporation	Republic of Korea	Diversified	10 532	22 946	7 295	18 802	11 403	14 471	54.5
2	12	Petroleos de Venezuela S.A.	Venezuela	Petroleum expl./ref./distr.	9 007	47 148	32 502	34 801	11 849	56 592	44.5
3	4	Jardine Matheson Holdings Limited ^c	Hong Kong, China/ Bermuda	Diversified	6 652	11 970	7 983	11 522	..	175 000	75.0
4	5	First Pacific Company Limited	Hong Kong, China	Other	6 295	11 386	7 416	8 308	40 400	51 270	74.4
5	9	Cemex, S.A.	Mexico	Construction	5 627	10 231	2 235	3 788	10 690	19 174	56.6
6	17	Hutchison Whampoa, Limited	Hong Kong, China	Diversified	4 978	15 086	1 899	5 754	17 013	37 100	37.3
7	7	Sappi Limited	South Africa d	Other	3 830	4 953	2 419	3 557	9 492	23 458	61.9
8	29	China State Construction Engineering Corporation	China	Construction	3 730	7 230	1 530	5 420	5 496	258 195	27.3
9	14	China National Chemicals Import and Export Corporation	China	Other	3 460	5 810	11 240	17 880	0 625	8 905	43.1
10	23	LG Electronics Incorporated	Republic of Korea	Electronics and electrical equipment	3 158	15 431	5 175	17 640	32 532	80 370	30.1
11	35	YPF Sociedad Anonima	Argentina	Petroleum expl./ref./distr.	3 061	12 761	0 911	6 144	1 908	10 002	19.3
12	50	Petroleo Brasileiro S.A. - Petrobras	Brazil	Petroleum expl./ref./distr.	..	34 233	..	27 946	..	41 173	4.4
13	39	Sunkyong Group	Republic of Korea	Diversified	2 561	24 572	9 960	31 692	2 600	32 169	16.6
14	15	Hyundai Engineering & Construction Co.	Republic of Korea	Construction	..	8 063	..	5 405	..	30 981	37.6
15	43	New World Development Co. Limited	Hong Kong, China	Construction	2 060	14 030	0 800	2 580	..	14 840	15.3
16	3	Guangdong Investment Limited	Hong Kong, China	Diversified	1 898	3 053	0 676	0 924	15 080	16 500	75.6
17	13	Citic Pacific Limited	Hong Kong, China	Diversified	1 834	8 733	0 912	2 154	8 262	11 800	44.5
18	30	PETRONAS - Petrolia Nasional Berhad	Malaysia	Petroleum expl./ref./distr.	..	20 990	..	10 055	..	13 000	25.9
19	41	Shougang Corporation	China	Other	1 600	6 640	1 040	4 390	..	218 158	16.2
20	6	Fraser & Neave Limited	Singapore	Food and beverages	1 578	4 273	1 230	1 912	11 461	13 131	62.8
21	40	Samsung Electronics Co. Limited	Republic of Korea	Electronics and electrical equipment	..	16 301	..	13 050	..	57 817	16.3
22	16	Singapore Airlines Limited	Singapore	Transportation	1 546	9 111	3 454	4 727	2 957	13 258	37.4
23	21	Companhia Vale do Rio Doce	Brazil	Transportation	1 509	14 332	3 320	4 744	7 432	42 456	32.7
24	25	Enersis S.A.	Chile	Electrical services	..	14 281	..	0 890	..	14 366	28.2
25	8	Acer Incorporated	Taiwan, Province of China	Diversified	1 376	2 946	3 204	4 217	6 792	12 342	59.2
26	2	Orient Overseas (International) Limited	Hong Kong, China	Transportation	1 341	1 872	1 882	1 896	3 443	4 062	85.2
27	46	Companhia Cervejaria Brahma	Brazil	Food and beverages	..	3 854	0 106	2 490	..	10 955	12.5
28	28	China National Metals and Minerals Import and Export Corp.	China	Other	1 020	2 438	1 221	4 458	0 171	1 296	27.5
29	18	Gener S.A.	Chile	Electrical services	..	3 123	..	0 612	..	0 752	36.2
30	31	San Miguel Corporation	Philippines	Food and beverages	1 009	3 020	0 287	1 964	4 687	18 444	24.5

/...

Table III.8. The top 50 TNCs from developing countries, ranked by foreign assets, 1997 (concluded)

(Millions of dollars and number of employees)

Ranking by		Corporation	Country	Industry ^b	Assets		Sales		Employment		Transnationality
Foreign assets	Transnationality index ^a				Foreign	Total	Foreign	Total	Foreign	Total	index ^a (Per cent)
31	26	Tatung Co.	Taiwan, Province of China	Electronics and electrical equipment	..	3 850	..	2 155	..	19 570	28.1
32	48	Reliance Industries Limited	India	Chemicals and pharmaceuticals	..	6 175	..	1 982	..	17 375	7.7
33	38	Keppel Corporation Limited	Singapore	Diversified	889	4 490	0 346	2 078	1 700	11 300	17.2
34	45	Perez Companc S.A.	Argentina	Petroleum expl./ref./distr.	875	4 450	0 191	1 370	0 527	4 446	15.2
35	36	Empresas CMPC S.A.	Chile	Other	799	4 531	0 257	1 204	1 495	10 345	17.8
36	49	Compania de Petroleos de Chile (COPEC)	Chile	Diversified	791	6 368	0 138	3 147	0 493	8 277	7.6
37	37	China Harbor Engineering Company	China	Construction	770	2 210	0 240	1 530	1 889	76 460	17.7
38	1	Want Want Holdings, Limited	Singapore	Food and beverages	757	0 779	0 395	0 409	9 390	9 400	97.9
39	33	Sime Darby Berhad	Malaysia	Diversified	754	15 340	2 314	5 294	7 917	36 513	23.4
40	22	China National Foreign Trade Transportation Corp.	China	Transportation	740	2 160	0 440	0 750	0 488	57 368	31.3
41	32	South African Breweries plc e	South Africa d	Food and beverages	..	3 757	1 923	5 244	8 579	47 902	24.3
42	20	Hong Kong and Shanghai Hotels Limited	Hong Kong, China	Tourism and hotel	654	3 242	0 085	0 356	3 247	6 008	32.7
43	24	Barlow Limited	South Africa d	Diversified	..	2 597	..	4 125	..	27 804	28.9
44	19	Dong-Ah Construction Ind. Co. Limited	Republic of Korea	Construction	..	3 926	..	1 785	..	6 403	34.8
45	34	Souza Cruz S.A.	Brazil	Diversified	..	2 157	0 620	1 692	..	8 250	21.8
46	11	Gruma S.A. de C.V.	Mexico	Food and beverages	565	1 696	0 736	1 344	6 676	12 384	47.3
47	47	SABIC - Saudi Basic Industries Corp.	Saudi Arabia	Chemicals and pharmaceuticals	536	18 187	2 011	6 406	0 300	14 238	12.1
48	42	Sadia S.A. Industria e Comercio	Brazil	Food and beverages	..	1 799	..	2 569	..	25 375	16.2
49	44	Vitro S.A. de C.V.	Mexico	Other	481	3 290	0 458	2 474	4 203	33 136	15.3
50	27	Wing On International Holdings Limited	Hong Kong, China	Diversified	461	1 406	0 065	0 369	1 066	3 165	28.0

Source: UNCTAD, FDI/TNC database.

^a The transnationality index (TI) is calculated as the average of the sum of three ratios for each TNC: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

^b Industry classification for companies follows the United States Standard Industrial Classification which is used by the United States Securities and Exchange Commission (SEC).

^c The company is incorporated in Bermuda and the group is managed from Hong Kong, China.

^d Within the context of this list, South Africa is treated as a developing country.

^e The company headquarters have recently relocated to the United Kingdom.

.. Data on foreign assets, foreign sales or foreign employment were not made available for the purpose of this study. In case of non availability, they are estimated using secondary sources of information on the basis of the ratio of foreign to total assets, foreign to total sales and foreign to total employment.

Note: The list includes non-financial TNCs only. In some companies, foreign investors may hold a minority share of more than 10 per cent.

Table III.9 The top five TNCs from developing countries in terms of degree of transnationality, 1997

Ranking by		Company	Country	Industry	1997
Transnationality index	Foreign assets				Transnationality index (per cent)
1	38	Want Want Holdings, Limited	Singapore	Food and beverages	97.9
2	26	Orient Overseas (International) Limited	Hong Kong, China	Transportation	85.2
3	16	Guangdong Investment Limited	Hong Kong, China	Diversified	75.6
4	3	Jardine Matheson Holdings, Limited	Hong Kong, China/Bermuda	Diversified	75.0
5	4	First Pacific Company Limited	Hong Kong, China	Other	74.4

Source: UNCTAD, FDI/TNC database.

Table III.10 Snapshot of the top 50 TNCs from developing countries, 1997
(Billions of dollars, number of employees and percentage)

Variable	1997	1996	Change 1997 vs. 1996 ^a
Assets			
Foreign	105	106	-0.8
Total	453	457	-1.0
Sales			
Foreign	136	136	-0.4
Total	306	337	-9.1
Employment			
Foreign	483 129	538 767	-10.3
Total	1 737 756	1 583 558	9.7
Average index of transnationality	34.20	35.25	-1.05 ^b

Source: UNCTAD, FDI/TNC database.

- ^a Data were statistically treated to enable comparison between two periods. Specifically, the effect of distortion caused by comparing enterprises at different economic levels, e.g., the individual firm vs. the group, was controlled for in the comparison.
- ^b Change is expressed in percentage points.

Figure III.3. Foreign assets of biggest investors from developing countries, 1997
(Billions of dollars)

The industry composition of the top 50 remained relatively stable between 1996 and 1997. As in the past, diversified TNCs and those from the food and beverages and petroleum industries, as well as, this year, those from the construction industry, dominate the group (table III.11). The most transnationalized industries in the top 50 in 1997 are transportation, food and beverages and diversified industries (table III.11).

Figure III.2. Transnationalization trends of top 50 TNCs from developing countries, 1993 to 1997

Source: UNCTAD, FDI/TNC database.

Table III.11 Top 50 TNCs from developing countries: regional breakdown, 1997
(Billions of dollars and number of employees)

	Assets		Sales		Employment	
	Foreign	Total	Foreign	Total	Foreign	Total
Asia	70	278	86	198	402 033	1 340 909
Latin America	30	164	44	95	55 852	297 683
Africa	5	11	6	13	25 244	99 164
Total	105	453	136	306	483 129	1 737 756

Source: UNCTAD, FDI/TNC database.

Source: UNCTAD, FDI/TNC database.

3. The 25 largest TNCs from Central Europe

For the first time, the *World Investment Report* this year publishes a list of the top 25 non-financial TNCs headquartered in Central Europe,⁸ ranked on the basis of foreign assets. As only one firm from the Russian Federation responded to the survey undertaken for this purpose – Lukoil Oil Company (box III.1) – the list does not include TNCs from that country.

In both 1997 and in 1998, the same three enterprises occupied the top positions in terms of foreign assets (tables III.12 and III.13): Latvian Shipping Company (transportation), Podravka (Croatia; food and beverages/pharmaceuticals) and Gorenje (Slovenia; domestic appliances). In 1997 the Hungarian software consultancy firm Graphisoft was the most transnationalized firms followed by two transportation firms: Adria Airways (Slovenia) and Atlantska Plavidba (Croatia). In 1998, the same three firms occupied the top positions in terms of transnationality, but in a reverse order.

- Country composition.** The country composition of the top 25 list is quite diverse. It includes firms from 10 countries in 1998, compared to nine in 1997 (table III.14). Firms from Estonia, TFYR Macedonia and Ukraine remained too small to qualify for the top 25 list (table III.15). The number of firms from each country remained basically constant, except for Hungary where the number of companies decreased from six to four. Interestingly, the foreign assets of those four Hungarian companies were 39 per cent higher in 1998 than those of the six companies listed in 1997. By comparison, the foreign assets of Croatian, Czech and Slovenian companies (three other important home countries) grew between seven and 17 per cent only from 1997 to 1998.

It is noteworthy that, in the case of three countries (Latvia, the Republic of Moldova and Slovenia), the foreign assets

Box III.1. Lukoil Oil Company

Data for Lukoil confirm that the leading Russian TNCs are likely to be significantly bigger in size than the largest TNCs from Central Europe. Its 1997 level of foreign assets (at \$1.5 billion) is equivalent to that of the 24th company on the list of the top 50 TNCs from developing countries. In terms of foreign sales (\$517 million), the lead of Lukoil over Central European competitors was less marked: in this respect, it was overtaken by KGHM Polska Miedz (Poland) and Gorenje (Slovenia) in 1997. And in terms of foreign employment, it was surpassed by four Central European firms.

In 1998, in sharp contrast with the decline in domestic activities, the overseas activities of Lukoil soared, seemingly unaffected by the Russian crisis. While the 71 per cent devaluation of the ruble caused a 53 per cent drop in the dollar value of total assets, foreign assets rose by almost 50 per cent in 1998, to \$2.3 billion. A similar contrast prevailed in sales and employment: total sales declined by 10 per cent, while foreign sales swelled by no less than 400 per cent; total employment decreased by two per cent while foreign employment soared by 400 per cent (table III.15). As a result, Lukoil leads over all Central European firms in terms of foreign sales and foreign employment, and its transnationality index bounced from less than six per cent to more than 23 per cent.

The development of Lukoil may indicate the capacity of some Russian firms to switch from domestic to foreign markets – a trend not reflected in statistics on total outward FDI, which showed a sharp contraction in 1998 FDI outflows.

Source: UNCTAD.

Table III.12 Top 50 TNCs from developing countries: industry composition and transnationality index, 1997
(Number of entries and percentage)

Industry	1997	Average transnationality
Diversified	13	37.7
Other	7	36.6
Food and beverages	7	40.8
Construction	6	31.5
Petroleum expl./ref./distr.	5	21.8
Transportation	4	46.6
Electronics and electrical equipment	3	24.8
Chemicals and pharmaceuticals	2	9.9
Electrical services	2	32.2
Tourism and hotel	1	32.7
TOTAL/AVERAGE	50	34.2^a

Source: UNCTAD, FDI/TNC database.

^a Average index of transnationality of the top 50.

Table III.13. The top 25 TNCs based in Central Europe,^a ranked by foreign assets, 1997
(Millions of dollars and number of employees)

Ranking by		Corporation	Country	Industry ^c	Assets		Sales		Employment		Transnationality index ^b (Per cent)
Foreign assets	Transnationality index ^b				Foreign	Total	Foreign	Total	Foreign	Total	
1	4	Latvian Shipping Co.	Latvia	Transportation	455.0	593.0	160.0	242.0	2 868	3 716	73.3
2	10	Podravka Group	Croatia	Food and beverages/ pharmaceuticals	270.5	426.2	98.5	370.0	375	7 202	31.8
3	9	Gorenje Group	Slovenia	Domestic appliances	227.6	574.5	581.6	1 023.8	579	6 956	34.9
4	18	Skoda Group Plzen	Czech Republic	Diversified	162.4	1 077.0	82.0	1 078.9	1 237	24 247	9.3
5	3	Atlantska Plovidba, d.d.	Croatia	Transportation	152.0	176.0	48.0 ^d	-	48.0	586	93.2
6	5	Motokov a.s.	Czech Republic	Trade	125.1	229.6	232.6	336.4	629	1 079	60.6
7	15	Petrol, d.d.	Slovenia	Petroleum and natural gas	107.0	668.2	166.3	960.4	7	3 521	11.2
8	2	Adria Airways d.d.	Slovenia	Transportation	88.6	98.4	85.7	85.7	-	593	95.0
9	24	VSZ a.s. Kosice	Slovakia	Iron and steel	84.0	1 680.0	0.2	1 063.0	60	27 956	1.7
10	11	Pliva Group	Croatia	Pharmaceuticals	69.2	661.0	240.1	393.3	1 533	6 852	31.3
11	7	Malev Hungarian Airlines Ltd.	Hungary	Transportation	59.4	143.6	213.8	280.1	48	3 405	39.7
12	17	Matador j.s.c.	Slovakia	Rubber and plastics	42.1	316.2	38.7	227.9	64	4 375	10.6
13	22	MOL Hungarian Oil & Gas Plc.	Hungary	Petroleum and natural gas	39.8	2 862.3	244.3	3 410.3	302	20 020	3.9
14	12	KGHM Polska Miedz S.A.	Poland	Mining and quarrying	39.4	1 403.3	817.7	1 247.1	12	21 948	22.8
15	16	TVK Ltd.	Hungary	Chemicals	36.0	459.0	118.0	476.0	21	5 632	11.0
16	20	Moldova Steel Works	Republic of Moldova	Iron and steel	30.3	338.1	0.7	17.6	7	4 511	4.4
17	14	Croatia Airlines, d.d.	Croatia	Transportation	29.4	105.5	5.3	112.1	32	799	12.2
18	1	Graphisoft	Hungary	Software consultancy	22.0	23.0	22.0	22.0	178	178	98.6
19	23	Elektrim S.A.	Poland	Trade and diversified	20.0	1 090.0	38.0	829.0	57	23 445	2.2
20	8	Budimex Capital Group	Poland	Construction	17.3	137.8	68.2 ^d	267.5	1 074	1 385	38.5
21	25	Petrom SA National Oil Co.	Romania	Petroleum and natural gas	14.0	3 130.0	52.0	2 300.0	310	90 000	1.0
22	19	Pilsner Urquell, a.s.	Czech Republic	Food and beverages	13.0	228.0	22.0	221.0	334	2 857	9.1
23	13	Iskraemeco, d.d.	Slovenia	Electrical machinery	13.0	75.0	18.0	110.0	100	2 200	12.7
24	6	Agrimex Trading Co. Ltd.	Hungary	Trade	12.6	15.1	28.5	93.3	-	1 026	57.0
25	21	Dunapack Paper & Packaging Ltd.	Hungary	Paper and pulp	12.5	133.7	1.9	167.5	41	1 701	4.3

Source: UNCTAD survey of top TNCs in Central and Eastern Europe.

Note: Includes non-financial TNCs only. In some companies, foreign investors may hold a minority share of more than 10 per cent.

^a Based on survey responses received from Croatia, Slovenia, Hungary, Lithuania, Slovakia, Czech Republic, Macedonia (TFYR), Rep. of Moldova, Romania and Ukraine.

^b The index of transnationality is calculated as the average of three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

^c Industry classification for companies follows the United States Standard Industrial Classification as used by the United States Securities and Exchange Commission (SEC).

^d Including export sales by parent company.

Table III.14. The top 25 TNCs based in Central Europe,^a ranked by foreign assets, 1998

(Millions of dollars and number of employees)

Ranking by		Corporation	Country	Industry ^c	Assets		Sales		Employment		Transnationality index ^b (Per cent)
Foreign assets	Transnationality index ^b				Foreign	Total	Foreign	Total	Foreign	Total	
1	4	Latvian Shipping Co.	Latvia	Transportation	399.0	505.0	201.0	214.0	1 631	2 275	81.5
2	10	Podravka Group	Croatia	Food & beverages/ pharmaceuticals	285.9	477.1	119.4	390.2	501	6 898	32.6
3	9	Gorenje Group	Slovenia	Domestic appliances	256.4	645.9	642.2	1 143.3	607	6 717	35.0
4	5	Motokov a.s.	Czech Republic	Trade	163.6	262.5	260.2	349.1	576	1 000	64.8
5	1	Atlantska Plovidba, d.d.	Croatia	Transportation	152.0	167.0	47.0 ^d	47.0	-	528	95.5
6	8	Pliva Group	Croatia	Pharmaceuticals	142.1	855.1	334.3	463.0	1 616	6 680	37.7
7	17	Skoda Group Plzen	Czech Republic	Diversified	139.1	973.4	150.7	1 244.5	1 073	19 830	10.6
8	2	Adria Airways d.d.	Slovenia	Transportation	129.4	143.7	97.7	97.7	-	585	95.0
9	21	MOL Hungarian Oil & Gas Plc.	Hungary	Petroleum & natural gas	128.3	2 881.6	203.4	2 958.1	628	20 140	5.1
10	25	VSZ a.s. Kosice	Slovakia	Iron & steel	72.0	1 445.0	0.2	876.0	58	26 719	1.7
11	18	Petrol, d.d.	Slovenia	Petroleum & natural gas	70.6	634.2	112.4	706.0	10	3 349	9.1
12	7	Malev Hungarian Airlines Ltd.	Hungary	Transportation	64.5	148.1	236.5	314.9	48	3 396	40.0
13	16	Matador j.s.c.	Slovakia	Rubber & plastics	51.9	304.9	34.0	203.4	5	3 878	11.3
14	12	KGHM Polska Miedz S.A.	Poland	Mining & quarrying	34.7	1 419.8	694.3	1 047.8	20	19 968	22.9
15	13	TVK Ltd.	Hungary	Chemicals	33.0	543.0	133.0	401.0	181	6 099	14.1
16	3	Graphisoft	Hungary	Software consultancy	28.0	50.0	25.0	25.0	188	188	85.3
17	20	Croatia Airlines	Croatia	Transportation	27.6	211.4	9.8	121.2	40	846	8.6
18	23	Elektrim S.A.	Poland	Trade and diversified	21.0	1 228.0	42.0	874.0	62	26 475	2.2
19	19	Pilsner Urquell, a.s.	Czech Republic	Food & beverages	20.0	251.0	16.0	253.0	356	2 918	8.8
20	22	Moldova Steel Works	Republic of Moldova	Iron & steel	19.9	335.9	1.0	15.6	5	4 562	4.2
21	11	Budimex Capital Group	Poland	Construction	17.8	153.9	55.8 ^d	316.4	644	1 095	29.3
22	24	Petrom SA National Oil Co.	Romania	Petroleum & natural gas	17.0	3 790.0	128.0	2 700.0	140	88 350	1.8
23	15	Iskraemeco, d.d.	Slovenia	Electrical machinery	15.0	92.0	21.0	114.0	150	2 300	13.7
24	6	Lifosa j.b.c.	Lithuania	Chemicals	13.2	55.2	93.1	100.0	-	1 339	58.5
25	14	Krka, d.d.	Slovenia	Pharmaceuticals	12.5	490.4	82.1	300.3	375	3 253	13.8

Source: UNCTAD survey of top TNCs in Central and Eastern Europe.

^a Based on survey responses received from Croatia, Slovenia, Hungary, Lithuania, Slovakia, Czech Republic, Macedonia (TFYR), Rep. Moldova, Romania and Ukraine.

^b The index of transnationality is calculated as the average of three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

^c Industry classification for companies follows the United States Standard Industrial Classification as used by the United States Securities and Exchange Commission (SEC).

^d Including export sales by parent company.

of the firms in the list headquartered in these countries alone are bigger than the outward FDI stocks of those countries.⁹ This may reflect reporting problems in outward FDI statistics. In a few other countries, especially Hungary and Poland, the ratio of foreign assets to outward FDI stock is, on the other hand, quite low.¹⁰ It may well be that, in those countries, outward FDI is undertaken by many enterprises; that financial enterprises not covered in the top list account for a significant part of outbound FDI; and/or that foreign affiliates take up an important share in outward FDI. Also, it may well be that an important part of outward FDI is directed towards minority (10 to 49 per cent) stakes, which are not necessarily reflected in the consolidated financial statements of the reporting companies.

Table III.15. Countries of origin of the top 25 TNCs based in Central Europe, 1997 and 1998

Country	1997	1998
Slovenia	4	5
Croatia	4	4
Hungary	6	4
Czech Republic	3	3
Poland	3	3
Slovakia	2	2
Romania	1	1
Republic of Moldova	1	1
Lithuania	-	1
Latvia	1	1
Total	25	25

Source: UNCTAD survey of top TNCs in Central and Eastern Europe.

Between 1997 and 1998, growth was the most salient feature of the top 25 list of TNCs from Central Europe, in particular in terms of foreign assets and sales (table III.16).

- **Foreign assets.** Between 1997 and 1998, the total foreign assets of the top 25 increased by eight per cent to \$2.3 billion. The average foreign assets of the listed TNCs were \$93 million. The median of foreign assets, at about \$52 million, compares with a median of \$1.3 billion for the top 50 from developing countries, clearly indicating a much smaller size (and the much lower degree of transnationalization) of TNCs in Central Europe. The Hungarian firm MOL Hungarian Oil & Gas plc was the leader in foreign assets growth, with an impressive 222 per cent rate, followed by two pharmaceutical companies – Pliva (Croatia) and Krka (Slovenia) – which both doubled their foreign assets.
- **Foreign sales.** The top 25 TNCs increased their foreign sales by more than 10 per cent to \$3.7 billion, while total sales registered a minor reduction. They increased most rapidly in chemicals and pharmaceuticals, transportation, and machinery and equipment,¹¹ while, except for Petrom SA National Oil Company (Romania), most of the companies in the petroleum and gas, and in the mining and quarrying industries, registered significant declines in foreign sales.
- **Foreign employment.** In contrast to firms from developing countries, the weakest point of internationalization of Central European TNCs is foreign employment, which in 1998 decreased by 10 per cent. Except for five companies, all firms in the list have a ratio of foreign to total employment of less than 12 per cent, which is clearly below the average ratio of the top 50 TNCs from developing countries.¹²
- **Transnationality index.** At slightly above 31 per cent in 1998, the average transnationality index, in spite of a small increase (0.5 percentage points), is quite low as compared with that of the top 50 TNCs from developing countries, not to mention the top 100. The median transnationality index, at 14 per cent, is much lower, suggesting that, even among the top 25 TNCs from the region, the majority of the firms are very little transnationalized.

The above data demonstrate that Central European firms are still in a nascent stage of transnationalization.¹³ This is further illustrated by the fact that only one company in the list (Latvian Shipping Company) would have qualified in 1997 for inclusion in the list of the top TNCs from developing countries, and at one of the lowest ranks.

Table III.16. Top TNCs of the Russian Federation, Estonia, Lithuania,^a TFYR Macedonia and Ukraine, ranked by foreign assets, 1997 and 1998
(Millions of dollars and number of employees)

Year	Ranking in Central and European		Country	Industry ^c	Assets		Sales		Employment		Transnationality index ^b (Per cent)
	Total	Corporation			Foreign	Total	Foreign	Total	Foreign	Total	
1997	- ^d	Lukoil Oil Co.	Russian Federation	Petroleum and natural gas	1 515.0	14 197.0	517.0	9 272.0	1 000	104 000	5.7
1997	26	Norma a.s.	Estonia	Automotive	10.0	34.0	0.5	40.0	16	1 419	10.6
1997	29	Lifosa j.s.c.	Lithuania	Chemicals	6.9	39.0	65.6	77.4	-	1 482	51.2
1997	33	Azovstal Iron and Steel Works	Ukraine	Iron and steel	2.9	18.7	-	1 055.2	24 789	15.6	
1997	35	Alkaloid a.d.	TFYR Macedonia	Pharmaceuticals	1.0	82.0	18.0	58.0	60	1 796	11.9
1998	- ^d	Lukoil Oil Co.	Russian Federation	Petroleum and natural gas	2 266.0	6 609.0	2 590.0	8 393.0	5 000	102 000	23.3
1998	30	Norma a.s.	Estonia	Automotive	10.0	34.0	1.0	36.0	21	1 368	11.2
1998	37	Alkaloid a.d.	TFYR Macedonia	Pharmaceuticals	1.0	76.0	18.0	60.0	58	1 720	11.6
1998	38	Azovstal Iron and Steel Works	Ukraine	Iron and steel	0.5	10.7	-	775.4	24 850.0	4.5	

Source: UNCTAD survey of top TNCs in Central and Eastern Europe.

Note: Includes non-financial TNCs only.

^a In 1998, Lithuania's biggest TNC moved up to the top 25 list.

^b The index of transnationality is calculated as the average of three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

^c Industry classification for companies follows the United States Standard Industrial Classification as used by the United States Securities and Exchange Commission (SEC).

^d The only response received from the Russian Federation was not incorporated into the top 25 list.

The newcomer status of Central European TNCs is further confirmed by other indicators. For example, in 1997 the combined foreign assets of the 25 biggest TNCs from developing countries accounted for 1.4 per cent of the total GDP of the developing world, while the combined foreign assets of the top 25 TNCs based in Central Europe accounted for 0.5 per cent of the combined GDP of their home countries. This newcomer status is not surprising given the short period of time since the start of the economic transition period and the fact that the foreign presence of Central European firms had previously been limited mainly to trade representative offices. Moreover, Central European firms have had little time to build up their ownership-specific advantages. In fact, enterprise restructuring may go against internationalization in the short run, as firms need to cut back their activities to core competencies at home, or are sold to foreign investors, becoming themselves affiliates of TNCs.

- Industry composition.** The three most important industries in terms of the industry composition of the top 25 list are: transportation, chemicals and pharmaceuticals, and mining and petroleum (table III.17). The importance of mining (16 per cent of the companies in the list) is interesting as it reflects the particular situation of Central European economies, which are poor in natural resources, but where firms from the primary sector have traditionally strong ownership advantages and are among the first to invest abroad. Interesting too is the very small share of trade in the industry distribution, suggesting that Central Europe is moving away from the “inherited” trading base of outward investment.

Table III.17. Snapshot of the top 25 TNCs from Central Europe, 1997 and 1998

(Millions of dollars, number of employees and percentages)

Year	1997	1998	Percentage change
Assets			
Foreign	2 142	2 315	8.0
Total	16 644	18 064	8.5
Sales			
Foreign	3 384	3 740	10.5
Total	15 383	15 276	-0.7
Employment			
Foreign	9 865	8 914	-9.7
Total	266 190	259 388	-2.6
Average transnationality index	30.8	31.3	0.5 ^a

Source: UNCTAD survey of top TNCs in Central and Eastern Europe.

^a Change measured in percentage points.

B. Cross-border M&As

For the past several years, M&As involving firms located in different countries have increased significantly, reflecting a general increase in global M&A activity. Not surprisingly the world’s largest TNCs are particularly active. This has implications for the size and direction of FDI flows (chapter I), as well as for the extent and pattern of cross-border linkages established through the common ownership of assets for production. Cross-border M&As are primarily concentrated in developed countries, but there is also a trend towards an increase in such deals in some developing regions (chapter II). This section provides a brief account of recent trends in cross-border M&As and attempts to shed some light on the reasons for and the development impact of cross-border M&As.

1. Trends

The number and value of total cross-border M&As world-wide increased dramatically in 1998 over those in 1997, in parallel to the rates of growth of domestic M&As. As a result, the share of cross-border M&As in all M&As in 1998 was comparable to that in the past few years – about one quarter in terms of both value and number of deals (figure III.4). The absolute value of all cross-border M&A sales (and purchases) amounted to \$544 billion in 1998, representing an increase of about 60 per cent over that in 1997 (\$342 billion) (annex tables B.7-

8). However, if only majority-owned cross-border M&As (transactions resulting in the acquisition of a more than 50 per cent equity share) are considered, the value in 1998 (\$411 billion) was nearly twice as large as that in 1997 (\$236 billion).¹⁴

Not all cross-border M&As are financed by FDI.¹⁵ Even so, M&As are likely to account for a significant share of FDI flows, at least in developed countries. Although data are lacking to establish a clear relationship between FDI and cross-border M&As, there are data showing that, for example, new investment by foreign direct investors through M&As in United States enterprises accounted for 90 per cent of total investment expenditures in foreign affiliates in 1998, compared to an already high ratio of 82-87 per cent during 1993-1997 (figure III.5).¹⁶

Figure III.5. The five most targeted industries in cross-border M&As ^a in the world, 1998
(Billions of dollars)

Source: UNCTAD, based on annex table B.9.

^a Majority-owned cross-border M&As only.

accounted for nearly three-fifths of the total of all cross-border M&As in 1998. Four of such mega deals announced in 1998 were larger than the largest cross-border M&A deal in the past, which was the \$18 billion purchase by Zürich Versicherungs GmbH (Switzerland) of BAT Industries Plc-Financial (United Kingdom) recorded in 1997; the largest two of these four deals include the acquisitions of Amoco (United States) by British Petroleum (United Kingdom) for \$55 billion, and Chrysler (United States) by Daimler-Benz (Germany) for \$41 billion. In both sales and purchases in large cross-border M&As, countries on either side of the Atlantic were significant players. In particular, United Kingdom or United States firms appeared as either sellers or purchasers in as many as 63 out of the 89 mega deals in 1998 (annex table A.III.1). Interestingly, too, in 1998 about 14 of the world's 100 largest TNCs (as identified in this year's list) were involved as buyers in the mega M&A transactions - i.e. over \$1 billion - announced during that year, accounting for about 40 per cent of the total amount announced. Mega deals are continuing in 1999 (table III.18).

Figure III.4. Cross-border M&As as a percentage of all M&As in the world,^a 1980-1998

Source: UNCTAD, based on data provided by Securities Data Company, Inc. (New York).

^a On an announcement basis.

Cross-border M&As in 1998 were characterized by greater geographical concentration and a larger number of exceptionally large transactions than in the previous years. The United States and the United Kingdom continued to be the countries with the largest sales and purchases (with the United Kingdom taking over the first position in purchases from the United States). Together, in 1998, they accounted for nearly half of the total value of all cross-border M&As: 53 per cent of the world's total cross-border M&As in terms of sales and 46 per cent in terms of purchases, compared to 35 per cent and 33 per cent, respectively in 1997 (annex tables B.7 and B.8). In 1998, there were 89 "mega" cross-border M&A deals, each with more than \$1 billion in transaction value (annex table A.III.1), compared to 35 such deals in 1995, 45 in 1996 and 58 in 1997. These mega deals

Many of the recent large cross-border M&As did not involve monetary payments. Exchanges of stocks between acquiring and acquired firms have become a popular means for accomplishing M&As. This involves the issue of new stocks of the acquiring firms to the stockholders of the acquired firms in return for the releases of their stock. Thus, even mega M&As can be concluded with a minimum of funds. Daimler-Chrysler and British Petroleum-Amoco are typical examples. Such mega M&As would be virtually impossible on the basis of cash payment simply because of their sheer size. Of all cross-border M&As with United States firms by foreign firms, some 100 cases used this stock-exchange method in 1998, accounting for about one fifth of the total in terms of the number of deals, but for nearly two-thirds of the total value of these deals (JETRO, 1999). In comparison, cash-based cross-border M&As accounted for three-quarters of the total value in 1990, with 90 per cent of the total cases.¹⁷

Table III.18. The industry composition of the top 25 TNCs based in Central Europe, 1997 and 1998

(Number of firms)

Industry	Year	
	1997	1998
Transportation	5	5
Chemicals and pharmaceuticals ^a	3	5
Mining and petroleum	4	4
Food and beverages ^a	2	2
Metallurgy (iron and steel)	2	2
Machinery and equipment	2	2
Other or diversified manufacturing	3	2
Trade	3	2
Construction	1	1
Business services	1	1
Total	25	25

Source: UNCTAD survey of top TNCs in Central and Eastern Europe.

^a Podravka was listed under both food and beverages, and chemicals and pharmaceuticals.

Developing countries provided 11 of the 89 mega deals in 1998. Most of them were related to privatizations. For instance, six of the seven mega deals in Brazil were related to the privatization programme of the telecommunications industry, including Telebrás and other telecommunication services companies. One mega deal in Malaysia was also related to privatization in the telecommunications industry. From developing countries, only one firm from Hong Kong, China and one from Singapore was a mega purchaser in 1998, in contrast to the past few years when firms from several developing countries (such as Thailand, Malaysia and the Republic of Korea) were involved as purchasers in mega M&As as well.

a. Sales

There are several noteworthy trends on the sales side of cross-border M&As. The three countries with the largest sales values in 1997 – the United States, the United Kingdom and Germany – remained in the same rankings in 1998 (annex table B.7). Belgium assumed the fourth position, due mainly to large acquisitions of Belgian oil and financial firms. Continued privatization pushed Brazil to the position of fifth largest seller country in the world, with sales of \$25 billion in 1998 – twice the value of its M&A sales in 1997 (annex table B.7) – dwarfing the value of M&A sales in other developing countries. Despite this increase in Brazil, however, the absolute value of M&A sales by developing countries as well as their share declined considerably, the latter from 28 per cent to about one tenth of total cross-border M&As in 1998 (annex table B.7). This surprisingly steep decline in 1998 is largely due to the slowing down of the privatization process – the prime force behind M&As in developing countries – in several countries.

Since 1995, Australia has become a relatively large seller country when it comes to cross-border M&As. One reason seems to be that with the weakening Australian dollar acting as an advantage for investors, coupled with declining commodities prices, the attractiveness of Australia as a resource-rich nation has re-emerged. There were three mega deals worth more than \$1 billion in 1998, two of which were in resource-based or related industries (annex table A.III.1). Firms in resource-based industries accounted for one tenth of the total value of M&As in Australia.¹⁸

Other notable trends in cross-border M&A sales relate to Japan and South, East and South-East Asia. In 1998, Japan became the 10th largest seller in the world, the highest ranking achieved in this respect so far by that country, by selling seven times as much as in 1997 (box III.2 and annex table B.7). While a large imbalance between FDI inflows to, and FDI outflows from Japan persists, interestingly, inward cross-border M&As were almost balanced with outward cross-border M&As in value in 1998 for the first time (annex tables B.7 and B.8).

Box III.2. Why cross-border M&As have become popular in Japan.

Increases in cross-border M&A sales in Japan may indicate fundamental changes in Japanese corporate culture, structure and strategies. M&As are becoming acceptable business transactions among Japanese firms which had long tended to resist such transactions. Indeed, the popular view among Japanese firms was that M&As were predatory actions that did not bring benefits to the acquired firms^a. Not many firms were engaged in such activities, least of all in hostile takeovers. However, as Japanese firms themselves have utilized this mode for entering foreign markets, in particular in the United States since the late 1980s, this type of business transaction has now apparently become more acceptable in the corporate culture. In addition to cultural difficulties, cross-share-holdings among Japanese firms, in particular among the *keiretsu* firms, have traditionally made M&As structurally difficult. Firms or investors could not simply take over other firms. However, with declining profits in the current recession, Japanese firms have had to re-evaluate their structures of *keiretsu* or related firms. Examples abound. When Yamaichi Securities went bankrupt in 1998, no related firms of the Fuyo business group to which that company belonged attempted a rescue. The major part of it was acquired by Merrill Lynch (United States). Sales of cross-holding stocks owned between banks and industrial companies in Japan were at record levels in 1998.^b

There are still institutional problems and difficulties in transacting M&As in Japan. M&As also have been, at least until recently, a difficult option for firms. Although there has been encouragement by the Government of Japan recently to implement the stock-exchange option for M&As, firms virtually could not use this option as the stockholders of the acquired firms had to pay taxes immediately when receiving new issues from the acquiring firms, in accordance with the Japanese tax system until 1999. There are, as yet, few mega cross-border M&As involving sales of Japanese firms: there was only one mega deal in Japan in 1998 – the acquisition of Nikko Securities by Salomon Smith Barney Holdings of the United States, ranked 85th in the league table of world-wide M&A sales (annex table A.III.1); and only two such cases in all so far.^c

Source: UNCTAD.

^a In fact the word “takeover” is translated into Japanese as “hijacking”.

^b *Nihon Keizai Shimbun*, 25 December 1998. The share of the stocks of industrial firms owned by banks in total stocks declined to 40 per cent by 1998, compared to 44-45 per cent in the early 1990s. Similarly, stocks of banks owned by industrial firms decreased its share from 16.5 per cent to 15 per cent during the same period.

^c The other case is the acquisition of Rocket Systems Corp. by General Motors in 1996 for \$1 billion.

In the developing countries of South, East and South-East Asia, the value of majority-owned cross-border M&A sales increased, but that of all cross-border M&As declined in 1998, after continuously high levels over the past several years (annex table B.7). The largest declines in cross-border M&A sales (both all and majority-owned) were in China, Hong Kong (China) and Indonesia. In the five countries most affected by the financial crisis of 1997-1998 as a group, the value of cross-border M&As in 1998 was higher than in 1997, largely due to increases in cross-border M&As in the Republic of Korea and Thailand. In the case of Malaysia, where FDI inflows in 1998 were almost comparable to those in 1997, the situation is ambiguous: while majority-owned cross-border M&As increased, all cross-border M&As (including portfolio M&As) declined.¹⁹

The decline in total cross-border M&As in the Asian region as a whole may be temporary. It is probably not caused by a decreased interest of foreign firms in Asian firms or a lower number of Asian firms up for sale, but rather by a time lag before firms potentially up for sale are put on the market. The countries in this region have only recently begun to restructure their banking industry. Many of those banks are creditors of firms that seek purchasers. As the restructuring of the banks proceeds, a number of firms may be up for sale in the M&A market.²⁰ In Asia, this institutional factor – together with some loss of attractiveness of firms after the financial crisis in certain countries – has played a role in the decline in cross-border M&As.

b. Purchases

Trends are also significant on the purchase side of cross-border M&As. The largest purchaser country in 1998 was the United Kingdom, replacing the United States in that position for the first time since 1990 (UNCTAD, 1998 and annex table B.8). Three of the seven transactions with more than a \$10 billion acquisition value announced in 1998 involved United Kingdom firms. This momentum has continued well into 1999 and has led to other mega deals such as the acquisition of AirTouch (United States) by Vodafone for \$62 billion and of General Electric Company's Marconi Electronics (United States) by British Aerospace for \$13 billion (table III.18). The strong pound has been a factor. More importantly, however, United Kingdom firms, like those in other European countries find that, in the industries in which the country's comparative advantages are threatened (such as oil, telecommunications and utilities), consolidation with other large firms is the only feasible way of maintaining and improving their competitiveness. Because of this, their M&As were in most cases concluded with relatively highly competitive firms in the same industries in the United States: 12 out of 17 mega deals made by United Kingdom firms targeted United States firms (annex table A.III.1).

These deals between United Kingdom and United States firms contrast sharply with those by continental European firms. Only one tenth of cross-border deals by United Kingdom firms were with other European firms in 1998.²¹ Continental European firms have tended to conclude more cross-border M&As among themselves than with United Kingdom or United States firms. Even among mega deals which, almost by their very nature, tend to include United States firms because of their sheer size, 18 out of 43 cross-border M&As made by continental European firms in 1998 were concluded with firms from other continental European countries (annex table A.III.1). Compared to other European firms, those based in the United Kingdom have not opted for consolidation within Europe. A trans-Atlantic consolidation (United States – United Kingdom) may scuttle a pan-European solution to the restructuring in various European industries faced by declining competitiveness, such as the defence and oil industries. As the largest investor in the European Union as well as a large economy accounting for about 15 per cent of the European Union's GDP, the involvement of United Kingdom firms in that process could be crucial.

The share of continental Europe in all world cross-border M&As was stable between 1997 and 1998, but declined in majority deals in 1998 (annex table B.8). Higher competition drove up the prices of potential targeted firms, which reduced interest among possible acquirers.²² Some of them were, of course, still concluded because of strategic reasons arising from the completion of the monetary union and the introduction of the Euro. The industries in which M&As are taking place in continental Europe vary widely, from petroleum to financial services, reflecting the diversity of comparative advantages of the countries and the competitive advantages of their firms.

Cross-border M&As by Japanese outward-investor firms declined in 1998; Japan was the only country among major home countries with such a decrease in M&A activity. Moreover, for Japanese TNCs, M&As continue to be a less preferred mode of entry than greenfield FDI, although in some host regions (such as North America and Western Europe), the share of cross-border M&As in total cases of investment by Japanese TNCs increased (table III.19). Although the recent decrease in FDI outflows from Japan seems to be due more to a decline in cross-border M&As rather than in greenfield FDI, cross-border M&A investments from Japan are likely to grow again in 1999 (chapter II).

c. Industry composition

Recent cross-border M&As have been concentrated in industries that are losing comparative advantages; are faced with over-capacity or low demand (e.g. automobiles and defence), particularly high R&D expenditures (e.g. pharmaceuticals) or changes in modes of competition as a result of new technological orientation (e.g. oil and chemicals); or, yet, that have gone through liberalization and deregulation (e.g. financial services and telecommunication industries).

The industry that recorded the largest cross-border M&As by value in 1998 was the oil industry (accounting for 14 per cent of the total), followed by the automobile industry and the banking and telecommunication industry (annex table B.9). The non-petroleum mining and refining industries also experienced a record year (box III.3). Cross-border M&As in the automobile industry showed the most dynamic growth in 1998, and more big deals seem to be in the pipeline (UNCTAD, 1998).²³ Large M&As in the banking and financial services industry over time – more than in any other industry – point to an ongoing and long restructuring process that is still provoking further deals in this industry. Liberalization and privatization of telecommunications assets in many countries have also begun to attract large deals. The significant increase in cross-border M&As in the latter industry in developing countries in 1998 was due mainly to the privatization of the Brazilian telecommunications industry. The chemical industry (including pharmaceuticals) is another industry with a rising incidence of M&As.

The production and distribution of electricity, as well as other utilities, are another industry group poised to involve an increasing number of cross-border M&As, reflecting the liberalization and deregulation of the industries involved. In the United Kingdom and the United States, the dramatic increases in the value of M&A deals (annex table B.9) and in the number of mega deals (annex table A.III.1) have already occurred. As other countries liberalize these industries, more M&As are likely to occur. Another notable area in which M&As are likely to proliferate in the near future involves firms in high and rapidly-changing technologies such as software (classified in business services in annex table B.9). As typified by the case of Microsoft, these types of firms have normally taken an organic pattern of growth, relying on in-house R&D and technology building. However, as technology changes make possible the interfaces between hitherto separate industries, M&As are likely to be used by firms in order to become technology

Table III.19. The 10 largest cross-border M&A deals, announced in 1998 and 1999 ^a

1998	
Deal	Value (\$billion)
British Petroleum Co PLC (United Kingdom) - Amoco Corp. (United States)	55.0
Daimler-Benz AG (Germany) - Chrysler Corp. (United States)	40.5
ZENECA Group PLC (United Kingdom) - Astra AB (Sweden)	31.8
Hoechst AG (Germany) - Rhone-Poulenc SA ^b (France)	21.2
Scottish Power PLC (United Kingdom) - Pacifi Corp. (United States)	12.6
Total SA (France) - Petrofina SA (Belgium)	11.5
Universal Studios Inc. (United States) - PolyGram NV (Philips Electronics) (Netherlands)	10.3
Deutsche Bank AG (Germany) - Bankers Trust New York Corp. (United States)	9.1
Northern Telecom Ltd(BCE Inc) (Canada) - Bay Networks Inc. (United States)	9.0
Texas Utilities Co. (United States) - Energy Group PLC (United Kingdom)	8.8
1999 ^a	
AirTouch Communications (United States - Vodafone Group PLC (United Kingdom)	65.9
US WEST Inc (United States) - Global Crossing Ltd. (Bermudas)	51.1
ARCO (United States) - BP Amoco PLC (United Kingdom)	33.7
Hoechst AG (Germany) - Rhone-Poulenc SA ^c (France)	28.5
YPF SA (Argentina) - Repsol SA (Spain)	17.1
British Aerospace (United Kingdom) - Marconi Electronics ^d (United States)	13.0
Frontier Corp (United States) - Global Crossing Ltd. (Bermudas)	12.5
TransAmerica Corp (United States) - Aegon NV (Netherlands)	10.8
ASDA Group PLC (United Kingdom) - Wal-Mart Stores Inc. (United States)	10.7
Case Corp (United States) - New Holland (New Holland Hldg) (Netherlands)	8.7

Source: UNCTAD, based on annex table A.III.1 and data provided by Thomson Financial Securities Data Company, Inc. (New York).

^a January - June only.

^b Merged with life science divisions in each company.

^c Merged with chemicals and fibres divisions in each company.

^d Part of General Electric Company.

giants (chapter III.C).²⁴ Microsoft has begun to use M&As as a corporate strategy, investing \$500 million in NTL (United Kingdom) and \$300 million in United Pan-European Communications (Netherlands) in 1999.²⁵

Box III.3. M&As in the metal mining and refining industries: a record year in 1998

Over \$12 billion were spent on cross-border M&As in the metal mining and refining industries world wide in 1998. This was the second consecutive year of strong growth in M&As in these industries. The increase becomes more significant when compared to the present decline in exploration expenditures. Exploration expenditures world wide were estimated to be in the order of \$4 -5 billion in 1998, falling by some 30 to 40 per cent as compared with 1997. M&As, whether cross-border or domestic ones, have become the most favoured way of growth and expansion in the mining industry. Most M&As target gold companies and gold mines. Aluminium/bauxite, lead/zinc and nickel follow. The bulk of the investments, approximately half, has gone to developed countries with a stable political environment: Canada, United States, Australia and Western Europe. The wave of M&As has also reached industrial minerals and coal mining.

There are a number of reasons for the continued M&A frenzy in the industry, some of them mining-industry specific, others of more general relevance in today's global economy:

- Continued low metal prices and concomitant low share values make it relatively cheap to buy operating companies and mines.
- The economic downturn in the mining industry in general necessitates restructuring to restore profitability.
- The political and economic changes in South Africa have set in motion a series of structural changes that not only shake the domestic mining houses to their foundations, but also the mining industry world-wide.
- More and more exploration work is initially made by juniors – small and independent companies. A transition phase has to follow, when a deposit is transferred from a junior to a larger mining company with enough capital to exploit the potential mine. These projects will hence be regularly offered for sale.
- M&As offer a way of avoiding the costly, risky and long exploration phase of a mine project. The deeper and more remotely new ore-bodies are located, the riskier this phase becomes; M&As become more attractive to companies that can afford them.
- A premium is put by investors on growth in the industry. Linked to this is also a less important but still common wish of the top executives to lead a larger company and also, potentially, the largest one.

There are also some factors running counter to those that encourage M&As:

- Local political opposition and trade unions that fight to retain local enterprise ownership and jobs.
- Anti-trust legislation and anti-trust watchdogs especially in Europe and North America.
- The poor profits made on some M&As.
- During the early and mid-1990s privatizations have been an important driver for M&As; but this factor has lost its importance by now.

In spite of the high level of M&A activity during the past two years, M&As in the mining industry are dwarfed by the deals currently made in other industries. Indeed, the level of concentration in most branches of metal mining is low compared to other industries. Therefore, even though the pace of M&As has slowed down somewhat in early 1999, it could pick up again, even if at a lower pace than before. The need to restructure increases further if metal prices do not recover quickly enough.

Source: Raw Materials Group (Sweden).

2. Reasons

The present wave of M&As is quite different from that which took place during the 1980s. The earlier wave mainly involved manufacturing firms and was facilitated by leveraged buy-outs and the development of new financial instruments. The current wave is broader, includes many cross-border deals and is propelled by a different set of forces. The possibility of financing deals through an exchange of stock between acquired and acquiring firms has facilitated this process. In this new context, firms are driven by a combination of forces and motivations, including in particular the following:

- As markets open up due to the liberalization of trade, investments and capital markets, to deregulation, especially of services, the privatization of state-owned enterprises, and the relaxation of controls over M&As in a number of countries, opportunities for M&As widen. At the same time, the pressure of competition brought about by globalization and technological change intensifies. Under these conditions, managing a portfolio of locational assets becomes more important to the firm, enabling it to take advantage of resources and markets world-wide. The speed with which it builds such a portfolio is itself a competitive advantage and the fastest way to establish a presence in the world's principal markets and obtain both access to resources – from natural resources to created assets – is through M&As.
- In a globalizing economy, size is a crucial parameter. It facilitates expansion abroad and creates financial, managerial and operational synergies that reduce the vulnerability of firms to economic shocks in any one regional or country market at the same time as it opens possibilities for the exercise of market power within these markets. Size is also a critical factor in creating economies of scale, particularly in industries faced with heightened competition or with contracting markets and excess capacity. In the current wave of M&As, firms not only seek size but also focus on core activities and rationalize operations across their global production network.
- Perhaps more importantly, size puts firms in a better position to keep pace with an uncertain and rapidly evolving technological environment, a crucial requirement in an increasingly knowledge-intensive economy, and to face soaring costs of research. In some industries (especially high-technology industries), the possibility for successful companies with complementary technologies to extend their reach is also a powerful motivation.²⁶ In addition, the impact of technology has led to a redefinition of boundaries in a number of industries (see chapter III.C), forcing firms to reconsider their strategies.

Other motivations include efforts to attain a dominant market position, and, in some cases, the search for short-term capital gains in terms of stock value. All the factors mentioned above play out differently in different industries. But once the established equilibrium in an industry is disturbed by the move of one firm, and under conditions of strategic interdependence under uncertainty, rival firms react through countermoves to protect their oligopolistic positions *vis-à-vis* other major competitors (Schenk, 1999). This sort of imitation may easily develop into a cascade. Even firms that might not want to pursue this course may be forced into it for fear of becoming an acquisition target themselves. Moreover, if they do not move early enough, they may have fewer options to find a suitable partner. Since large size is a more effective barrier against takeovers than profitability, firms may therefore pursue M&As for no other reason than to defend themselves against its effects and to create “strategic comfort” (Schenk, 1999). By doing so, they fuel the merger boom. **This latter factor in particular explains partly why the number of M&As increased significantly in recent years, notwithstanding the fact that a number of these deals do not result in increased performance.**²⁷

3. Impact on development

Cross-border M&As change not only the ownership but also the nationality of the acquired firms. In other words, these transactions involve a transfer of ownership of assets from the country in which the acquired company resides to the country in which the acquiring company resides. This means that, among other things, the post-acquisition benefits from the operations of the acquired firms no longer accrue exclusively to the country in which they take place.

There are several differences between cross-border M&As and greenfield FDI in terms of the benefits they bring to a host country (UNCTAD, 1998a, pp. 212-214). However, it is almost impossible to assess in general terms the impact of M&As on host economies. Some of the effects of M&As are likely to differ between developing countries, transition economies and developed countries. Several economic effects emerge only indirectly, depending on corporate strategies and the microeconomic motivations that make firms engage in M&As. Short-term effects provide an incomplete picture, or may even give rise to ill-conceived perceptions of M&As. Taking long-term effects into account, the differences between M&As and greenfield FDI may be less striking than is frequently suggested.

Most developing countries prefer greenfield FDI over M&As. The primary reason for this preference is that M&As merely involve a change in ownership of the acquired assets, and there is no new addition to the capital stock or production capacity of the host country, at least in the first round. Since capital formation is a key prerequisite for development, greenfield investments that establish new production facilities are preferred. In addition, the fact that all or part of the profits from the operations of the acquired firms now accrue to the new foreign owners and no longer to local investors is also considered a disadvantage.

Nevertheless, developing host countries can derive gains from M&As. Even though M&As do not create new assets directly, they involve cross-border capital transfers that can increase total investible funds available to host countries. The benefit to capital-constrained host countries are still greater if M&As induce sequential and associated FDI by the acquiring companies and their suppliers – which is often the case (UNCTAD, 1995, p. 146). M&As, like greenfield projects, can offer access to technologies that local firms do not possess. As greenfield projects too, they may introduce innovative management practices in the host country and/or render it easier to become part of global sourcing and marketing networks of the acquiring TNC, thereby improving opportunities to penetrate international markets.

M&As can be valuable for host countries when they prevent potentially profitable assets from being completely wiped out. This is relevant, for example, in the context of privatization-related M&As in transition economies and sales of firms in financially distressed developing countries. The transition to a market system may leave loss-making state-owned companies with no alternative but to declare bankruptcy, unless a private investor – foreign or domestic – with sufficient resources is willing to revitalize the ailing company. Frequently, the resources have to come from abroad, given the serious financial and technological constraints facing firms in early stages of economic transition. For example, transition economies in Central and Eastern Europe lacked the financial and technological resources to modernize former state-owned companies in service industries such as telecommunications. Basically the same thing applies to a number of developing countries in which communication, transport, energy and financial systems are privatized, or in which, under adverse economic circumstances, financially distressed firms are forced to seek buyers for their assets. M&As in the latter situation tend to be particularly contentious because they frequently involve a difficult trade-off; on the one hand, sales to foreign investors can prevent bankruptcies of solvent, though illiquid, domestic companies; on the other hand, they may amount to giving away assets at very low prices. This risk can be contained, however, if the relevant assets are offered for sale to competing bidders, e.g. through auctions.

The precise nature of the post-acquisition impact of M&As depends, of course, on the firm-specific motivations underlying them. If, as in the case of many privatizations in developing economies and economies in transition, they are driven by the need for an infusion of capital into the enterprise being offered (fully or partly) and by a quest for markets on the part of the buyer, a transfer of capital to the host country is most likely to take place. That it will be accompanied by other benefits such as a transfer of improved technology and knowledge cannot be taken for granted. Much depends on whether the acquired firm operates in a competitive market. In the case of a monopoly industry, contributions over and above the initial infusion of capital may occur only as a result of conditions negotiated with the highest bidder.

Furthermore, it is not necessarily always the host country, i.e. the country in which the acquired firm resides, that benefits from transfers of technology and knowledge. Transfers may take the opposite way. A reverse transfer of resources and capabilities from the host country is most likely if the acquiring firm resorts to M&As in order to draw on the unique competitive advantages that the acquired firm possesses. Such advantages can relate to both tangible and intangible assets of the acquired firm such as technical competence, established brand names and suppliers and distribution networks. Such reverse transfers are, however, less likely to occur from firms acquired in developing countries to acquiring firms in developed countries.

In addition to the question of additions to resources and capital stock that are especially important for developing countries, concerns regarding the economic impact of M&As shared by both developing and developed countries include the following:

- Consolidation and rationalization typically result in employment reduction, at least in the short run (table III.20). As many as 73,000 persons were laid off in 1998 from companies involved in M&As, both domestic and cross-border, in the United States, accounting for 11 per cent of total job losses of that country in that year.²⁸
- M&As may reduce competition in the host country and/or the home country. This risk tends to be greatest in those industries in which shrinking demand and excess capacity are important motivations for M&As, and in countries where competition policy does not exist or where its implementation is weak. However, the actual impact on competition depends upon the situation with respect to freedom of entry and effective competition policy.
- M&As could induce fiercer tax competition between developed countries. Cross-border M&As make it easier to shift profits to the country with the lowest tax rates.

From a long-term perspective, one of the most important factors affecting the impact of M&As on host country development relates to the productivity of the merged or acquired firms. It is difficult to measure quantitatively the impact of cross-border M&As on productivity. One way is to compare the productivity of the acquired firms before and after M&As. At the individual company level, there is some evidence on this for United States firms acquired by Japanese TNCs (UNCTAD, 1995, p. 183).²⁹

Table III.20. The significance of M&As as a mode of entry for Japanese FDI, by region, 1983 and 1995^a

(Percentage of total number of Japanese affiliates abroad)

Region/country	1983	1995
Developed regions ^{b,c}	15.7	16.5
North America	12.6	14.9
United States	11.0	14.6
Europe ^b	16.5	18.0
European Union	12.9	18.0
Oceania ^c	27.1	19.5
Developing regions	17.1	7.7
Africa ^d	23.3	5.0
Latin America and the Caribbean	17.2	8.2
South, East and South-East Asia	17.1	7.7
ASEAN	15.7	6.7
West Asia	5.9	4.8
World	16.5	11.8

Source: Japan, MITI, 1986 and 1998a.

^a Fiscal year ending March in the following year.

^b Includes Central and Eastern Europe.

^c Includes the developing Pacific.

^d Includes South Africa.

At the aggregate level, a survey on Japanese TNCs in 1989 (the most recent available year) shows that less than one half (47 per cent) of firms acquired by Japanese TNCs improved their profitability or kept it constant (Japan, MITI, 1992). There are some regional differences, though: in North America only 37 per cent of Japanese affiliates acquired through M&As improved profitability, but in Asia this share was as high as 70 per cent. In all regions, however, profitability of some one fifth of firms acquired by Japanese TNCs declined by more than 10 percentage points. Interestingly, however, in firms acquired in Asia or Latin America where, in more than one half of the cases, Japanese executives replaced the old management, the profitability improved compared to those firms in which the old management remained to stay (two-thirds of the cases in North America).

On the whole, experience suggests that productivity-enhancing effects of M&As cannot be taken for granted. The failure of many M&As to improve productivity can sometimes be attributed to the difficulties of combining different management styles and corporate cultures.³⁰

For governments in host and home countries, the critical question obviously is whether the positive economic effects that M&As may induce indirectly and in the longer run outweigh the negative effects that may be connected immediately with M&As. This depends on various factors, including the circumstances in which firms sell their created assets to foreign buyers and the alternatives that they face. Under special conditions in which infusions of capital into state-owned enterprises earmarked for privatization or into private firms facing bankruptcy or financial problems are critical, M&As clearly have a role to play simply as providers of finance for the survival of established firms and assets already created. In the long-run, and in normal times, the successful integration of merged companies, leading to productivity improvements, is what matters most.

C. Strategic partnering, M&As and their implications for the competitive environment

The growth of strategic partnering (UNCTAD, 1998), coupled with the accelerated pace of M&As in the 1990s, both cross-border and between domestic firms, has given rise to questions concerning their implications for the competitive environment. Attention has been drawn in particular to the information and communications technologies and the pharmaceutical and automobile industries because of their global reach and the role that technological and organizational innovations are playing in shaping the rules of competition within them.

As competition is globalizing and becoming more innovation based, firms in these industries have intensified their search for ways to reduce the costs, risks and uncertainties associated with a process of continuous innovation. Strategies such as vertical integration and M&As have traditionally been used to reduce costs and to manage risks and uncertainties, notably by creating size barriers to entry. Strategic partnerships, though they tend to be contractual in nature with little or no equity involvement by the participants (UNCTAD, 1994, pp.13-14) have also proven to be effective here and in addition confer the flexibility needed to adjust to changing competitive conditions. The strategic importance of flexibility can be seen in the rising number of technology partnerships that have been formed in the information technology, pharmaceutical and automobile industries during the 1990s (figure III.6).

This does not mean that size has ceased to be an important critical asset of firms. The intensification of competition in markets around the world during the late 1980s and early 1990s has led to the renewed salience of size considerations, even in industries, such as the information technology and automobile industries, in which a process of deverticalization has been underway. This is evident in the sharp increase in the number of M&As (domestic and cross-border) that have taken place over the past decade in these two industries. These rose from an annual average of 2,437 deals in the first half of the 1990s to 6,229 deals per year in 1995-1998.³¹ In the first four months of 1999 alone, a total number of 2,751 M&As were

Figure III.6. Share of M&As in investment expenditures by foreign direct investors^a in United States businesses, 1980-1998
(Percentage)

Source: UNCTAD, based on United States, Department of Commerce, various issues c and various issues d.

^a The data refer to investment outlays by foreign direct investors to acquire or establish new United States businesses regardless of whether the invested funds are raised in the United States or abroad. The data cover United States business enterprises that have total assets of over \$1 million or that own at least 200 acres of United States land. A United States enterprise is categorized as "acquired" (in this context "M&As") if the foreign parent or its existing United States affiliate obtains a voting equity interest in an existing United States business enterprise; or purchases a business segment or an operating unit of an existing United States enterprise that it organizes as a new separate legal entity or merge into the affiliate's own operations. The data do not include a foreign parent's acquisition of additional equity in its United States affiliates or its acquisition of an existing United States affiliate from another foreign investor, nor include expansions of existing United States affiliates. Sell-offs or other disinvestment are not netted against the new investment. Reinvested earnings are not included.

^b Preliminary.

announced. Of the 947 deals for which a value was known, 103 were in the communications industry, 420 in computer software, supplies and services and 31 in automotive products and accessories³².

1. Concentration and the formation of traditional oligopolies

For the most part, competition authorities focus on the extent to which M&As might lead to the creation of a monopoly or contribute to oligopolistic market behaviour. Concentration ratios are one indicator of the possible emergence of monopolistic or traditional oligopolistic market behaviour within a given industry. Provided that the industry in question has relatively stable boundaries, the shares of the top one, four and 10 companies in industry output can be calculated. The assumption here is that size, as reflected in a firm's market share, confers market power over prices and enables large firms to take advantage of static size barriers to entry. These can be found, for example, in the cost of advertising and after-sales services in the automobile industry and clinical testing and certification in the pharmaceutical industry.

Rising numbers of M&As over the 1990s and the particularly sharp increases in the number of M&As during 1995 - 1997 would normally be expected to lead to higher levels of concentration, especially in industries such as information technology where M&A activity was most intense. However, concentration ratios for the top four firms in the information technology industry³³ fell from a high of 43 per cent in 1985 to 31 per cent in 1997 (figure III.7). There was also a modest decline in the 10-firm concentration ratios in this industry over the same period. In the case of the automobile industry,³⁴ the four-firm ratio shows a small decline, from 47 per cent in 1985 to 44 per cent in 1997. But the 10-firm ratio shows a small increase.

Two factors stand out as possible explanations for the variability reflected in the data on industry concentration. First is the role that strategic partnerships play along side M&As in strengthening the market power of large firms within and across national markets. Traditional tools used to analyse the emergence of oligopolistic market structures do not take such partnerships into consideration. Second is the way in which the boundaries of industries are being redefined, often through a combination of strategic partnering activity and M&As. This blurring of industry boundaries makes it more difficult to interpret changes in concentration ratios and relate them to competitive conditions in a given industry. A closer look at the automobile and the information and communications industries will illustrate these points.

Figure III.7. Concentration ratios of the top four and top 10 companies in the information technology and automotive industries

Source: Merit/UNCTAD database.

Enterprises have always tried to keep an eye on their close competitors. This is simply good competitive practice. But oligopolistic market theory suggests that, as firms encounter each other across multiple product markets, the opportunities for learning each other's strategies increase and so, too, do the incentives for collusion. By analogy, if encounters across many markets are conducive to collusion, meetings across multiple strategic partnerships might have a similar effect. Some early evidence for this hypothesis emerged in a study of the European Strategic Programme in Research and Development on Information Technology (ESPRIT), a programme to promote R&D partnerships among European information technology firms where the latter were defined narrowly to include computer, semiconductor and software companies.³⁵ During its first two phases which covered the years 1983-1991, Europe's big 12 information technology firms were able to build the bases for a "defensive oligopoly" through their high rates of participation in the ESPRIT programme and the multiple encounters across the 561 R&D projects that were created in this period (Mytelka, 1995). Firms like Thomson, Siemens, Bull and Philips were each involved in over 70 of these R&D consortia and encountered each other in many of the core technology projects of the period.

Data on research joint ventures³⁶ in the United States registered with the United States Department of Justice and the Federal Trade Commission show a similar pattern of intensive multiproject interaction within standard industrial classification categories. Over the period 1985-1995, a total of 575 new research joint ventures were registered. Telecommunications was the largest single technical area in which such ventures were created, accounting for 23 per cent of the total³⁷ (Vonortas, 1997, p. 581). Technologies of relevance to the automobile industry variously classified under the headings of environmental, advanced materials, energy and transportation technologies accounted for the second largest group of research joint ventures. Although some two-thirds of the participants were involved in only one research joint venture, 10 companies were involved in 50 or more of these alliances. Five of these were oil companies. But United States firms from the automobile and information technology industries that participated most actively were also among those most involved in multiproject encounters. These included GM, IBM and AT&T (box III.4). The frequency with which large diversified corporations meet in research joint ventures in the United States and their multiple encounters in product markets "...strengthens the possibility of collusive play [and,] if the problem was pervasive, the long-term results could be felt in the form of lower economic competitiveness and loss in consumer welfare" (Vonortas, 1999, p. 13). Not only did large American firms meet

each other with considerable frequency through research joint ventures within the United States but they also encountered their principal Japanese and European rivals (box III.4)³⁸. Capturing this dimension is one of the keys to the identification of new forms of oligopolistic market structures on a global scale.

Box III.4. Research joint ventures in the United States

Since the passage of the National Cooperative Research Act (NCRA) in 1984 and its amended version, the National Cooperative Research and Production Act (NCRPA) in 1993, the number of research joint ventures in the United States has increased dramatically. Many of these agreements are in the information, communications and automobile industries.

Through research joint ventures (RJVs), dominant firms in these industries encounter each other in a multiplicity of different research joint ventures. GM, the world's top automobile manufacturer, with nearly 15 per cent of world production, participated in 105 research joint ventures, encountering Ford in 33 of these and Chrysler in 21. Ford and Chrysler encountered each other in 19 research joint ventures. IBM, the top firm in the information technology industry with 17 per cent of the world market, was a partner in 69 research joint ventures. It met Digital Equipment (DEC), in 32 projects and Hewlett-Packard (HP) in 26, both of which are among the top 10 firms in the global information technology industry. AT&T, the leading firm in telecommunications, was involved in 75 research joint ventures, meeting DEC in 27 of these and Hewlett-Packard in 23. DEC and HP met each other in 27 research joint ventures. AT&T met IBM in 31 projects.

Within the United States, leading American firms also encounter their Japanese and European rivals. IBM, for example, encountered Fujitsu (Japan) in 15 RJVs, Siemens (Germany) in 14, Groupe Bull (France) in 12, Thomson-CSF (France) in 11 and Hitachi (Japan) and Alcatel (France) in 10 each. Similarly, AT&T encountered Northern Telecom (Canada) in 18 RJVs, Fujitsu and NEC (Japan) in 15 RJVs each, Siemens in 14, Groupe Bull in 13, Hitachi in 12 and L.M. Ericsson (Sweden) in 10. Through US-based RJVs, European and Japanese firms have also met each other frequently. Siemens, for example, participates in 35 RJVs in the United States. In addition to its RJVs with US firms, it meets Fujitsu and NEC in 13 RJVs, Groupe Bull in 11, Alcatel and British Telecom in 10.

Source: Vonortas, 1997.

2. Strategic partnerships, M&As and the creation of knowledge-based networked oligopolies

A second key to the identification of new forms of oligopolistic market structures on a global scale is to examine the nature of changes in the boundaries of industries and of the rules of competition within them. The formation of traditional oligopolies, as described above, is based on three relatively static pillars: the ability to identify a small number of competitors, mainly other domestic firms, among whom mutual interdependence and forbearance are practised; the set of products or the industry within which oligopolistic competition takes place; and the technological trajectory which these products will follow. The globalization of knowledge-based competition has made it increasingly more difficult to identify potential rivals in distant markets. Even more difficult to predict in this period of rapid technological change are one's competitors when these may emerge from other industries as a result of a technological discontinuity or through the combination of hitherto unrelated generic technologies. Digitalization in the data processing industry leading to what became known as the information technology and later the information and communications technology industry is one such example.

At their origin, all computer manufacturers were vertically integrated companies that produced their own hardware, proprietary operating systems (software) and the semiconductors that made computing possible. IBM dominated the field. When Digital Equipment Corporation (DEC) sold its first mini-computer without software bundled-in, it broke with this tradition and created an opportunity for software producers to emerge on this new horizontal segment.

A new market niche for alternatives to the mainframe computer also now opened. Over the next decade semiconductor manufacturers formed a second horizontal segment in the data processing industry and the introduction of the personal computer by Apple in 1997 led to further differentiation among end products in the data processing industry. The development of workstations and new microprocessors based on reduced instruction set computing (risc) designs further widened the field of competition in the information technology industry as a whole. Within it, however, a variety of knowledge-based networked oligopolies began to form.³⁹ They share four principal characteristics (Mytelka and Delapierre, 1999):

- They are knowledge-based, i.e. involve collaboration in the generation and use of or control over the evolution of new knowledge. As a result, the new knowledge-based oligopolies are dynamic, seeking to organize, manage and monitor change as opposed to rigidifying the status quo.
- Their focus is less on creating static size barriers to entry than on shaping the future boundaries of an industry and the technological trajectories, standards and rules of competition within them which themselves are a source of dynamic entry barriers. In the 1990s, these new rules included:
 - innovation-based competition with rapid movement down the performance/cost curve,
 - equally rapid movement down the manufacturing learning curve in order to ensure higher yields, rapid ramp up in volume to reduce costs, but
 - speed and flexibility in changing over to new product generations as the product life cycle shortened and
 - increased use of M&As to extend product variety, assure brand-name recognition of products with the same basic functionality and gain market share in principal markets around the globe,
 - increased use of strategic partnering to reduce the high costs and risks of R&D needed to maintain the pace of innovation, speed up the innovation process and shape the technological trajectory within an emerging industry or industry segment, and
 - efforts to maintain positions within the core group of firms in knowledge-based networked oligopolies through which the industry's future is increasingly shaped.
- They are composed of networks of firms rather than of individual companies. Alliances thus form the basic structure and building-blocks of the global oligopoly.
- In terms of their organization, the new oligopolies can form within or across industry segments and sometimes do both at the same time. They are moving and reshaping to include new actors when the assets these actors bring to the network are complementary and eliminating others whose resources are no longer critical. The electrical and information technology industries exemplify the differences between the traditional and the new knowledge-based networked oligopolies (figure III.8).

The global range of partners and the complementary use of M&As and strategic technology partnerships that characterized the knowledge-based networked oligopoly in the semiconductor industry that emerged during the 1990s can be illustrated for data processing (figure III.9). Its various nodes were constituted around traditional oligopolistic firms, thus permitting their survival and dominance within the traditional configuration of the data processing industry, formed mainly through linkages between software, semiconductor and hardware producers.

From the mid-1985, the growing use of digital switches in the telecommunications industry made a merger of information and communications technology industries possible. Initially larger firms from both industries sought to acquire a foothold in each other's industry but this strategy failed to overcome a number of obstacles raised by the specific nature of computing

and telecom functions as well as by the modes of interaction with their respective users.⁴⁰ Over the next 10 years, the focus of the information technology and the telecommunications industries blurred and competition intensified as the terrain became populated by new players operating on wholly new segments, many of which were focused on the internet.⁴¹ They have since been joined by service and content providers from other industries in challenging the established core players in the earlier information and communications industries.

To a large extent this blossoming of competition was a consequence of the multiplicity of ways in which the technologies needed for internet access, for the transmission of data at high speeds and for the user interfaces could be combined.⁴² Within each of these segments, however, M&As were strengthening the position of frontrunners. AOL, for example, acquired rival Compuserve and then took over Netscape. Cisco bought 25 smaller firms between 1993 and 1996 and nearly 10 every year in the two following years in a bid to survive on its horizontal segment as an independent player much as Intel and Microsoft had done in microprocessors and operating systems. But the new rules of competition required firms in this industry to innovate continuously, to extend product variety and to provide complete solutions

Figure III.9. The main nodes in the data processing networked oligopoly during the 1990s

Figure III.8. A comparison of the principal characteristics of a traditional and knowledge-based networked oligopoly: the electrical and the information technology industries

to the telecommunications operators. This has led the world's largest telecommunications equipment firms to move rapidly towards the incorporation of the network system segment. Lucent Technologies acquired Livingstone and later Ascend Communications, Alcatel bought DSC Communications and Northern Telecom merged with Bay Networks.

M&As alone, however, have not served to define the boundaries of the new industry, and jockeying for power and position continues. For both traditional oligopolists and potential newcomers, the blurring of boundaries between the telecommunications, information technology and media industries is creating new difficulties in identifying not only who one's rivals are, but what is the relevant market on which to compete. In this process strategic partnerships are playing a critical role

in the creation of rival knowledge-based networks of firms that cut across these previously distinct industries and position themselves on these rival market possibilities (box III.5). Within each of these networks, larger firms are attempting to shape the boundaries of these new markets by setting the standards, selecting the core technologies and establishing the new rules of competition within them.

Box III.5. Knowledge-based networks reshape the information and communications technology industries

M&As alone have not been able to redefine the boundaries of a new information and communications technology industry. In combination within strategic partnerships, however, they are blurring the boundaries between these two industries and drawing into the emerging industry a variety of new potential players. The new knowledge-based networks are focused on four distinct outcomes. The PC/TV link would preserve the dominant role of AT&T in the telecommunications industry and of the Wintel (Intel-Microsoft) configuration in the information technology industry by extending both to their interface with the internet. As part of this strategy AT&T has sought to reach users through the acquisition of two major cable companies, Tele-Communications Inc. and MediaOne Group. Microsoft has pursued a similar route through investments in cable companies in Europe and through a new alliance with AT&T that would put Windows CE into the TV set-top boxes of up to five million of AT&T's new cable subscribers.

To this vision of the future shape of an information and communications technology industry is opposed several others. The PC/internet connection is centred on an alliance between IBM, Oracle and Sun. The latter, a computer workstation manufacturer, has developed Java, a new software system that is able to work with any kind of computer, from small PCs to large mainframes. Its adoption would help computer manufacturers to resist the threat posed by the continuous upgrading of PCs which has contributed to the dominance of the Wintel Alliance over the past two decades. This network is seeking to promote Java as an internet software standard. The interactive TV network is the initiative of AOL and with AT&T's acquisition of that company has become a means for AT&T to hedge its bets on the future shape of the market. AOL has forged its interactive TV alliance around the provision of AOL's internet services through a satellite link, rather than through cable. DirecTV will provide the digital TV broadcasts and transmit AOL's interactive services; Hughes Network System will manufacture dual purpose, TV/Internet receiver units. Philips Electronics will develop the advanced set-top boxes that will enable users to process the interactive services and Network Computer will provide the software for these services. The interactive game console brings electronics firms such as Sony and Fujitsu into the emerging industry alongside telecommunications and computer company partners. Sega is thus marketing its Dreamcast game console with internet connection in alliance with British Telecom and Fujitsu. Sony has yet to produce its new Playstation II, but publicity bills it as a radically new approach to interactivity.

Source: Mytelka, 1999.

In contrast to the information and communications technology industry, the boundaries of the automobile industry are still relatively stable, though they have extended from the national to the global. The changing nature of competition within the industry, however, is accelerating the pace of concentration within each of its two main horizontal segments, auto parts and assemblers, and leading to the creation of new forms of partnership between them. These changes have contributed to the development of aggressive market entry strategies for the new auto parts system integrator firms into major markets around the world, adding to the globalization of this industry and altering the competitive environment within it.

The rules of competition in the automobile industry closely parallel those in the information technology industries described above. Competition is increasingly innovation-based, and product differentiation takes place through a process of continuous innovation and through M&As that enable the automobile assemblers to position themselves across a wide spectrum of end market products. All major automobile assemblers have used M&As to transform themselves into generalists with a presence in most dynamic product markets (UNCTAD, 1998, p. 26).⁴³ During the 1990s, strategic partnerships with preferred "first tier" suppliers were formed for the purpose of sharing the risks and costs of designing principal

components and subsystems. By reducing the number of suppliers and of distinct components and parts, these partnerships have accelerated the pace at which new products are designed. Shared platforms, modularized production, long-term contracts with a global scope and the bringing of first tier suppliers within the assembler's own factory have further reduced costs and the uncertainties associated with a process of continuous change.⁴⁴

M&As have also accelerated in the auto parts industry. Of the 620 automotive deals that were concluded in 1998, 320 involved parts suppliers.⁴⁵ These have taken two forms. Concentration has increased within product categories and new horizontal segments are forming as "system suppliers" extend their production to cover whole sub-assemblies. On each of these modularized segments consolidation is resulting in a relatively small number of top players. Car interiors were the first sub-assembly to be sub-contracted and today Lear Seating (box III.6), Johnson Controls and Forecia, each of which is the product of multiple M&As along with captive suppliers, Delphi (GM) and Visteon (Ford) dominate this segment. In the engineering sector the market has similarly consolidated with Bosch, Denso, Dana, Magna and TRW as the principal independents alongside Delphi and Visteon in the manufacture of axles, steering and braking systems.

Box III.6. Lear Seating: becoming a preferred first tier supplier

In 1993 Lear Seating secured its position in the United States seat systems business by acquiring the North American seat cover and seat systems business of Ford Motor Company. As part of the deal, Ford entered into a five-year supply agreement with Lear and the latter assumed primary engineering responsibility for Ford's seating systems. Three years later Lear and Ford opened a joint research centre in Dearborn, Michigan. In 1994, a similar process enabled Lear to gain entry into the Italian market and to obtain preferred first tier supplier status with Fiat around the world. It also acquired a research centre in Turin. As the market advanced, Lear purchased Dunlop Cox Ltd. (United Kingdom) for its ability to design and manufacture automobile electronic and manual seat adjusters.

A series of M&As and greenfield investments in South America in 1996 and 1997 further established Lear as a global player in the seating system market, reinforcing its links to Ford and Fiat. At the same time, its acquisition of Keiper, a leading automotive vehicle seat systems supplier on a just-in-time basis for the VW group, Porsche and Mercedes-Benz, opened new markets in Brazil, South Africa, Germany, Hungary and Italy.

As modularized production of whole sub-assemblies became increasingly the norm, Lear Seating also moved to acquire assets in cockpit-related components. In 1995 it bought Automotive Industries Holding, thus acquiring the design and manufacturing capability to produce high quality interiors. In 1996 it took over Masland Corporation primarily for its floor and acoustic systems technologies and its technical centre in Plymouth, Michigan, for acoustics testing, design, product engineering, systems integration and production management and Borealis A.B. for its ability to design and manufacture instrument and door panels. Today Lear is able to fill the role of systems integrator and to manage the design, purchasing and supply of the total automotive interior.

Source: SEC 10K form.

Through M&As, auto parts manufacturers have increased their size, making it possible for them to take on a larger share of the design and manufacturing process and to extend the geographical scope of their activities.⁴⁶ This has further reinforced the links between first tier suppliers and their clients. The size barriers implicit in modularization and in the volume of purchases, the knowledge barriers resulting from the transfer of design to auto parts manufacturers and the long-term and global nature of their contracts with automobile assemblers are becoming formidable barriers to entry for potential newcomers and for the survival of local independent suppliers throughout the world.

* * *

As these two case studies have shown, in both the automobile and the information and communications technology industries, traditional size barriers have been reinstated -- but with a major difference. They are no longer static but dynamic barriers in which knowledge production and the ability to undertake a continuous process of innovation are critical attributes. M&As thus add not only to the range of products and markets in which a firm can be present; but, by bringing within the firm new R&D, design and engineering capabilities, M&As contribute to the flexibility with which firms can provide new solutions to their clients in the longer term.

In a period characterized by technological, organizational or public policy ruptures, the future boundaries of an industry, however, are not certain and uncertainty clouds the ability of firms to identify clients and competitors. Knowledge-based networked oligopolies have a major role to play in reducing such uncertainty and in extending the ability of large firms to influence the shape of future industries and markets. Oligopolistic market competition, under contemporary conditions, thus depends less on the sheer number of firms in an industry as a whole than on their ability to manage a portfolio of strategic partnerships that enables them to network across industry segments. Through these knowledge-based networks, therefore, new markets can be created by establishing boundaries around new sets of standards and new combinations of technologies. While size continues to play an important role in shaping competitive conditions, the market power of dominant firms today is also a result of their ability to define the relevant market.

Notes

- ¹ For details on the measurement of transnationality, see UNCTAD, 1998a, box II.2 (pp. 43-44). As underlined in *WIR98*, the transnationality index measures only one aspect of a firm's involvement abroad. It does not, however, provide any information on the extent of geographical diversity of a firm's activities abroad, neither does it illustrate the degree of integration into the host economy nor the type of functions that are transnationalized. An analysis based on the number of countries in which the top 100 TNCs operate suggested last year that, while these firms are quite transnationalized, they do not exhibit a broad geographical spread (*ibid.*, p. 44).
- ² The *Fortune Global 500*, although having changed its name several times, has been published since 1955. Other lists include for instance *Forbes 500*, *Business Week 1,000* and the *Financial Times 1,000*. The latter two rank corporations by market capitalization, while the former two rank corporations by total revenues.
- ³ The lower percentage for total assets indicates the large share of total assets of financial corporations in the *Fortune Global 500*.
- ⁴ These estimations are based on the estimates on the sales, assets and employment of foreign affiliates of TNCs, as provided in table I.2 of this report. These ratios - especially those relating to sales and assets, have to be dealt with cautiously, as the data on the foreign assets and sales of the top 100 TNCs, mostly obtained through a questionnaire filled out by firms, may not necessarily correspond exactly to the definition of foreign assets and sales used in table I.2.
- ⁵ Estimations of the ratio of value added to total sales vary, usually from 30 per cent to 40 and 50 per cent (Lochsley and Ward, 1979). (See also annex tables A.I.5 and A.I.6).
- ⁶ One of them, however, is incorporated in Bermuda, though managed from Hong Kong (China).
- ⁷ South African Breweries plc relocated its headquarters to the United Kingdom in 1999.
- ⁸ The survey took place in April-May 1999. The answers enabled UNCTAD to obtain 1998 data - which was neither possible for the top 100 TNCs (a much bigger survey of 500 TNCs undertaken in January-February 1999), nor in the case of the top 50 TNCs from developing countries (a survey undertaken in February-March 1999).
- ⁹ In Latvia, Republic of Moldova and Slovenia, the ratios of foreign assets of the top TNCs from those countries to the FDI outward stock of those countries are 1.4, 1.1 and 1.1.
- ¹⁰ Those ratios for Hungary and Poland are 0.2 and 0.1 respectively.
- ¹¹ Data for metallurgy and for business services are not shown here because they are either very low or concern a single company.
- ¹² The average ratio of the top 50 TNCs from developing countries was about 35 per cent (table III.10).
- ¹³ Before the Second World War, there were a few international firms located in Central Europe. Some of them, such as Skoda Plzen (Czech Republic) reappear in the top 25 list (table III.13). Others, like Hungary's Tungsram (bought by General Electric) became affiliates of foreign TNCs. Finally, some of them such as

- Czech Bata, changed nationality (Bata became a Canadian-based TNC) (Simai, 1999, p. 3).
- 14 Due to data limitations, it is impossible to extract M&A transactions that correspond to the FDI definition (i.e. involve 10 per cent or more foreign control) from those that are portfolio investment (less than 10 per cent) (see definitions and sources in Annex B). In this section of the *WIR99*, cross-border M&A data refer to either total M&As or majority-owned M&As; references to “M&As” refer to all M&As; references to “majority-owned M&As” refer to such M&As only. The data are from KPMG Corporate Finance and the Securities Data Company (SDC). There are some differences in the figures provided by these companies due to different criteria used by each on the deal selection. But both sets of figures show similar trends. Although differences between them are small, in some years, notably 1998, the difference is large: cross-border M&As in the world reported by KPMG for 1997 and 1998 are \$342 billion and \$544 billion, respectively, while \$399 billion and \$655 billion, respectively, are reported by SDC. SDC registers all announced deals, including those that are not necessarily realized; KPMG imposes certain restrictions (i.e. exclusion of management buy-outs, requirements of definite agreement between the two parties etc.). As only the data provided by KPMG are further broken down into majority-owned cross-border M&As and others, the data relating to cross-border M&As used in this section of this chapter are from this company.
- 15 The data on cross-border M&As include not only purchases financed by portfolio investments but also those financed from domestic and international capital markets. Furthermore, the data are based on the announcement date of deals. However, if United States data are any indication, announced cross-border M&As resulting in acquisitions of United States firms and actual investment expenditures by foreign investors (foreign direct investors outside the United States and foreign affiliates in the United States) in United States business entities through acquisitions are very close: for the former, the values were \$62.9 billion in 1995, \$70.9 billion in 1996 and \$65.1 billion in 1997 (UNCTAD, 1998, p. 413), while those for the latter were \$47.2 billion, \$68.7 billion and \$64.3 billion, respectively (Fahim-Nader and Zeile, 1998, p. 42). This suggests that there is a relationship between announced cross-border M&As and actual investment in foreign affiliates.
- 16 Investment expenditures in foreign affiliates are not the same as FDI. For details, see note ^a in figure III.5. See also chapter I.
- 17 These stock-exchange M&As result in large, but almost entirely offsetting, capital flows in the balance of payments: the inflow of capital that results from the foreign direct investor’s acquisition of stock in the acquired firm is offset by the outflow of capital recorded in the portfolio investment account, that results from the distribution to the shareholders in the acquired country of the stock in the newly established foreign parent companies.
- 18 Gwen Robinson, “Australia sees merger and acquisitions boom”, *Financial Times*, 19 January 1999, p. 8.
- 19 It should be noted that in Malaysia, short-term capital transactions in stock markets have been restricted since September 1998, which partly explains this situation.
- 20 “Unconsummated lust”, *The Economist*, 9 January 1999, p. 20.
- 21 The remaining balance is essentially with United States firms. *Nihon Keizai Shimbun*, 25 January 1999. Also see Jane Martinson and Lucy Smy, “UK companies top cross-border takeover league ahead of US”, *Financial Times*, 18 January 1999, p. 6. The largest deal made by United Kingdom firms with European firms was the \$4.1 billion takeover of Castorama Dubois (France) by B&Q Plc (Kingfisher Plc), ranked as the 23rd in the league table (annex table A.III.1), less than one tenth of the largest deal by United Kingdom firms (British Petroleum-Amoco).
- 22 Katharine Campbell, “Continental European buy-outs decline”, *Financial Times*, 23 November 1998, p. 23.
- 23 For example, a 34 per cent equity stake of Nissan Motor, one of the largest auto makers in the world, was acquired by Renault (France) in 1999.
- 24 See, e.g. the fusion of telecommunication and Internet technologies, brought together, for example, by the merger between Northern Telecom of Canada and Bay Networks of the United States, ranked 9th in value among cross-border M&As in 1998 (annex table A.III.1).
- 25 Jeremy Gray and Paul Taylor, “Microsoft buys stake in second European cable group”, *Financial Times*, 27 January 1999, p. 15.
- 26 This was particularly the case in high technology industries such as the software industry (Rodriguez, 1999).
- 27 See for instance, Dickerson, Gibson and Tsakalotos (1997); Schenk (1999); Rodriguez (1999); and *The Economist*, vol. 350, no. 8101, 9th January 1999.
- 28 *Nihon Keizai Shimbun*, 20 January 1999, p. 9.
- 29 The productivity of Firestone, Inc. of the United States acquired by Japanese Bridgestone Corp. in 1988 increased by more than 200 per cent, if sales per employee between 1986 and 1992 are compared. Similarly, productivity rose significantly in the case of the acquisition of National Steel Corporation (United States)

by NKK Corp. (Japan) in 1984. However, not all cases are successful. MCA, Inc. of the United States which was acquired by Matsushita Electric Industrial of Japan in 1990 was eventually resold to Seagram of Canada because of a decline in productivity.

30 “How to merge”, *The Economist*, op. cit.

31 These data are from Mergerstat, “More than 30 years of M&A activity”, on-line at mergerstat.com, 26 February 1999.

32 Mergerstat, on-line at mergerstat.com, 8 May 1999.

33 Concentration ratios are calculated on the basis of ranking of the IT companies in terms of their annual data processing sales revenue. The company ranking is determined by calculating the share of its sales to the total sales of the top 100 companies.

34 Concentration ratios are calculated on the basis of a ranking of the automobile manufacturers in terms of the total number of vehicles they produce each year. The concentration ratio is thus the share of its annual vehicle production in the global production of all automobile manufacturers.

35 Telecommunications equipment manufacturers, for example, had their own programme, RACE.

36 Research joint ventures are defined as “organization[s], jointly controlled by two or more parent institutions whose purpose is to engage in research and development activities” (Vonortas, 1997, p. 577). Data on research joint ventures in the United States exist since the mid-1980s.

37 Bellcore ranked first among the most active companies with 115 research joint ventures. Before its division into three separate companies in 1996, AT&T (now Lucent Technologies) ranked first among the world’s top telecommunications equipment manufacturers and first among the world’s largest international carriers. In this database AT&T (Lucent Technologies) came sixth among the most active companies.

38 Data on technology partnerships from the Merit/UNCTAD database confirm the rise of multiproject encounters among the world’s largest enterprises in the information technology and the automobile industries around the globe (UNCTAD, 1998).

39 Knowledge-based networked oligopolies have formed in Drams and HDTV (Delapierre and Mytelka, 1998), in workstations and risc chips (Gomes Casseres, 1993).

40 AT&T, for example, entered the computer field through the purchase of shares in Olivetti and the acquisition of NCR. IBM bought Rolm, a PABX manufacturer and in the United Kingdom, STC, a telecommunications equipment company, took over ICL, the largest British computer manufacturer. Subsequently, IBM sold its share in Rolm to Siemens, a telecom equipment manufacturer, STC abandoned ICL to Fujitsu and AT&T withdrew from Olivetti and spun off NCR.

41 These included network system companies such as Cisco, 3COM and Bay Networks, Internet Portals, AOL, Compuserve and Yahoo and specialized software firms such as Netscape.

42 The user interface, for example, might be a computer, a television receiver equipped with a set-top box to process interactive services or even a game machine. The transmission system might involve cable, telephone wires, wireless systems or satellites. To run such systems, the software might be provided by new network companies, electronics firms or more established software producers. Within each of these segments, M&As strengthen the position of frontrunners and broaden their ability to provide multiple solutions to each of these combinatory possibilities.

43 Computer manufacturers similarly produce a PC for every purse or purpose.

44 In the information and communications technology industry, Hewlett Packard has begun to imitate this model.

45 “Major auto mergers drive sweeping change in the parts industry according to PricewaterhouseCoopers survey”, www/investing.lycos.com, 29 March 1999.

46 Robert Bosch has bought a controlling interest in several firms in the Republic of Korea. Mahle of Germany acquired Metal Leve of Brazil and thus gained access to both the large Brazilian automobile market and the design facilities of Metal Leve in the United States.