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**Foreign Operations of swedish Manufacturing Firms  
Evidence from the IUI Survey On Multinationals 2003**

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## **Abstract**

The paper serves as a documentation of the survey IUI has conducted on Swedish multinational firms (MNEs) in 2004. It describes recent trends in the operations of Swedish multinational firms participating in the survey and foreign direct investment (FDI) of Swedish firms in general. The survey is a follow-up of the surveys made by IUI since 1970s. The database covers information about the Swedish part of manufacturing multinational firms and the foreign affiliates of the firms. The following years are covered: 1965, 1970, 1974, 1978, 1986, 1990, 1994, 1998 and 2003.

*JEL-Codes: F21; F23*

*Keywords: Foreign Direct Investment; Multinational Firms; Foreign Affiliates*

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## **1. Introduction**

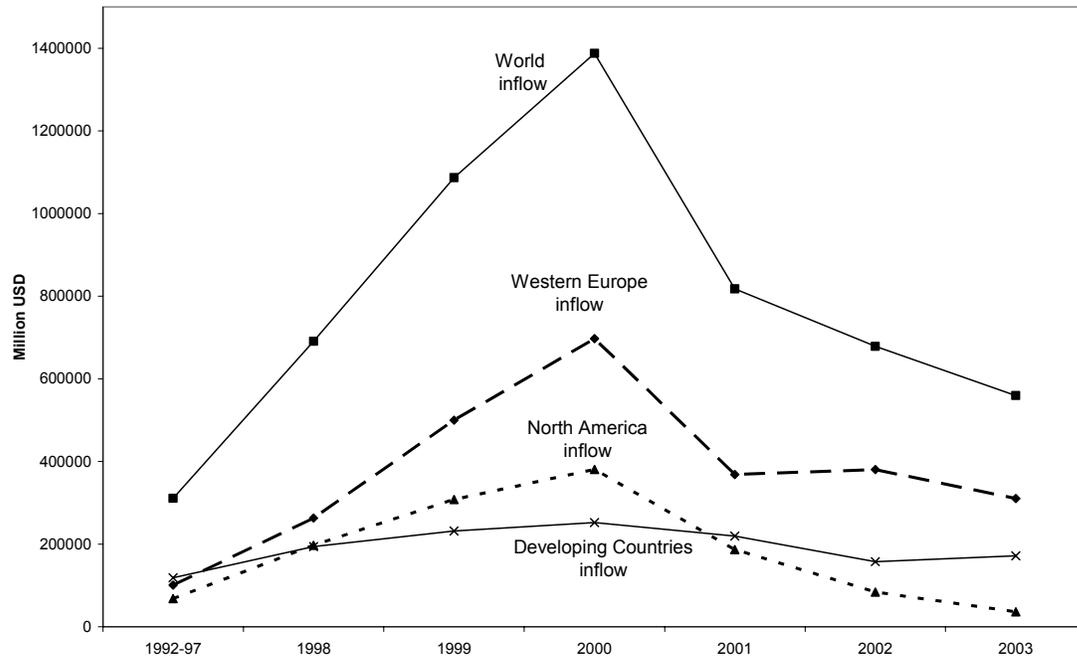
The increasing internationalization and restructuring of Swedish firms has attracted renewed attention by researchers, policy-makers and the public at large. Phenomena such as outsourcing and offshoring of production have caused concerns about firms closing down factories in Sweden and jobs being moved abroad. To increase our understanding of this development and other issues related to the internationalization of firms, IUI has conducted a survey on Swedish multinational firms, (MNEs). This survey is a follow-up of the surveys made in 1965, 1970, 1974, 1978, 1986, 1990, 1994 and 1998. The aim of this paper is two-fold. First, it serves as a documentation of the survey in 2003. Second, it describes recent trends in the operations of Swedish multinational firms participating in the survey and foreign direct investment (FDI) of Swedish firms in general. The paper is organized as follows. The next section describes the international trends in FDI, Section 3 describes the trends in Swedish FDI and Sections 4 to 7 describe the survey data and focus on issues such as location of foreign operations, R&D, entry mode of FDI and exports. Section 8 compares the survey MNEs with a control group of Swedish export firms. Facts about the survey are provided in the appendix.

## **2. International Trends in FDI**

In the 1990s, increasing integration of global markets implied a surge in foreign direct investments which reached a peak in 2000. The development of FDI inflows largely followed the increase in equity prices around the world. Since 2000, FDI inflows have fallen and this fall continued even during 2003, with a decline of 18 percent to 560 billion USD (see Figure 2.1). In particular, inflows to North America, where inward FDI dropped by 22 percent during 2003, showed no signs of recovery. In Western Europe, the recovery that seemed to be under way in 2002 once more turned into a negative trend in 2003. The setback by 18 percent was smaller than in North America, however. While decreasing inflows of FDI to developed countries indicate continued weak economic prospects in this part of the world, inflows to developing countries modestly suggest the opposite. In 2003, the inflows of FDI to developing countries increased by 13 percent.

This increase mainly occurred in South, East and South-East Asia excluding China. The increase in China was 1.4 percent.

**Figure 2.1 Global inflows of FDI.**



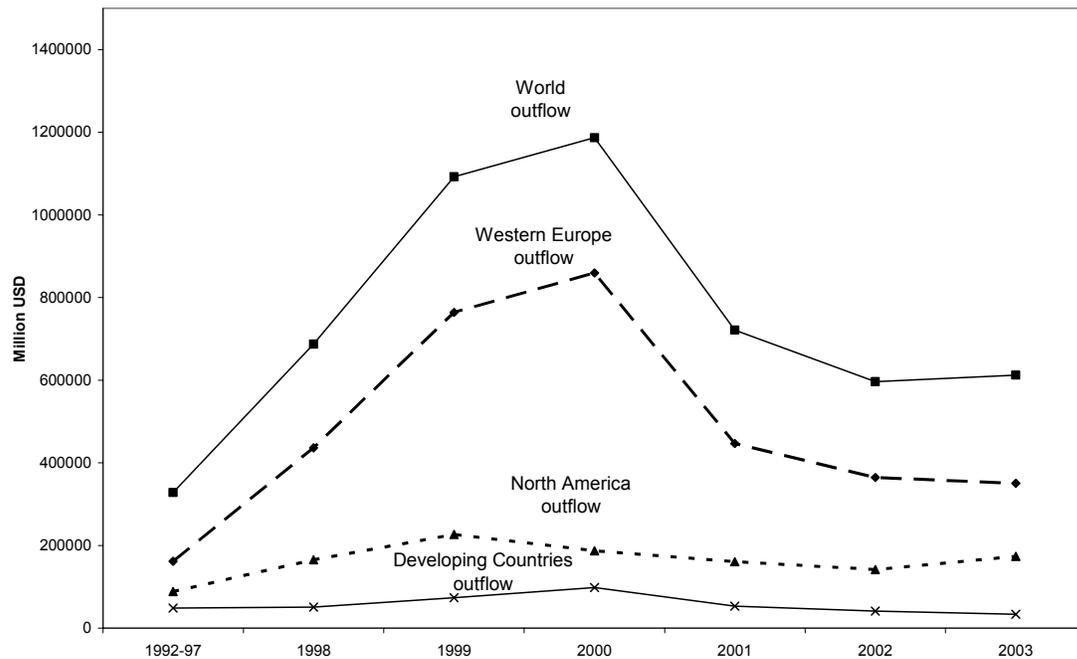
Source: UNCTAD, 2004.

Global outflows of FDI paint a somewhat more positive picture of the future prospects (Figure 2.2).<sup>1</sup> Outflows of FDI from North America rose by 22 percent in 2003, suggesting that investors in the US were responding to an improvement in the domestic economy also by increasing their investments in foreign countries, particularly in Europe.<sup>2</sup> Outflows from Western Europe and developing countries almost remained constant, which may reflect that the domestic recovery was not yet sufficiently strong to encourage new investments abroad.

<sup>1</sup> In principle, there should be a balance between FDI inflows and outflows. There are various reasons for the imbalance, including different methods of data collection, different data coverage of FDI flows and different times used for recording FDI transactions (UNCTAD, 2004).

<sup>2</sup> The US GDP increased by 1.9% in 2002, 3.0% in 2003 and 4.4% in 2004 and the US direct investments to Europe increased by 42% in 2003 (source: Bureau of Economic Analysis).

**Figure 2.2 Global outflows of FDI.**

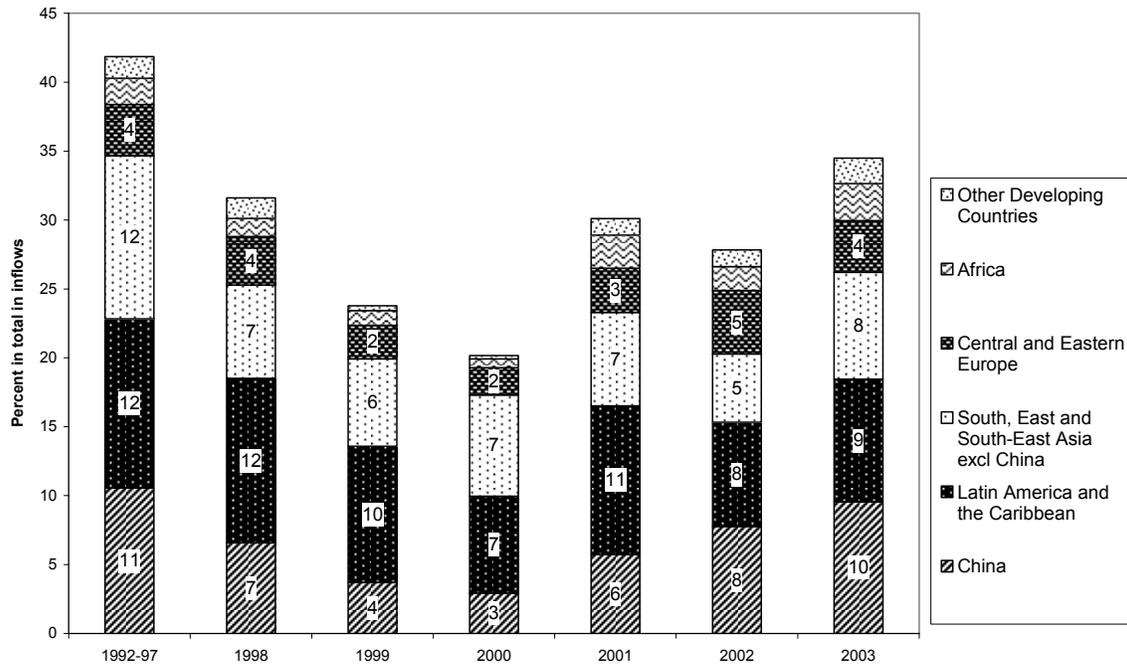


Source: UNCTAD, 2004.

### ***FDI by Region and Sector***

Western Europe and North America together stand for 61 percent of the global inflows and 85 percent of the global outflows of FDI. The dominance of western countries as recipients of direct investments has weakened since 2000 (from 77%). There is a distinct reorientation of FDI flows to Central and Eastern Europe and developing countries (see Figure 2.3). Since 2000, there has been a striking increase in China's share in global FDI, implying that the share is now comparable to the average of 1992-97. It is worth noting that in absolute terms, FDI to China has increased by 63 percent from the average of 1992-97.

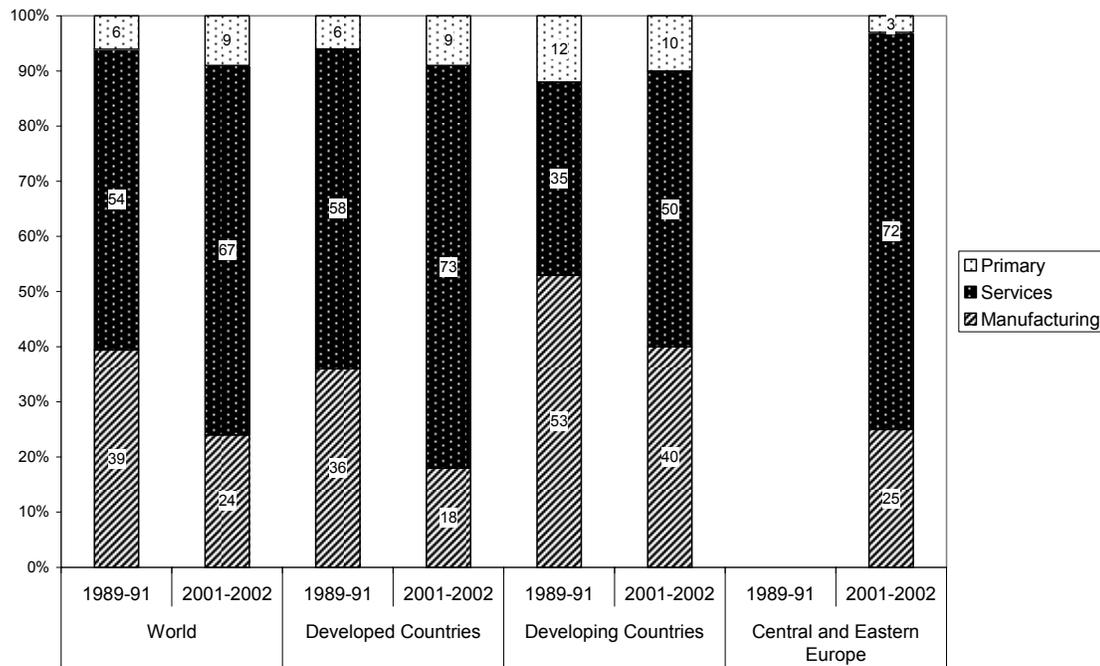
**Figure 2.3 Global inflows of FDI by region.**



Source: UNCTAD, 2004.

The global increase in FDI has spread to all three sectors: manufacturing, services and primary industries. It is notable that services account for an increasing share of FDI in all regions (see Figure 2.4). The share of services increased from an average of 54 percent in 1989-91 to an average of 67 percent in 2001-2002. In developed countries, 73 percent of FDI go to service industries. Most of the increase has taken place at the cost of decreasing relative importance of manufacturing. The reorientation of FDI towards services is unequally divided between country groups. Developing countries experienced the largest increase in the share of services, while the decline in the share of manufacturing was largest in developed countries.

**Figure 2.4 Global inflows of FDI by sector.**



Source: UNCTAD, 2004.

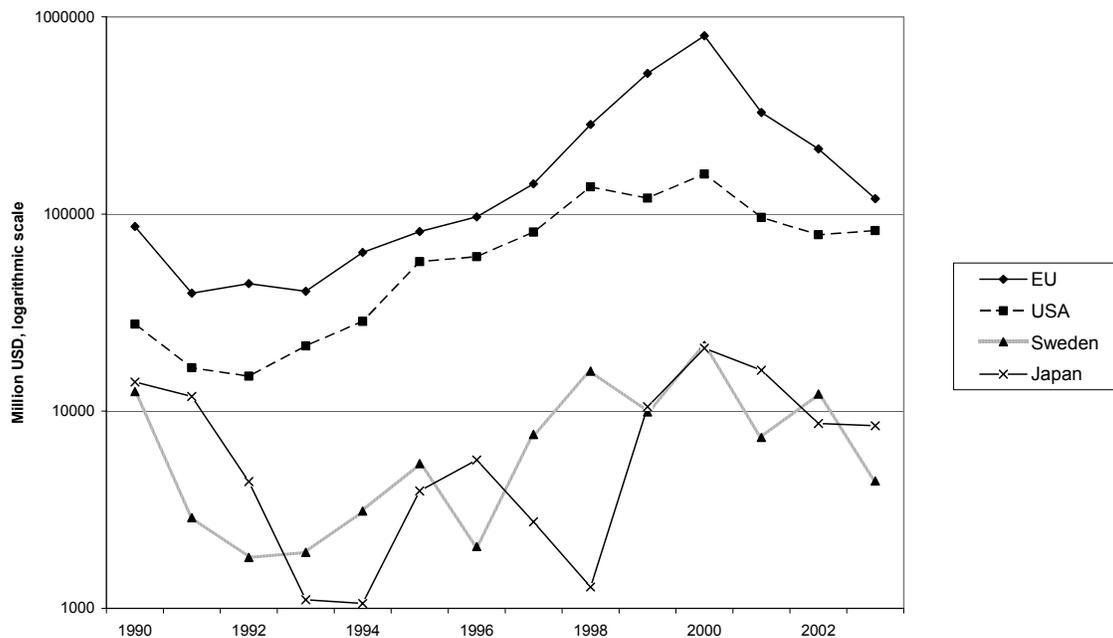
### ***Type of FDI and Mode of Entry***

The main types of new foreign direct investments are cross-border mergers and acquisitions (M&As) and greenfield investments. The number and the value of cross-border M&As grew rapidly throughout the 1990s and an overwhelming share of global FDI is now M&As rather than greenfield investment. Most of the hike in global FDI in 1999 and 2000 is explained by a growing number of M&As in connection with a wave of global restructuring and repositioning among MNEs. M&As are particularly important in OECD countries, where most cross-border direct investment takes place in form of the ownership changes of existing enterprises rather than Greenfield investments.

The value of cross-border mergers and acquisitions (M&As) fell from \$370 billion in 2002 to \$297 billion in 2003 (Figure 2.5). There are various plausible explanations for this decline, including macro-economic, micro-economic and institutional factors. At the macro-economic level, growth prospects remained uncertain in many countries despite

some recovery in the US and Western Europe, while at the micro-economic level, increased profitability started in the latter half of 2003, which was probably too late to have any larger impact on FDI inflows. Privatizations have also played a role, as liquidity and other problems in home countries may have reduced MNEs' interest in privatizations. At the institutional level, new revealed accounting scandals may have deterred the investors. Equity market valuation, one key driver of FDI and particularly cross-border M&As, has risen considerably in major markets since the last months of 2004. Hence, the outlook of cross-border M&As and other kinds of direct investment is becoming stronger.

**Figure 2.5 Cross-border mergers and acquisitions (value).**



Source: UNCTAD, 2004.

As can be seen in Figure 2.5, the value of cross-border mergers and acquisitions varies substantially between years in Sweden. Some larger deals can have a great impact on the total value of cross-border M&As, and even on the total inflows of FDI in Sweden. This will be discussed in more detail in the next section. It is also interesting to observe that FDI flows to Japan have about the same magnitude as those to Sweden.

### **3. Trends in FDI of Swedish Firms**

The internationalization of Swedish firms has accelerated since the mid 1990's. The two main forces behind the development are the increasing foreign ownership in the Swedish economy and the continuing expansion of operations of Swedish firms abroad.

#### ***Swedish FDI abroad***

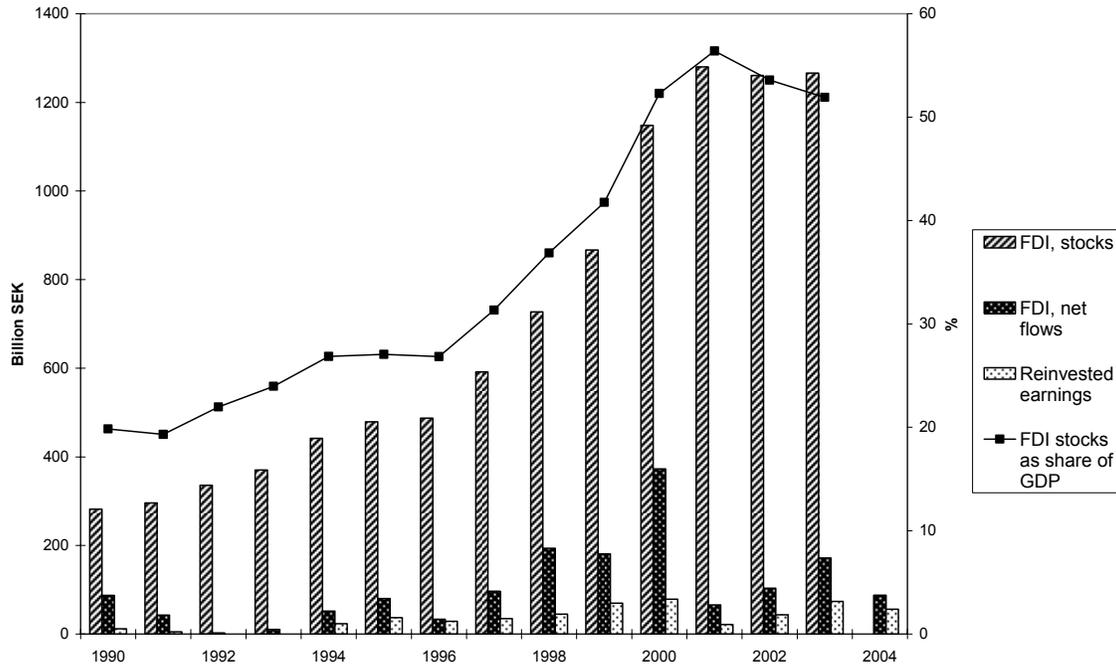
The value of FDI assets of Swedish firms abroad was 1266 billion SEK, which is approximately 52 percent of GDP. The stock of outward FDI has increased strongly since the mid 1990s (Figure 3.1). The stock of outward FDI was 20 percent of GDP in 1990, 27 percent in 1994 and 37 percent in 1998, which are years of previous IUI surveys.

The outward flows of direct investments have not increased as dramatically as the value of outward FDI stocks. The massive decline in Swedish FDI outward flows in 2001 is comparable to the decline of 41 percent in global FDI flows. However, Swedish investments started to recover already in 2002, while the international decline still continued with a 17 percent decrease. There are also other reasons than the global business cycle for the large annual variation in direct investments of Swedish firms. One explanation is the impact of specific large investments, restructuring of corporations and cross-border mergers and acquisitions. For instance, during the peak year of 2000, deals such as the formation of Nordea bank by a merger between Swedish Nordbanken and Finnish Merita and some other acquisitions of foreign firms in the banking and service industries had a large impact on the total flows of direct investments.

The regional distribution of Swedish FDI stocks abroad is shown in Figure 3.2. The importance of Western Europe (EU14 and EEA) as a recipient of Swedish FDI has increased continuously. This region appears to stand for the major part of the increase in total FDI stocks. It is worth noting that the share of Asia and Central and Eastern Europe in the FDI stocks is still very modest. The much debated relocation of production from Sweden to these regions by Swedish multinationals has not had any greater impact on the

FDI stocks. Furthermore, an interesting development is that the share of the US in total FDI stocks has decreased since 2001. In 2003, FDI flows to the US were actually negative, thereby indicating that Swedish firms were disinvesting in the US.

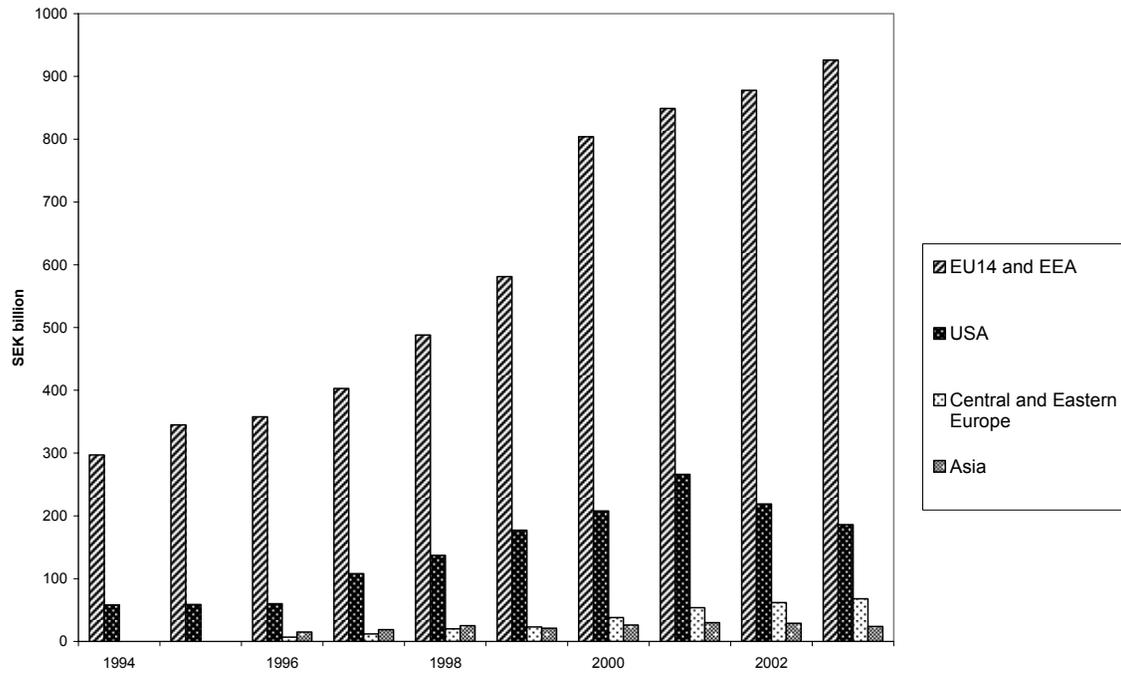
**Figure 3.1 Outward FDI (stocks, netflows and reinvested earnings) of Swedish firms.**



Source: Sveriges Riksbank, 2005.

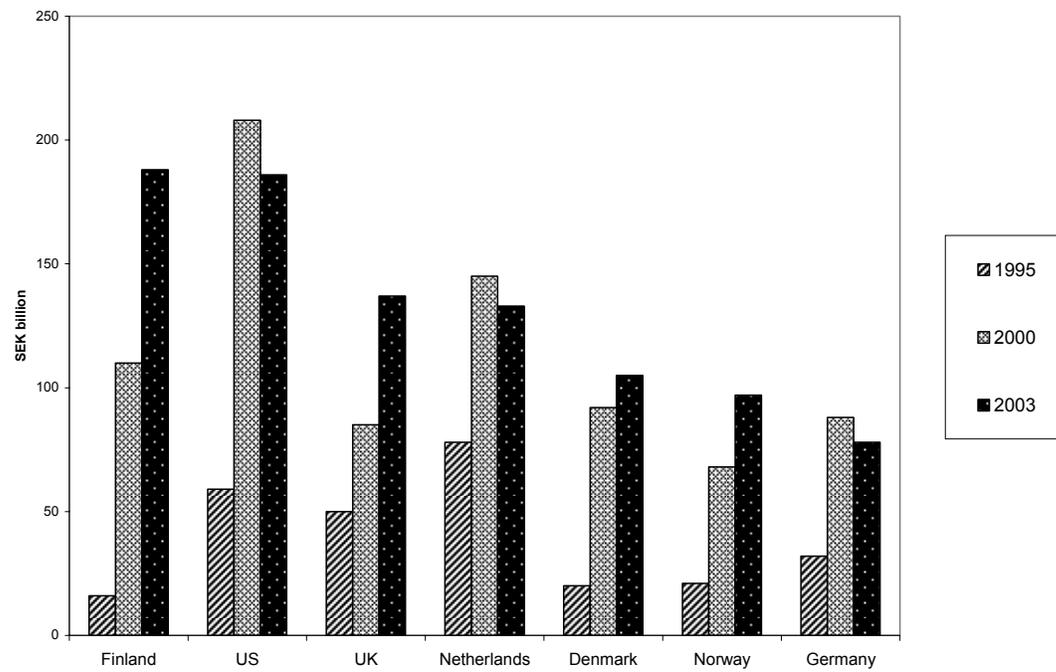
An implication of the decrease in FDI to the US is that it has been passed by Finland as the largest host country of direct investments of Swedish firms (Figure 3.3). Two other Nordic countries, Denmark and Norway, are also among the largest host countries of Swedish FDI. It appears that there has been a distinct redirection of Swedish FDI to the three Nordic countries since 1995. The other large host countries are the UK, the Netherlands and Germany, which are all situated at the heart of the large EU markets.

**Figure 3.2 Outward FDI stocks of Swedish firms by region.**



Source: Sveriges Riksbank, 2005.

**Figure 3.3 Most important countries of outward FDI stocks of Swedish firms.**



Source: Sveriges Riksbank, 2005.

### *Sectors of Swedish Outward FDI*

Manufacturing still stands for the largest share of the FDI stocks, with *Chemistry and Pharmaceuticals* and *Metal* as the most important industries (Table 3.1). The largest increase since the survey of 1998 has taken place in *Chemistry and Pharmaceuticals*. Other industries experiencing notable increases are *Building and Real Estate*, *Energy* and *Other Services*. The large increase in FDI stocks of *Building and Real Estate* is likely to be explained by the increasing real estate prices that have raised the value of assets owned by Swedish firms abroad. The rapid expansion of FDI stocks in the *Energy* sector may be explained by a number of cross-border acquisitions by Swedish firms. The increase of FDI in *Other Services* is interesting, seen in the light of the current debate on international outsourcing of service industries. The trend seems to be upward-going, despite the temporary setback in the share of total FDI in 2000.

**Table 3.1 Outward FDI stocks of Swedish firms by sector.**

Stock in billion SEK and share in total (in parenthesis)				
Industry	1995	1998	2000	2003
Manufacturing, of which	128 (63.1)	246 (59.1)	624 (69.6)	675 (61.7)
-Metal	54 (26.6)	98 (23.6)	206 (23.0)	197 (18.0)
-Chemistry and Pharmaceuticals	38 (18.7)	46 (11.1)	277 (30.9)	306 (28.0)
-Forestry and Paper	8 (3.9)	42 (10.1)	63 (7.0)	94 (8.6)
-Food Industry	14 (6.9)	25 (6.0)	23 (2.6)	25 (2.3)
Energy	..	29 (7.0)	56 (6.2)	106 (9.7)
Building and Real Estate	5 (2.5)	7 (1.7)	18 (2.0)	52 (4.8)
Trade	37 (18.2)	61 (14.7)	84 (9.4)	74 (6.8)
Banking and Insurance	2 (1.0)	22 (5.3)	29 (3.2)	14 (1.3)
Other Services	23 (11.3)	42 (10.1)	84 (9.4)	156 (14.3)
Other Industries	7 (3.4)	10 (2.4)	5 (0.6)	18 (1.6)
Total	203 (100)	416 (100)	897 (100)	1094 (100)

Source: Sveriges Riksbank, 2005.

## 4. Production and Employment in Swedish MNEs

In the following chapters, we present trends and statistics of the foreign activities of the Swedish MNEs that participated in the survey. In particular, we focus on the distribution of foreign production and employment by region and sector.

A total of 62 multinational firms in the manufacturing sector participated in the survey.<sup>3</sup> The firms were asked to fill out Questionnaire A concerning information about the entire corporation and Questionnaire B for their foreign affiliates. The replying MNEs in the manufacturing sector reported data on 1534 foreign affiliates where a total of 404 268 individuals were employed in 2003.<sup>4</sup> Although the number of parent firms participating in the survey was considerably lower than in 1998, the number of foreign affiliates responding in 2003 was larger. Two main factors explain the differences. First, large efforts were made to obtain replies from the largest MNEs, which gave results, but at the cost of receiving fewer replies from smaller MNEs. Given that a small number of large MNEs constitute a large part of the total affiliate activities abroad, missing answers from a few such companies have a large impact on the number of reporting affiliates. Second, replying MNEs were asked to give information not only on the foreign affiliates with their own production, but also on other affiliates with activities such as sales offices, company and computer services in the separate form (Questionnaire B). In the earlier surveys, detailed information was only asked for the producing foreign affiliates.

Despite the smaller number of reporting parents, the sample accounts for a large share of total affiliate employment of Swedish MNEs. Our sample firms cover about 85 percent of all employees in the foreign affiliates of Swedish MNEs in the manufacturing and building sectors.<sup>5</sup> This figure may be compared to the fact that the 1998 survey,

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<sup>3</sup> Multinational firms in the service sector were initially included in the survey, but due to a low response rate, they were excluded from the database.

<sup>4</sup> The figures for the number of employees will differ for more detailed questions. The above figure is computed from the annual reports, while in more detailed questions, we use data provided in B-forms. Some multinationals only report detailed information for the largest affiliates.

<sup>5</sup>The total figure for Swedish MNEs is official statistics for Sweden provided by ITPS.

excluding MNEs in the building sector, covered about 81 percent of all affiliate employees in manufacturing.

**Table 4.1 Number of foreign affiliates and affiliate employees in survey MNEs.**

Year	Parents answering Questionnaire A	Affiliates answering Questionnaire B	Affiliate employees according to A**	Affiliate employees according to B***
1974	108	480	290200	221111
1978	122	567	309030	227149
1986	108	646	363383	259823
1990	120	871	654167	440879
1994	132	1378	370257	531994
1998	118	703*	424850	223061
2003	62	1579*	456619	404268

Source: IUI database.

Notes: \*Includes observations from one MNE that reported data per country instead of per affiliate. \*\*Total number of employees abroad as reported in A. \*\*\*Sum of employees in the reporting affiliates.

### ***Multinational Activities in Sweden and Abroad***

In the last 35 years, Sweden as a location for production of multinationals has decreased in relative importance for the firms, as is evident from Table 4.2. An increasing part of their activities takes place outside of Sweden. This trend has continued since the last survey; the MNEs in the survey now have 70 percent of their total staff and 80 percent of their total turnover abroad.

The total number of employees in participating MNEs has decreased by about 100 000 during the last 30 years, from 722 000 to 625 000, a trend that continued in 2003. For Sweden as a home country of the MNEs, the trend is even more pronounced. In 2003, there were 170 000 fewer jobs in the sample firms in Sweden than in 1990 and 250 000 fewer jobs than in 1974. There are several possible explanations for the decrease. First, the multinationals have reduced their labor force in Sweden due to structural changes,

induced by a skill-biased technological change. As new countries have become more open to foreign direct investments, Swedish MNEs have relocated less-skill intensive manufacturing to countries with lower labor costs. At the same time, MNEs have outsourced many activities, particularly services, domestically to other firms. Second, several large MNEs have been taken over by foreign firms and therefore, they are no longer defined as Swedish MNEs and as part of the survey population.

**Table 4.2 Share of employees and turnover in Sweden and abroad, survey MNEs.**

Year	Employees		Turnover	
	Sweden	Abroad	Sweden	Abroad
1974	59.8	40.2	58.8	41.2
1978	57.6	42.3	51.3	48.7
1986	50.8	49.2	42.7	57.3
1990	39.4	60.6	34.8	65.2
1994	39.8	60.1	29.0	71.0
1998	34.7	65.2	26.0	74.0
2003	26.9	70.6	19.8	80.2

Source: IUI database.

Note: Turnover in Sweden is defined as net turnover in Sweden plus external exports.

**Table 4.3 Number of employees in the survey MNEs.**

Year	Sweden	Abroad	Total
1974	431 739	290 200	721 939
1978	420 459	309 030	729 489
1986	375 022	363 383	738 405
1990	306 387	471 323	777 710
1994	244 855	370 257	615 112
1998	225 861	424 850	650 711
2003	183 681	441 316	624 997

Source: IUI database.

Changes in the total number of employees in Table 4.3 suggest that the diminishing share of home employment is not only due to the expansion of foreign affiliates. The reduction in the number of employees in Sweden is much larger than the increase abroad. It is possible that production in Sweden has been outsourced to other firms abroad and therefore, the increase in the number of employees abroad does counter-balance the decrease in Sweden. It is also worth noticing that in 1990, the number of employees abroad was much larger than in any other year. The multinational firms seem to have reacted to the recession of the early 1990s by reducing their activities both in Sweden and abroad. After the downturn, the multinationals continued to expand abroad, while they continued to reduce their operations in Sweden.

### ***Employees and Production by Region***

The trends in the pattern of geographical distribution of employees and turnover seem to subsist despite the changes in the number of reporting parent and affiliate firms, as may be seen in Tables 4.4 and 4.5. Western Europe is the most important location for the affiliates of Swedish MNEs, the relative importance of this region has declined, however, particularly in the 1990s. While in 1990, 64 percent of the affiliate workforce and 77 percent of the affiliate production were located in Western Europe, these figures are now 46 percent and 68 percent, respectively. The activities of Swedish MNEs have contracted in Western Europe also in real terms, measured as the number of employees in the region. However, the decrease only concerns MNE activities in the manufacturing sector.

As a comparison, Table 4.6 shows the change in the number of employees in manufacturing, services and other sectors between 1993 and 2003, computed from the official statistics of Sweden provided by ITPS.<sup>6</sup> Swedish MNEs have expanded their operations in Western Europe both in service and other sectors, including building and energy.

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<sup>6</sup> The first available year is 1993. Sector classification is according to the industry code of the parent firm.

**Table 4.4 Affiliate employees of the survey MNEs by region.**

<b>Region</b>	<b>1974</b>	<b>1978</b>	<b>1986</b>	<b>1990</b>	<b>1994</b>	<b>1998</b>	<b>2003</b>
Western Europe	66.9	65.8	57.9	63.9	56.7	51.9	45.9
Eastern Europe and CIS				0.2	4.2	7.4	8.3
North America (NAFTA)	9.8	12.9	23.3	24.1	25.1	27.6	25.6
South and Central America	11.3	15.2	9.3	6.5	5.8	5.8	6.1
Africa	1.8	1.2	0.9	0.3	0.7	0.8	1.3
Asia	7.1	2.8	5.3	3	5.6	5.3	7.4
Australia & New Zealand	3.1	2.1	3.1	1.8	1.6	1	2.6
No Region Assigned	.	.	.	.	0.2	0.1	2.8

Source: IUI database.

Note: CIS, Commonwealth of Independent States.

**Table 4.5 Affiliate turnover of the survey MNEs by region.**

<b>Region</b>	<b>1974</b>	<b>1978</b>	<b>1986</b>	<b>1990</b>	<b>1994</b>	<b>1998</b>	<b>2003</b>
Western Europe	77.8	77.7	72.7	77	73.8	71.3	67.9
Eastern Europe and CIS	.	.	.	0.1	0.8	1.4	2.8
North America (NAFTA)	9.8	11.2	20.2	17.6	18.2	21.3	19.7
South and Central America	6.5	7.2	3.7	2.6	3.2	3.7	2
Africa	1.4	0.8	0.4	0.2	0.3	0.3	0.6
Asia	1.7	1.1	1.1	1.1	2.2	1.35	3.9
Australia & New Zealand	2.7	1.9	1.9	1.4	1.4	0.66	1.4
No Region Assigned	.	.	.	.	0.1	0.1	1.7

Source: IUI database.

Note: CIS, Commonwealth of Independent States.

**Table 4.6 Employees in Swedish multinationals by sector and region in 1993 and 2003.**

<b>Sector</b>	<b>Manufacturing</b>			<b>Services</b>			<b>Other</b>		
<b>Region</b>	<b>1993</b>	<b>2003</b>	<b>% Change</b>	<b>1993</b>	<b>2003</b>	<b>% Change</b>	<b>1993</b>	<b>2003</b>	<b>% Change</b>
Western Europe	280507	233723	-16.7	59350	215824	263.6	3214	40430	1157.9
(share in total %)	(61.7)	(50.0)		(88.7)	(56.8)		(40.0)	(50.5)	
Eastern Europe and CIS	6912	34971	405.9	2931	31015	958.2	71	10729	15011.3
(share in total %)	(1.52)	(7.5)		(4.38)	(8.2)		(0.88)	(13.4)	
North America (NAFTA)	86429	97607	12.9	3742	120191	3111.9	1365	11151	716.9
(share in total %)	(19.0)	(20.9)		(5.6)	(31.6)		(17.0)	(13.9)	
South and Central America	39503	33230	-15.9	132	6645	4934.1	22	6321	28631.8
(share in total %)	(8.7)	(7.1)		(0.20)	(1.75)		(0.27)	(7.9)	
Africa	2734	7044	157.6	3	1597	53133.3	976	8366	757.2
(share in total %)	(0.60)	(1.51)		(0.00)	(0.42)		(12.1)	(10.5)	
Asia	30488	48797	60.1	562	3932	599.6	2394	3010	25.7
(share in total %)	(6.7)	(10.4)		(0.84)	(1.04)		(29.8)	(3.76)	
Australia and New Zealand	7954	12146	52.7	182	677	272			
(share in total %)	(1.75)	(2.60)		(0.27)	(0.18)				
<b>Total</b>	<b>454527</b>	<b>467518</b>	<b>2.9</b>	<b>66902</b>	<b>379881</b>	<b>467.8</b>	<b>8042</b>	<b>80007</b>	<b>894.9</b>

Source: IUI database. Note: Sector code is according to the industry classification of the parent firm. Source: Computed from official statistics for Sweden provided by ITPS.

In the manufacturing sector, the regional distribution of employees of all Swedish multinationals (Table 4.6) to a large extent follows the same pattern as for the sample multinationals (Table 4.4.). In the survey data, the relative importance of North America has remained at the same level since the mid 1980s, while Eastern Europe and Asia have become increasingly significant recipients of Swedish FDI (Table 4.4). This development may be seen in the data for multinationals in the manufacturing sector collected by Statistics Sweden (Table 4.6). Eastern Europe shows a strong increase especially in terms of employees from almost nil in the 1990 to more than eight percent in 2003. At the same time, South and Central America have become less important, particularly in terms of turnover (Table 4.5). While in the 1970s, the region was as important as North America, it now only stands for a minor share of total affiliate activities. However, the negative trend in the activities of Swedish MNEs in South and Central America only applies to the manufacturing sector, as can be seen from Table 4.6. The number of employees has increased very rapidly in both the service sector and in other sectors during the 1990s. Furthermore, it may be observed that Africa continues to be the least important region for Swedish MNEs in manufacturing, its share in production and employment around one percent has not changed during last three decades. The same holds true for Australia and New Zealand; but at a slightly higher level.

It is worth noting that the shares of employees and turnover often differ quite distinctly. These differences might reflect the labor intensity of the production, indicating that the MNE activities are less labor-intensive in Western Europe than in any of the other regions. Another interesting finding is the increased share of Eastern Europe, both in terms of relative employment and production. Once more, we can see that eight percent of the employees contribute three percent of the turnover. The same holds true for Asia. The figures support the view that MNEs relocate production from Sweden and other Western European countries to Eastern Europe and Asia, where the labor costs are lower.

Ranking the 21 most important countries by the number of affiliate employees in 2003 shows that the US, Germany and France, followed by the United Kingdom and Italy, are the countries where the MNEs have most employees (Table 4.7). The three largest countries alone account for 39 percent of all employees abroad. The five most important countries account for more than 50 percent of all employees abroad and the top 20 countries stand for 88 percent of all employees abroad. The Nordic countries seem to become increasingly important, with for example Norway showing an increase from 1.0 to 2.8 percent and Finland from 2.2 to 3.0 percent. We can also note

that Poland, China and Czech Republic are among the countries that have increased their share of total affiliate employees.

**Table 4.7 Most important countries for affiliate employment (share in total employment abroad).**

		1974	1978	1986	1990	1994	1998	2003
1	USA	6	9.2	19.1	20.4	22.3	22.1	22.1
2	Germany	15.3	13.5	10.7	16.8	12.1	13.3	8.5
3	France	13	10.3	6.9	4.8	5.6	6	8.5
4	Italy	8.1	6.9	11.6	9.3	11	10	6.1
5	United Kingdom	7	9.6	6.2	9.4	8.4	5.3	5.6
6	Brazil	9	10.6	5.8	3.9	4	4.8	4
7	Finland	3.7	3.4	2.9	2.4	1.3	2.2	3
8	Norway	1.6	1.5	2.3	3.4	2.2	1	2.8
9	Poland				0.1	0.9	1.7	2.8
10	Belgium	3.7	4.1	3.4	2.3	3.4	3.6	2.6
11	Spain	2.7	2.9	3.1	3.1	2.9	2.1	2.6
12	China					0.7	1.3	2.5
13	Czech Republic					0.6	0.3	2.5
14	Denmark	3.5	3.3	4.1	3.6	3	2.7	2.4
15	India	5.7	1.5	1.8	1	1.8	2.2	2.4
16	Australia	3	1.9	2.5	1.8	1.6	1	2.3
17	Netherlands	3.8	5.8	3	2.8	3.4	2.4	2.1
18	Canada	1.7	1.8	1.6	1.9	1.3	3.5	2
19	Mexico	2.1	2	2.6	1.8	1.5	2.1	2
20	Argentina	1.2	1.6	1.1	0.8	0.9	0.9	1.5
21	Hungary				0.1	1.9	1.4	1.1

Source: IUI database.

Table 4.8 shows the ranking of the most important countries according to turnover. There are some interesting differences in the ranking according to employment and turnover, although turnover figures should be interpreted with caution due to currency effects, transfer-pricing etc. The top five countries are the same as in Table 4.8, but thereafter the order of the countries is quite different from the employment ranking. For instance, affiliates located in Brazil account for four percent of affiliate employment but only 2.3 % of the affiliate turnover. Similarly, the turnover share of Poland is only half its employment share. Some countries such as India and Mexico are important in terms

of employees, but not in terms of turnover. The opposite holds for South Korea, Japan, Austria and Switzerland.

**Table 4.8 Most important countries for affiliate turnover (share in total turnover abroad).**

		1974	1978	1986	1990	1994	1998	2003
1	USA	7.9	10.6	24.1	19.2	21.8	25.2	27
2	France	11.6	9.8	7.6	5.3	6.9	6.9	9.9
3	Germany	18.8	17.3	11.7	18.5	14.3	14.5	9
4	United Kingdom	5.9	8.5	6	8.2	8.5	7.5	6.8
5	Italy	6.5	5.2	9.7	9.3	9.9	8.8	5.6
6	Belgium	7.6	8	8.5	5.6	9.2	10	5.5
7	Spain	2	1.6	2.1	3.4	2.1	1.5	3.5
8	Finland	3.5	2.6	2.6	2.4	1.3	2	3.3
9	Norway	2.6	2.3	2.9	3.2	2.2	1.1	2.7
10	Netherlands	5.7	8.9	4.4	4.3	4.5	1.7	2.4
11	Brazil	6.4	6.8	3.6	2.7	3.4	4.4	2.3
12	Denmark	4.4	3.8	4	3.6	2.4	1.9	2.2
13	Australia	3.4	2.4	2.4	1.8	1.8	0.9	2.1
14	China					0.2	0.3	2.1
15	Canada	3.1	2.6	2.6	2.8	2	4.2	1.9
16	Czech Republic					0.1	0.1	1.4
17	Poland					0.3	0.9	1.4
18	South Korea				0.1	0.1	0.3	1.1
19	Japan	0.4	0.4	0.5	0.6	1.3	0.5	1
20	Austria	1.2	1.1	0.9	1.7	1.6	2.7	1
21	Switzerland	0.3	1	0.8	3.8	0.6	0.5	0.9

Source: IUI database.

### ***Employees and Production by Sector***

Table 4.9 shows affiliate employment abroad in five main sectors. The changes in the relative importance of Metal Production and Machinery and Other Manufacturing are the most striking. While the share of Metal production and Machinery has increased by more than 10 percentage points since the last survey, the share of Other Manufacturing has been reduced by 9 percentage points. A plausible explanation for these changes is that the population of responding firms differs. In 2003, the number of responding multinationals in Metal Production and Machinery was much

smaller than in 1998, but the multinationals had 2.5 times as many foreign affiliates as the multinationals in 1998. In other words, a response from several larger multinationals was received in the 2003 survey. The decline in Other Manufacturing seems to be explained by the fact that fewer multinationals with a smaller number of foreign affiliates represented the sector in 2003.

**Table 4.9 Affiliate employment of the survey MNEs by sector (percentage share).**

	<b>Wood, Pulp and Paper</b>	<b>Chemical and Electronics</b>	<b>Metal Production and Machinery</b>	<b>Transport</b>	<b>Other Manufacturing</b>
1974	7.4	38.2	42.9	5.1	6.3
1978	10.3	34.2	41.8	8.0	5.7
1986	11.7	44.6	33.1	6.3	4.3
1990	12.8	53.3	24.6	6.8	2.5
1994	13.4	43.1	29.6	7.8	6.2
1998	15.0	33.6	25.8	14.6	11.0
2003	11.7	31.0	37.0	18.2	2.1

Source: IUI database.

**Table 4.10 Number of affiliate employees in the survey MNEs by sector.**

	<b>Wood, Pulp and Paper</b>	<b>Chemical and Electronics</b>	<b>Metal Production and Machinery</b>	<b>Transport</b>	<b>Other Manufacturing</b>	<b>Building</b>	<b>Services</b>
1974	16339	84159	94588	11267	13955		
1978	23311	77671	94758	18057	12986		
1986	30325	115764	85889	16491	11284		
1990	56538	235138	108248	29841	11074		
1994	71226	229280	157324	41230	32934		
1998	33433	74824	57566	32504	24398		
2003	38793	102636	122670	60171	7046	45467	27485

Source: IUI database.

There are some other changes in the survey population as compared to previous surveys that are not reported in Table 4.9. In addition to the sectors included in table, the survey forms were also sent to multinationals in the construction sector. The foreign affiliates in the construction sector and the

service sector had about 45 000 and 27 000 employees, respectively, and together account for 18 percent of total affiliate employment in 2003 (Table 4.10). Moreover, more detailed information was asked about the foreign affiliates with other activities than production. A majority of the affiliates in the service sector are sales offices (70% of the total number of service affiliates), but the number of affiliates providing other company services and computer services is rather large (24%).

## 5. R&D in Swedish MNEs

Research and Development (R&D) expenditures in the Swedish business sector increased in the 1990s. The expansion of R&D has implied that an increasing share of the Swedish labor force is working with R&D activities. According to Statistics Sweden, 21 percent of the high-skilled labor was employed in firms with R&D related activities.<sup>7</sup> Despite the increase in total expenditures, R&D activities still remain concentrated to a relatively small number of large multinational firms. In 2003, the six largest Swedish multinationals in terms of R&D expenditure accounted for 37 percent of total R&D expenditure in the manufacturing sector (ITPS, 2005:2).<sup>8</sup>

The most important change in total R&D expenditure of the business sector is that the share of foreign-owned firms has increased from 19 percent in 1997 to 45 percent in 2003 (ITPS, 2005:3).<sup>9</sup> The foreign-owned firms are even more important in the manufacturing sector, where they account for 52 percent in 2003. One explanation for the increase is that several formerly Swedish firms have merged with or been acquired by foreign firms. For instance, in chemical industries, including R&D intensive pharmaceuticals, the share of employees in foreign-owned firms has increased from 25 percent to 76 percent between 1990 and 2003 (ITPS, 2002 and ITPS, 2005:3).

In 2003, the R&D intensity of the firms included in the IUI survey was for the first time lower than the average in the total manufacturing sector. R&D intensity has decreased in Transport and Metal Products and Machinery whereas the R&D intensity of firms in Chemistry and Electronics has surged since 1998, as seen in Figure 5.1.<sup>10</sup> It should be noted that many firms in Chemistry have become foreign-owned since the last survey and thus, do no longer belong to the survey population.

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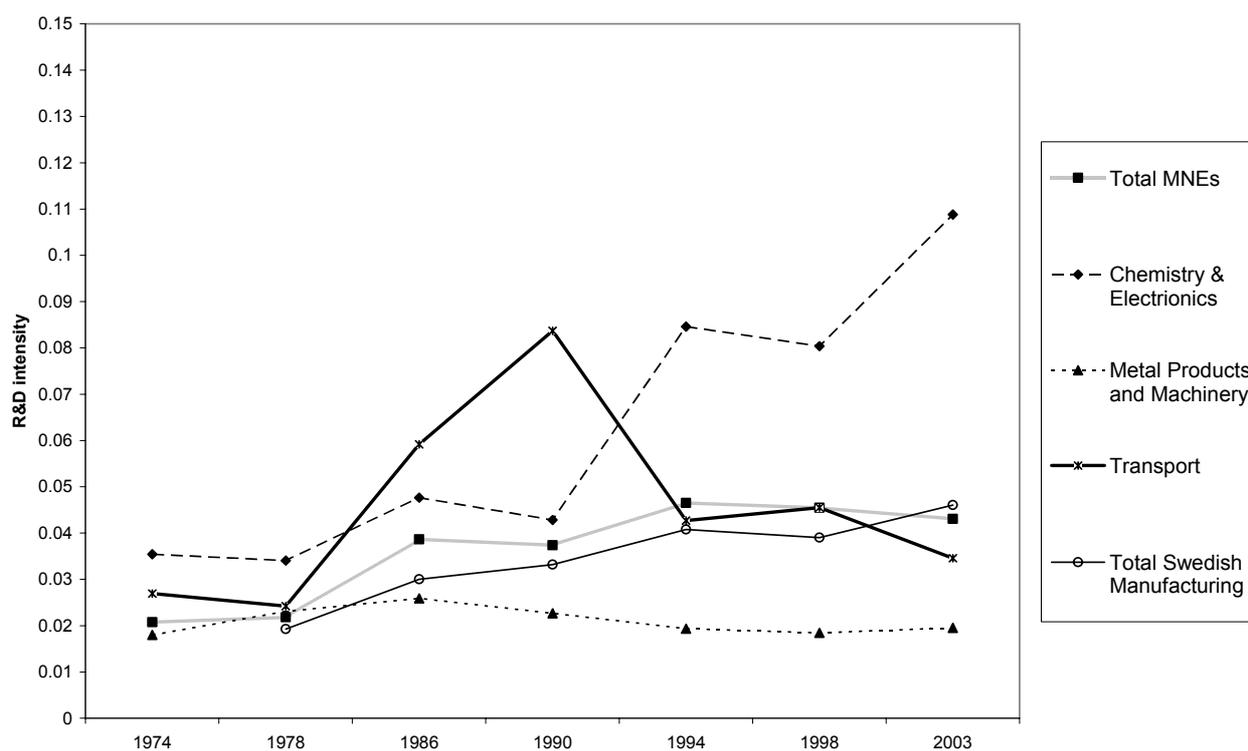
<sup>7</sup> Firms with a minimum of 50 employees were included. High-skilled labor is defined as employees with a tertiary education.

<sup>8</sup> The corporations are LM Ericsson, Saab, Scania, Volvo, Sandvik and SCA.

<sup>9</sup> Firms with a minimum of 50 employees are included in the sample studied.

<sup>10</sup> Metal Products and Machinery includes SNI 28-29 (excl SNI 2971), Chemicals and Electronics includes SNI 24-25, 30-33, 2971 and Transport includes SNI 34-35.

**Figure 5.1 R&D intensity in the survey MNEs and total Swedish manufacturing.**

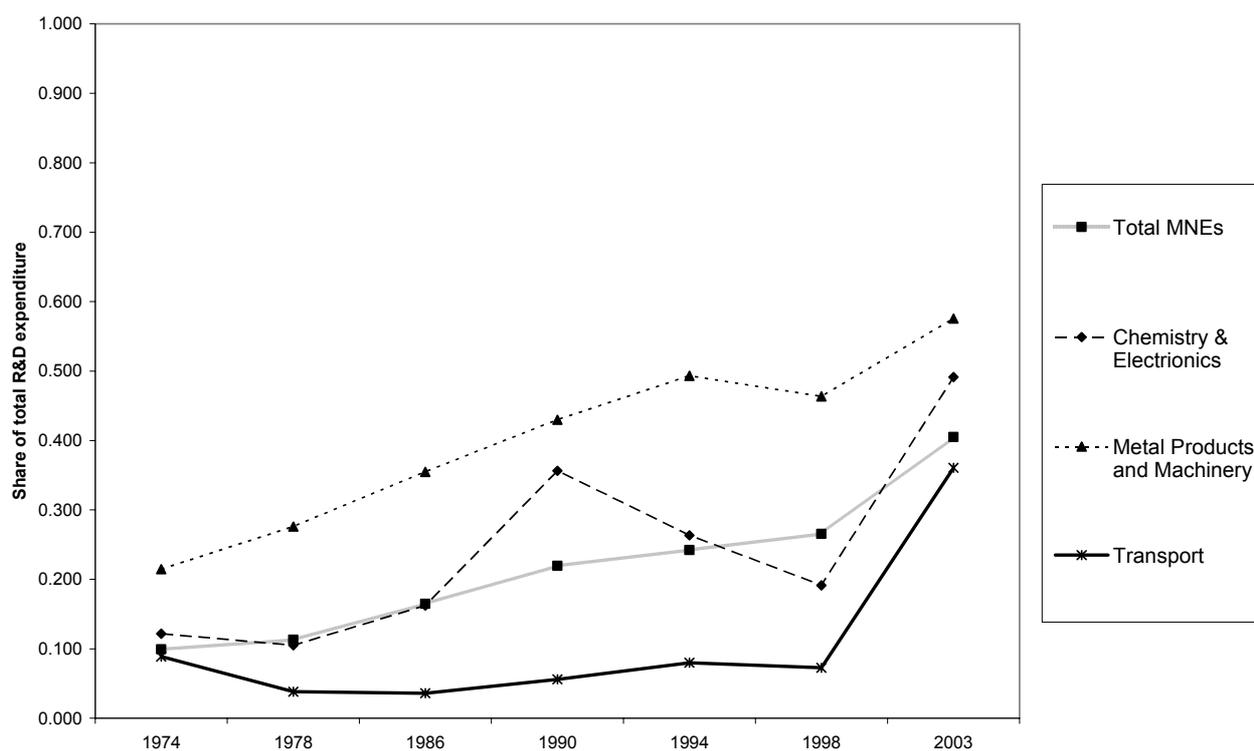


Source: IUI database and Statistics Sweden.

Another interesting development is that the share of R&D conducted in Sweden has dropped. In previous surveys, multinationals have conducted 74-87 percent of their total R&D in Sweden. In 2003, the share was only 59.5 percent. In Figure 5.2, we can see that firms in Chemistry and Electronics industries account for the largest increase in the share of R&D expenditures abroad, but that the share of R&D abroad has increased in all sectors. A similar trend is traceable in the statistics provided by Statistics Sweden. In 2003, the 20 largest Swedish multinationals conducted 43 percent of their total R&D (expenditure) abroad. In 1995, the equivalent share was 22 percent (ITPS 2005:2). However, it should be noted that the firms' total R&D expenditures rose from 36 to 47 billion SEK in the same period. Thus, it may be concluded that the expansion of the R&D expenditures of the largest Swedish multinationals to a large extent took place outside Sweden.<sup>11</sup>

<sup>11</sup> In a sample of the 20 largest multinationals, the increase was 158% abroad and -4.7% in Sweden between 1995 and 2003. (Source: ITPS, 2005:2).

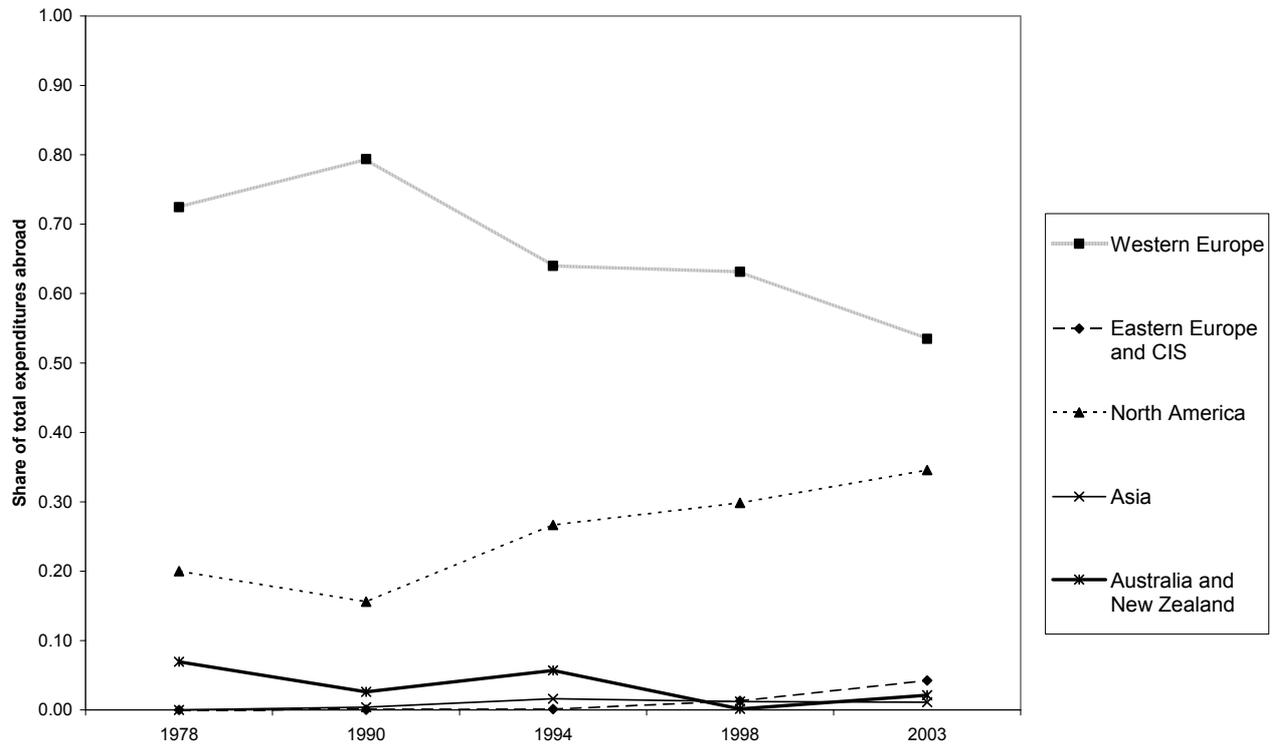
**Figure 5.2 Share of total R&D expenditures abroad by the survey MNEs.**



Source: IUI database.

The geographical distribution of R&D expenditures in foreign affiliates of Swedish multinationals has also changed. The share of Western Europe has decreased, while the share of North America has increased. The US is still the country with the largest total R&D expenditure. Other countries with large R&D expenditure are Canada, Belgium, Germany, Denmark, Spain, Germany, Norway, Brazil, Italy, France, and the UK in descending order. The EU15 countries thus dominate as a group. In comparison with the statistics for the 20 largest Swedish multinationals, the share of NAFTA is almost the same as among the IUI survey firms. In 2003, the 20 largest Swedish multinationals had 34 percent of their total R&D expenditure abroad in NAFTA countries, while the equivalent share for the reporting firms in the IUI survey is 33 percent. It should be noted that several survey corporations have only reported the number of employees and the turnover for their foreign affiliates and therefore, the description of R&D expenditure at the country and regional level may be incomplete.

Figure 5.3 R&D expenditures in foreign affiliates of the survey MNEs by region.

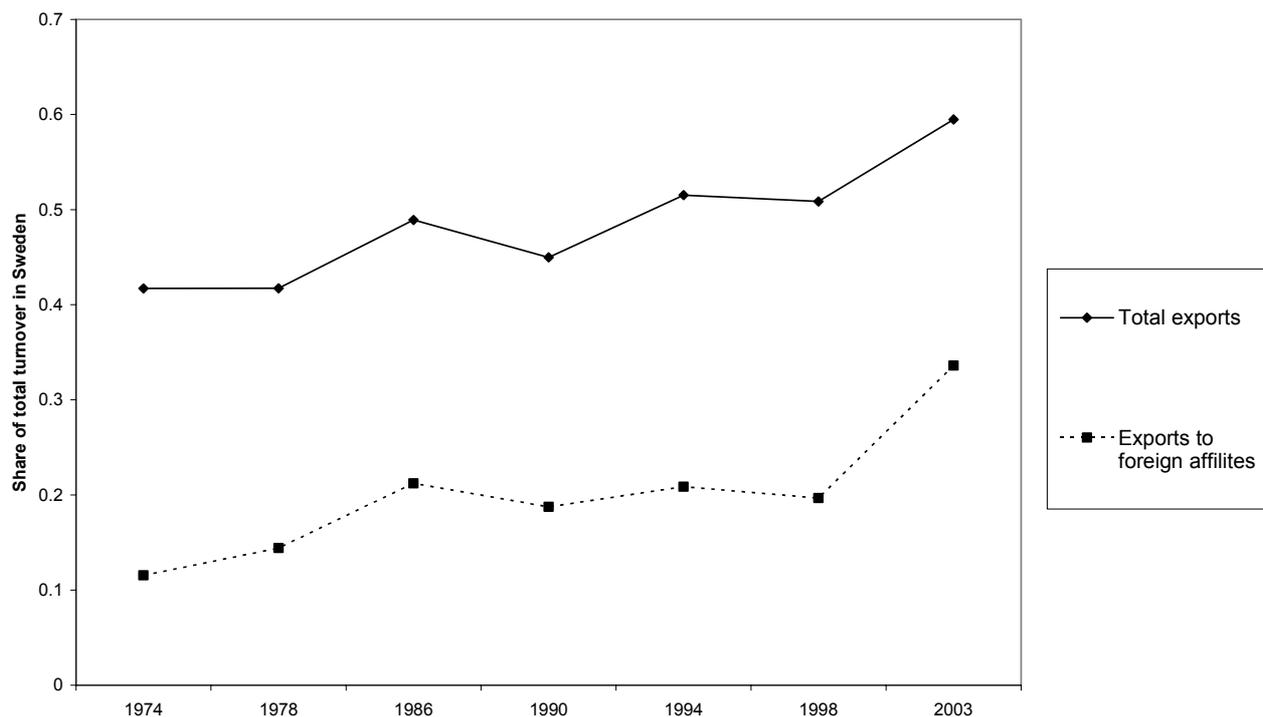


Source: IUI database.

## 6. MNEs and Trade

Multinational firms in Sweden account for an important share of total Swedish exports. According to Statistics Sweden, the share of domestic-owned multinational firms of total exports of goods was about 39 percent in 2003. The sample MNEs account for about 30 percent of total Swedish exports in manufacturing.

**Figure 6.1 Total exports and exports to foreign affiliates of the survey MNEs as a share of turnover in Sweden.**



Source: IUI database.

Note: Turnover in Sweden is defined as net turnover plus exports to foreign affiliates.

As seen in Figure 6.1, the survey MNEs are, on average, very export intensive. We can also observe an increasing trend in export intensity since 1974. Particularly palpable is the increase between 1998 and 2003. In 1990, there was a downswing in the export intensity of the survey MNEs. One possible explanation is the currency rates. The highly valued Swedish crown in terms of USD and other major currencies made Swedish exports less attractive in 1990.

Exports to foreign affiliates have also increased during the period, most obviously since 1998. The share of exports to affiliates of the turnover in Sweden increased from 20 to 34 percent between

1998 and 2003. However, we should be careful not to make any far-reaching conclusions about these observations, since sample selection and response rate may have affected the average export intensity.<sup>12</sup>

In Table 6.1, we can see exports of survey MNEs and total Swedish export by region. Western Europe is the most important destination of exports both of the survey MNEs and Sweden as a total with about 60 percent of the exports going to Western Europe. It is not so surprising that Western Europe receives the largest share of exports, since it is also the most important location for foreign affiliates of the MNEs. Part of the exports complement affiliate activities and is sold through the affiliates to the European market, whereas part of the exports is further processed in the affiliates. The second most important destination is Asia, Australia and New Zealand (mainly Asia), which received about 18 percent of the exports of the MNEs in 2003. The survey MNEs differ from the regional distribution of total Swedish exports by ranking this region in second place before North America. However, the last column shows that the survey MNEs account for a larger share of total Swedish exports to Asia, Australia and New Zealand than to North America, which explains the difference in ranking. It is interesting to note that the share of exports to Eastern Europe and CIS from the survey MNEs and Sweden in total has increased since 1998.

Table 6.2 shows the most important countries for the exports of the survey MNEs. Although North America came in the third place as a region, USA as a country receives the largest share of the exports. The six following countries in the ranking are all larger Western European economies. China comes in seventh place, followed by the Nordic countries and the Netherlands and Switzerland. Of those countries that increased their share rather significantly since 1998 are Russia and Saudi Arabia are worth mentioning.

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<sup>12</sup> The MNEs were also asked about the imports of inputs, but only 48 percent of the sample MNEs answered the question. For the replying MNEs, the average share of imported inputs in turnover in Sweden was 24 percent.

**Table 6.1 MNE exports and total Swedish exports by region.**

	1998		2003			
	Survey MNEs	Total Swedish Exports	Share of Survey MNEs in Total Exports	Survey MNEs	Total Swedish Exports	Share of Survey MNEs in Total Exports
Western Europe	59.5	66.9	44.5	58.7	62.1	25.1
Eastern Europe and CIS	4.7	6.6	35.7	6.6	7.8	22.7
North America	13.4	10.5	64.3	13.1	14.1	24.6
South and Central America	4.7	2.6	91.1	1.9	1.3	38.8
Africa	1.3	1.8	37.9	1.3	1.8	18.9
Asia, Australia & New Zealand	16.3	11.6	70.2	18.4	12.9	37.8
<b>Total</b>			<b>60.6</b>			<b>29.9</b>

Source: IUI database. Note: Data for total Swedish exports is provided by Statistics Sweden. The region is assigned 83 and 89 percent, in 1998 and 2003 respectively, of the total exports of the sample MNEs.

**Table 6.2 MNE exports by most important countries.**

	1974	1978	1986	1990	1994	1998	2003
1 USA	10.6	7.9	18.3	12.0	11.2	11.4	9.8
2 Germany	7.2	8.7	8.7	12.5	9.8	8.6	9.5
3 United Kingdom	12.0	11.4	10.2	11.1	9.9	9.5	8.2
4 Italy	2.4	2.9	3.2	5.1	4.3	4.9	7.2
5 France	4.4	5.4	4.7	5.7	5.3	4.5	5.5
6 Belgium	3.3	3.9	4.7	4.7	4.5	5.5	4.6
7 Spain	1.5	0.8	1.2	3.1	2.3	3.7	4.4
8 China	0.0	0.0	0.0	0.0	1.5	6.1	4.4
9 Denmark	6.2	6.2	5.1	4.2	3.4	3.1	3.8
10 Netherlands	2.8	4.6	4.9	5.7	4.0	4.0	3.3
11 Norway	6.0	6.5	6.7	4.1	3.8	3.2	3.2
12 Finland	5.4	4.2	4.1	3.9	1.9	2.3	3.1
13 Switzerland	1.8	2.2	2.5	2.5	2.1	2.2	2.7
14 Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.2	2.3
15 Russia	0.0	0.0	0.0	0.0	0.0	0.9	2.0

Source: IUI database.

**Table 6.3 MNE exports by region and sector.**

	<b>Wood, Pulp and Paper</b>	<b>Chemical and Electronics</b>	<b>Metal Production &amp; Machinery</b>	<b>Transport</b>	<b>Other Manu- facturing</b>	<b>Total</b>
<b>1990</b>						
Western Europe	91.0	52.0	68.9	53.7	60.4	65.6
Eastern Europe and CIS	0.0	1.7	4.5	1.0	5.0	1.8
North America	4.3	17.2	9.6	25.5	15.9	14.8
South and Central America	0.1	6.9	2.3	2.5	3.2	3.1
Africa	0.0	2.5	0.6	1.8	3.1	1.4
Asia, Australia and New Zealand	3.2	19.6	14.2	15.5	12.4	13.2
Exports with region assigned of total exports						91.4
<b>1994</b>						
Western Europe	86.6	45.0	60.4	48.6	71.9	54.3
Eastern Europe and CIS	2.2	2.8	4.0	1.9	4.0	2.6
North America	2.6	9.7	9.8	21.1	12.8	12.7
South and Central America	0.8	5.1	3.3	3.9	1.6	3.8
Africa	1.0	2.3	1.7	1.4	3.6	1.8
Asia, Australia and New Zealand	6.5	35.1	20.8	23.1	6.0	24.9
Exports with region assigned of total exports						100.0
<b>1998</b>						
Western Europe	88.0	45.4	65.1	65.8	76.8	59.5
Eastern Europe and CIS	3.4	6.9	3.5	2.8	10.0	4.7
North America	1.5	7.0	14.9	21.6	9.7	13.4
South and Central America	0.3	8.0	2.6	2.9	0.8	4.7
Africa	0.1	2.6	0.7	0.5	0.1	1.3
Asia, Australia & New Zealand	6.7	30.0	13.3	6.3	2.6	16.3
Exports with region assigned of total exports						82.6
<b>2003</b>						
Western Europe	92.4	38.0	71.3	67.3	33.5	57.9
Eastern Europe and CIS	4.9	6.0	6.7	7.7	4.6	6.8
North America	1.1	23.0	9.3	5.5	57.5	13.5
South and Central America	0.0	1.3	1.3	3.2	0.3	2.0
Africa	0.2	0.1	0.5	2.2	0.0	1.1
Asia, Australia and New Zealand	1.4	31.5	10.9	14.0	4.0	18.7
Exports with region assigned of total exports						89.6

Source: IUI database.

Table 6.3 shows MNE exports by region and sector in 1990, 1994, 1998 and 2003. Western Europe is the most important destination of exports in all sectors during the 1990s, with the exception of Other Manufacturing in 2003. However, the share of the region varies between industries. While almost all exports in Wood, Pulp and Paper went to Western Europe, only 38 percent of the exports in Chemical and Electronics had that destination in 2003. High transport costs and the geographical proximity of the region may explain the dominance of Western Europe as a destination of Wood, Pulp and Paper exports. It can be observed that more distant regions receive almost no exports at all from Wood, Pulp and Paper industries. Asia and North America received a large share of Chemical and Electronics exports and North America is the most important destination of Other Manufacturing exports.

## 7. Entry Mode of MNEs

As discussed in Section 2, an increasing share of global FDI takes place in the form of cross-border M&As. In developed countries, this is the most common form of FDI. Therefore, it is interesting to examine the entry mode of direct investments by Swedish multinational firms.

Table 7.1 shows a clear trend towards more acquisition over all years. In the last survey, nearly all new investments reported were acquisitions. This certainly follows the international trend, although the reported share of 97 percent may be overestimated due to the fact that only about half the MNEs (29) reported on the entry mode of new investments in the survey. The 29 responding MNEs acquired or started a total of 223 foreign companies during 1998–2003.

In the survey of 2003, the MNEs were also asked about divestitures. Most of the disinvestments abroad took place in the form of sell-offs. The 29 responding MNEs closed only one and sold 109 foreign affiliates. Of all transactions, that is acquisitions, sell-offs, start-ups and closures, acquisitions accounted for 65 percent, divestitures for 33 percent and start-ups for 2 percent. A closure of a company occurred only once. A large share of both acquisitions and divestitures was made by a small number of large MNEs: the five most active MNEs accounted for 59 percent of all acquisitions and 89 percent of all divestitures.

**Table 7.1 Share of acquisitions and greenfield investment.**

Year	Acquisition	Greenfield
1970	0.43	0.57
1974	0.46	0.54
1978	0.55	0.45
1986	0.66	0.34
1990	0.77	0.23
1994	0.73	0.27
1998	0.76	0.24
2003	0.97	0.03

Source: IUI database. Note: Data for 1970-1998 come from the B-form and for 2003 from the A-form. In the B-form, the affiliates were also asked if they had been a former sales company before becoming a majority-owned producing affiliate. The shares are computed excluding this possibility, since the question was not included in the A-form of the 2003 survey.

The average number of employees in the companies involved in entry or exit was 412. An acquired median firm had 180 employees and a median firm divested had 167 employees. The largest acquisition involved more than 10 000 employees and the largest divestiture more than 3 000 employees.

As can be seen in Table 7.2, acquisitions and divestitures were concentrated to the same countries. The top three countries, USA, Germany and France, account for about one third of all transactions. The Nordic countries were also important, accounting for 12 percent of the acquisitions and 16 percent of the divestitures. Furthermore, by categorizing the countries according to OECD membership, we find that 86 percent of the acquisitions and 85 percent of the divestitures were carried out in OECD countries, while six out of seven reported greenfield investments took place in non-OECD countries. Plausible explanations for the concentration of acquisitions in developed countries are both the larger supply of acquisition targets and the importance of market access. In developing countries, the supply of acquisition targets is more limited.

**Table 7.2 Transactions by most important countries.**

<b>Country</b>	<b>Share of Transactions</b>	<b>Number of Transactions</b>	<b>Acquisitions</b>	<b>Divestitures</b>
USA	12.4	41	30	11
Germany	10.2	34	26	8
France	8.1	27	21	6
Italy	6.3	21	15	6
United Kingdom	5.7	19	14	5
Finland	5.7	19	15	4
Denmark	4.5	15	7	8
Netherlands	4.2	14	7	6
Spain	3.3	11	7	4
Norway	3.0	10	4	6

Source: IUI database. Note: The sum of total transactions even includes start-ups and closures.

## 8. MNEs Compared to Export Firms

A control group of exporting firms was included in the survey to analyze differences between companies producing abroad and companies only serving foreign markets by exporting. The control group consists of firms exporting at least 10 percent of their total sales and with at least 50 employees.<sup>13</sup> Firms in the control group do not have any own production abroad, but may have foreign affiliates as sales offices or other service firms. A total of 43 companies answered the questionnaire, which should be compared to 62 replying MNEs.

A number of characteristics of the control group firms and the survey MNEs are reported in Table 8.1. One significant difference is the size of the firms. Firms in the control group are much smaller than the MNEs, the latter being about 30 times larger in terms of average number of employees (339 compared to 10081). Firms in the control group are not only smaller in terms of total number of employees; they are also significantly smaller as compared to the Swedish branch of the MNEs. The export firms on average had 318 employees, while the MNEs on average had 2903 employees in Sweden.

An interesting observation is that the control group has a higher turnover per employee than the MNEs both in total, 1.92 vs. 1.72 million SEK, and in Sweden, 1.87 versus 1.85 million SEK. The differences are not statistically significant, however. The weighted averages are higher in both groups, suggesting that there are larger firms with a higher turnover per employee that result in higher weighted averages.

Labor productivity measured as total average valued added per employee is also higher in the control group than among MNEs: 548 100 vs. 502 000 SEK, but the difference is not statistically significant. This picture is reversed if we compute value added per employee for the operations in Sweden and compare the two groups. The MNEs seem to be more productive in Sweden; with 636 000 SEK vs. 524 000 SEK as value added per employee but, once more, the difference is not statistically significant. Comparing weighted and unweighted averages indicates that a small fraction of very large companies can substantially alter the results. The tendency for the MNEs is clear; they have a higher value added in Sweden than abroad, as compared to the control group which

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<sup>13</sup> The population was defined based on information for 2001.

**Table 8.1 Characteristics of the survey MNEs and export firms.**

		<b>MNEs</b>		<b>Export Firms</b>		T-value for test of equality of averages
		average	weighted average	average	weighted average	
Number of employees	Total	10081		339		
	In Sweden	2903		318		
Turnover per employee	Total	1.72	1.74	1.92	2.06	-0.53
	In Sweden	1.85	1.96	1.87	2.09	0.23
Value added per employee	Total	0.502	0.521	0.548	0.598	-0.92
	In Sweden	0.636	0.648	0.524	0.594	1.32
R&D expenditures per employee	Total	0.036	0.075	0.050	0.037	-0.56
	In Sweden	0.056	0.158	0.136	0.053	-1.25
Share of high-skilled white-collar workers	Total	9.1		10.1		-0.55
	In Sweden	10.5		10.4		0.85
Share of low-skilled white-collar workers	Total	29.5		26.1		0.85
	In Sweden	30.1		24.3		1.58
Share of blue-collar workers	Total	64.2		64.0		0.04
	In Sweden	62.3		64.1		-0.44
Number of firms		62		43		
Number of employees	Total	624997		14563		
	In Sweden	168378		13684		

Source: IUI database. Note: All values are in million SEK. The response rate varies for variables, with a lower response rate for R&D and skill distribution. The number of employees is used as weights.

approximately has the same figures for Sweden and abroad. A plausible explanation for the differences in labor productivity of the MNEs in Sweden and abroad could be that MNEs specialize in more knowledge intensive production in Sweden and labor intensive production abroad. For instance, MNEs still have most of their R&D activities in Sweden.

Looking at the average R&D expenditures per employee, we find no strong support for this explanation. The unweighted averages do not differ significantly. However, we find a substantial difference in R&D expenditures between MNEs and the control group in terms of weighted averages. While MNEs spend 158 000 SEK on R&D per employee in Sweden, the corresponding figure for the control group is 53 000 SEK, for the weighted average. These figures should be compared to the average for the 20 largest Swedish manufacturing firms, which is about 100 000 SEK R&D expenditures per employee (ITPS, 2005:2). As earlier mentioned, R&D expenditures in

Sweden are largely dominated by the 20 largest Swedish MNEs accounting for more than 47 percent of all R&D expenditures in manufacturing.

Another interesting characteristic to compare is the skill structure. As can be seen in Table 8.1, the share of high-skilled white-collar workers was about the same for both groups. MNEs employ a somewhat larger share of skilled workers in Sweden than abroad, corresponding to a slightly smaller share of blue-collar workers in Sweden. These comparisons do not support the explanation that the MNEs are more productive than the group of exporting firms, due to higher skill intensity in their Swedish operations.

Finally, we examine how the number of employees and total turnover are distributed by sector in the two groups. In Table 8.2, we can see that there are large differences in the industry distribution. The export firms are more concentrated in Wood, Pulp and Paper and in Other Manufacturing. The Food industry (SNI 15) accounts for almost the entire turnover and all employees in Other Manufacturing. MNEs, on the other hand, are more concentrated in Transport, Metal Production and Machinery and Chemical and Electronics industries. The control group firms seem to be specialized according to the more traditional natural resource-based comparative advantages of Sweden. It is possible that this reflects a more general feature of export firms than just the characteristics of the sample firms. The dependence on natural resources in Sweden may be a reason why the firms have not become multinational.

The control group does not claim to be representative of all Swedish export firms. Requiring that the firms have a minimum of 10 percent of their sales as exports to be included in the control group mostly likely gives us a bias of firms that are more competitive and productive than the average domestic firm. As seen in Table 8.2, the two groups of firms are not equally distributed over sectors. The sector distribution may give us an explanation for some of the differences discussed above. For instance, the high labor productivity of the control group firms may be explained by the concentration in Wood, Pulp and Paper industries. Pulp and paper industries are typically very scale and capital intensive with a high labor productivity as a result.<sup>14</sup>

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<sup>14</sup> Total factor productivity (TFP) takes into account differences in capital intensity.

**Table 8.2 Sample MNEs and export firms by sector.**

		<b>MNEs</b>		<b>Export Firms</b>	
		Employees	Turnover	Employees	Turnover
Chemical and Electronics	Total	0.11	0.13	0.11	0.12
	In Sweden	0.18	0.24	0.09	0.09
Metal Production and Machinery	Total	0.38	0.31	0.14	0.11
	In Sweden	0.25	0.12	0.14	0.11
Wood, Pulp and Paper	Total	0.10	0.11	0.25	0.34
	In Sweden	0.09	0.08	0.26	0.35
Transport	Total	0.19	0.23	0.02	0.02
	In Sweden	0.26	0.31	0.02	0.02
Other Manufacturing	Total	0.05	0.03	0.36	0.33
	In Sweden	0.04	0.03	0.38	0.34
Building	Total	0.13	0.15	.	.
	In Sweden	0.16	0.18	.	.
Other industries	Total	0.04	0.04	0.12	0.09
	In Sweden	0.02	0.05	0.11	0.08

Source: IUI database.

## References

ITPS, (Swedish Institute for Growth Policy Studies). 2002. "Utlandsägda företag 2001", S2001:007, Östersund, Sweden.

ITPS, (Swedish Institute for Growth Policy Studies). 2005:1. "Svenskägda koncerner med verksamhet i utlandet 2003", S2005:004, Östersund, Sweden.

ITPS, (Swedish Institute for Growth Policy Studies). 2005:2. "Forskning och utveckling i internationella företag 2003", S2005:005, Östersund, Sweden.

ITPS, (Swedish Institute for Growth Policy Studies). 2005:3. "Utlandsägda företag 2004", S2005:006, Östersund, Sweden.

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UNCTAD. 2004. *World Investment Report 2004*, UN, Geneva, Switzerland.

## **Appendix: Facts About the Survey**

The Research Institute of Industrial Economics (IUI) has a long experience of research on Swedish multinational firms. This survey is a follow-up of the surveys made in 1965, 1970, 1974, 1978, 1986, 1990, 1994 and 1998. The aim of the survey is to provide information about the operations of Swedish firms abroad in general and create the foundations for continuous research on multinational firms and foreign direct investments. The survey is internationally unique, both in terms of its long history and its wealth of details on the operations of multinational firms.

### *Survey Population*

The survey population comprises all Swedish enterprises within manufacturing with a minimum of 50 employees and controlling one or several foreign subsidiaries in 2003 or having exports in 2003 amounting to at least 10 percent of their total sales. Enterprises supplying foreign markets through exports from Sweden are included to enable comparisons between such enterprises and those supplying foreign markets through affiliate sales. As an effort to capture changes in the population of Swedish international firms, two new groups of firms, multinational firms in the building and service sectors and Swedish multinational firms that have become foreign-owned during the period of 1990-2002, were also included in the survey of 2003. However, the task of collecting answers from the survey firms turned out to be overwhelmingly difficult and therefore, all resources were concentrated to collecting answers from firms belonging to the main survey population. Unfortunately, it appears to be a general trend that firms are increasingly unwilling to answer surveys not enforced by legislation.

### *Questionnaire*

The questionnaire is designed in the same way as earlier questionnaires to facilitate comparisons over time. Compared to former questionnaires, the main differences are that questions about currency, license incomes and R&D cooperation, that is, questions with a low response rates in previous surveys are excluded; that the order of the questions has been changed; and that questions on inputs and geographical destination of exports from foreign affiliates are included. The aim of including the new questions was to provide information about domestic and offshore outsourcing and so-called export-platform foreign direct investments. Separate questionnaires were designed to

the groups of foreign-owned firms and multinationals in the service sector. All questionnaires were tested on a number of large multinational firms representing the different survey populations.

### *Collection*

The survey forms to Swedish multinational and export firms were sent out on March 5 2004, with a request to reply by April 3 2004 at the latest and the survey forms to the group of foreign-owned firms were sent out one month later. The firms were reminded by mail and e-mail, and personally contacted on the phone. The collection of a reply from one firm could imply several contacts with the CEO, the CFO and persons to whom the task was delegated. Many firms that declined to answer only did so after having being contacted a number of times. All contacts were documented in a database. The most common reasons for declining given by the firms were lack of time, resources or no legal obligation to answer. The collection of survey forms was completed at the end of 2004, but some replies were received during the spring 2005. Response rate was 30 percent for the Swedish multinational firms and 22 percent for the export firms.

### *Authenticity of Data*

The survey includes all firms in the population and therefore, there is no authenticity problems associated with the sample selection. The reliability of the data depends on the answers given by the firms. There is a bias of large multinationals among the replying MNEs. An implication of the bias is that these firms account for a large share of the total employment and production of Swedish firms abroad. The concentration of MNE activities to a small number of large firms is generally representative for the total population of Swedish MNEs.

### *Sources of Uncertainty*

Certain error may be involved in the definition of the population. To identify the population firms, we used two sources of information, ITPS (Swedish Institute for Growth Policy Studies, an authority under the Ministry of Industry, Employment and Communication) and MM-Partners. ITPS provided a list of firms with employees abroad in 2001 and MM-Partners provided export data for all firms with headquarters in Sweden in 2002. Multinational firms that did not have any employees abroad in 2001 and did not export at least 10 percent of their total sales in 2002 may

have been excluded. However, the number of these new multinational firms is estimated to be small and their share of total operations abroad is unimportant.

During the collection of data, more resources were devoted to contacting large firms to obtain the largest possible coverage of the total operations abroad. As a consequence, the falling off of observations is concentrated among medium-sized and small multinational firms. Certain concessions were made to obtain answers from large firms. Some large firms with more than 100 affiliates abroad were given the possibility of filling in the B-forms for the largest producing affiliates abroad, which together constitute about 80 percent of the total sales and employees abroad.



## **DOMESTIC AND FOREIGN ACTIVITIES OF SWEDISH ENTERPRISES 2003**

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**FORM A. PF:** To be answered by Swedish companies/company groups in manufacturing and construction industries

**NB!** Companies/company groups in service industries are requested to fill in Form A.TF instead.

Please include a copy of the Annual Report 2003 for the company/company group.  
This form should be returned before April 3, 2004 to the Research Institute of Industrial Economics.

*Please read the instructions carefully before filling in the questionnaire*

Contact person at the company:
Name:..... Tel:.....
E-mail:..... Fax:.....

### **Part I.                   Identification of the company/company group**

	IUI code (to be filled in by IUI)
1. Name of company/parent company: .....	
Address: .....	
Organization number: .....	
Has the company/parent company changed name since 1998?    Yes <input type="checkbox"/> No <input type="checkbox"/>	
If "yes", state the old name here: .....	

**2. Main activity of the company/company group.**

Check one box only. See instructions IX for the Statistics Sweden Standard for Industry Classification codes (SNI).

**Manufacturing of goods-** Mining and quarrying or manufacturing of goods.  
SNI-codes 1010-3720.

**Building and construction**  
SNI-codes 4510-4550.

**NB!** Companies with their main activity in service industries are requested to fill out Form A.TF instead.

**Part II. Financial and operational information**

<b>3. (a) Total revenues of the company/company group</b>	<b>Mill SEK 2003</b>
Consolidated invoiced sales plus other operating revenues (for definition, see instructions VIII:1). All sales within the group should be eliminated.	
<b>(b) Of the above, total revenues of the Swedish segment of the group</b>	
Consolidated revenues in Sweden plus total invoiced exports.(for definition, see instructions VIII:1). Total invoiced exports include external exports and sales to foreign subsidiaries <b>NB: For companies without foreign subsidiaries 3(a)=3(b).</b>	

**4. Distribution of the company's/company group's total revenues by industries/business areas**

State the four-digit SNI-code and revenues according to definition in question 3(a).  
See instructions IX for a list of Statistics Sweden Standard for Industry Classification codes (SNI).

	<b>Industry/business area (name)</b>	<b>SNI-code</b>	<b>Revenues Mill SEK 2003</b>
Largest revenues			
2nd largest revenues			
3rd largest revenues			
4th largest revenues			
5th largest revenues			
6th largest revenues			
7th largest revenues			
8th largest revenues			
9th largest revenues			
10th largest revenues			
Revenues not stated above			
<b>Total revenues</b> Should be equal to the answer to question 3(a).			[=3(a)]

To be answered by the entire company/company group and the Swedish segment of the company group <i>Shadowed boxes are to be left blank.</i>	Mill SEK 2003	
	Company/Company group in total	The Swedish segment of the group <i>Not to be answered by companies without foreign subsidiaries</i>
<b>5. Book value of fixed assets</b> (planned residual value or net carrying value). Includes machinery, equipment, buildings and land.		
<b>6. Total liabilities</b>		
<b>7. Total equity</b>		
<b>8. Total assets</b> (book value)		
<b>9. Operating income before depreciation deductions</b>		
<b>10. Income after deduction of interest and expenses</b>		
<b>11. (a) Capital expenditure</b>  Relates to gross investments in machinery, equipment and buildings and should include the initial values of machinery, equipment and buildings for companies acquired in 2003. Acquired companies are companies in which the group has acquired at least 50 percent of the equity stock.		
<b>(b) Of the above, the amount reflecting initial values of machinery, equipment, and buildings for companies acquired in 2003</b>		
<b>12. (a) Marketing expenditure</b>  Includes both internal costs for the marketing department and external costs, such as the purchase of marketing services or advertising costs. Make a reasonable estimate.		
<b>(b) Of the above, the amount reflecting advertising costs</b>		
<b>13. Expenditure for research and development (R&amp;D)</b>  Excluding payments between companies in the group. R&D expenditure refers to both current expenses and depreciation on capital equipment for R&D. Include both inhouse R&D and R&D commissioned to third parties. In the second column, give the amount of R&D expenditures for R&D carried out in Sweden. ( <i>As defined by Statistics Sweden, see instructions VIII:2</i> ).		
<b>14. Revenues from licenses, patents, royalties, "know-how" and "management fees"</b>  Including contributions to cover R&D and central administration. Excluding payments between companies within the group. Make reasonable estimates.		
<b>15. Expenditure for licenses, patents, royalties, "know-how" och "management fees"</b>  Excluding payments between companies within the group. Make reasonable estimates.		

### Part III. Information regarding employees and wage expenditures

	Company/Company group in total	The Swedish segment of the group <i>Not to be answered by companies without foreign subsidiaries</i>
<b>16. Number of employees</b> Average number of employees during the year in full-time equivalent. <i>See instructions VIII:3.</i>		
<b>17. Distribute the number of employees in the following three categories:</b> Make reasonable estimates in percent. <i>See instructions VIII:4 for definition of categories.</i>		
<b>a) Senior officials and key personnel</b> Personnel in executive positions, researchers, technicians, engineers, and personnel in other specialized functions that require a high level of skills	%	%
<b>b) Other officials</b> Administrative personnel, clerical workers, service personnel and sales representatives with vocational training.	%	%
<b>c) Workers/Other employees</b> Manual workers, processing and machinery operators, transport workers, service workers and other employees engaged in work that does not require particular vocational training.	%	%
	<b>Total 100 %</b>	<b>Total 100 %</b>

	Mill SEK 2003	
	Company/Company group in total	The Swedish segment of the group <i>Not to be answered by companies without foreign subsidiaries</i>
<b>18. Total expenditures on wages and salaries</b> (including fringe benefits) <i>See instructions VIII:5.</i>		
<b>19. Distribute the total wage expenditure in the following three categories:</b> Make reasonable estimates in percent. <i>See instruction VIII:4 for definition of categories.</i>		
<b>a) Senior officials and key personnel</b> Personnel in executive positions, researchers, technicians, engineers, and personnel in other specialized functions that require a high level of skills	%	%
<b>b) Other officials</b> Administrative personnel, clerical workers, service personnel and sales representatives with vocational training.	%	%
<b>c) Workers/Other employees</b> Manual workers, processing and machinery operators, transport workers, service workers and other employees engaged in work that does not require particular vocational training.	%	%
	<b>Total 100 %</b>	<b>Total 100 %</b>

#### Part IV. Information regarding expenditures for intermediate goods

	Mill SEK 2003	
	Company/the Swedish segment of the group, total	of which, purchases from other companies of the group
<b>20. (a) Total expenditure for purchased intermediate goods</b> Excluding goods that have been sold without further refinement.		
<b>of the above (b) intermediate goods imported from Sweden</b>		
<b>(c) other imported intermediate goods</b>		
<b>21. Total expenditure for purchased services</b>		

#### Part V. Information regarding export and revenues in foreign subsidiaries

	Mill SEK 2003
<b>22. (a) Total exports for the Swedish segment of the group</b> The export figures reflect total exports from Sweden, i.e. external exports and sales to companies of the group in other countries.	
<b>(b) of the above, exports to foreign companies of the group</b> <i>Not to be answered by companies without foreign subsidiaries.</i>	

**23. Distribute the company's/company group's total exports and revenues abroad by countries. If a country is not on the list, use the empty rows or a separate sheet.**

The revenues are defined as the group's total external sales and other operating revenues in each country. Total external sales exclude sales between companies of the group in the same country as well as exports from the country, and includes imports to the country.

**Exports from Sweden** includes exports to group companies as well as other exports to the country in question.

**Exports from a foreign country** includes exports to group companies in other countries as well as other exports from the country in question to all other countries.

		Mill SEK 2003		
		Exports from Sweden to this country	Revenues abroad <i>Not to be answered by companies without foreign subsidiaries</i>	Exports from this country to other countries <i>Not to be answered by companies without foreign subsidiaries</i>
<b>Europe</b>	Belgium			
	Denmark			
	Estonia			
	Finland			
	France			
	Greece			
	Ireland			
	Italy			
	Netherlands			
	Norway			
	Poland			
	Portugal			
	Russia			
	Switzerland			
	Spain			
	Great Britain			
	Turkey			
	Germany			
	Austria			
<b>North America</b>	Canada			
	USA			
	Mexico			
<b>South America</b>	Argentina			
	Brazil			
<b>Asia</b>	India			
	Japan			
	China			
	Saudi Arabia			
	Singapore			
	Republic of Korea			
	Taiwan			
<b>Other</b>	Australia			
<b>Sum total</b>		[=22(a)]	[=3(a)-3(b)]	

Continue on a separate sheet if necessary.











Additional information:

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**DOMESTIC AND FOREIGN ACTIVITIES OF SWEDISH ENTERPRISES  
2003**

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**FORM B:** To be answered by foreign subsidiaries of Swedish company groups

This form should be returned before April 3, 2004 to the Research Institute of Industrial Economics

*Please read the instructions carefully before filling in the questionnaire*

**Part I. Identification of the company**

<p><b>1.</b> (a) Name of subsidiary company:.....</p> <p>(b) Country:.....</p> <p>(c) Parent company of the group: .....</p>	<p>IUI code (to be filled by IUI)</p>
<p><b>2.</b> (a) Since what year does the subsidiary belong to the company group? .....</p> <p>(b) Did the subsidiary operate as part of another group before the mentioned above? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>(c) Was the subsidiary a state-owned company before the year mentioned above? Yes <input type="checkbox"/> No <input type="checkbox"/></p>	
<p><b>3.</b> The proportion of the equity stock owned directly and indirectly by the parent company of the group</p> <p><i>See instructions VIII:6.</i></p>	<p><b>Share 2003</b></p> <p style="text-align: right;">%</p>

**4. Main activity of the company.**  
Check one box only. *See instructions IX for the Statistics Sweden Standard for Industry Classification codes (SNI).*

**Manufacturing of goods-** Mining and quarrying or manufacturing of goods.  
SNI-codes 1010-3720.

**Building and Construction**  
SNI-codes 4510-4550.

**Services** – Wholesale and retail trade, hotels and restaurants, transport, storage, communication, financial intermediation, real estate, renting and business activities, other business activities and services  
SNI-codes 5010-7484.

## Part II. Financial and operational information

5. Total revenues of the company	Mill SEK 2003
Net sales plus other operating revenues ( <i>for definition, see instructions VIII:1</i> ). Banks and finance companies: net interest income and other operating revenues. Insurance companies: earned premiums and other operating revenues.	
6. Book value of fixed assets (planned residual value or net carrying value). Includes machinery, equipment, buildings and land.	
7. Total liabilities	
8. Total equity	
9. Total assets (book value)	
10. Operating income before depreciation deductions	
11. Income after deduction of interest and expenses	
12. Net income	
13. Capital expenditure Relates to gross investments in machinery, equipment and buildings.	
14. Expenditure for research and development (R&D) Excluding payments between companies in the group. R&D expenditure refers to both current expenses and depreciation on capital equipment for R&D. Include both in-house R&D and R&D commissioned to third parties. ( <i>As defined by Statistics Sweden, see instructions VIII:2</i> ).	
15. Total expenditures on wages and salaries <i>See instructions VIII:5.</i>	
16. Number of employees Average number of employees during the year in full-time equivalent. <i>See instructions VIII:3.</i>	

<b>17. Distribute the total number of employees and the total wage expenditure in the following three categories:</b> Make reasonable estimates in percent. <i>See instruction VIII:4 for definition of categories.</i>  <b>a) Senior officials and key personnel</b> Personnel in executive positions, researchers, technicians, engineers, and personnel in other specialized functions that require a high level of skills.	Share of total number of employees	Share of total wage expenditure
	%	%
<b>b) Other officials</b> Administrative personnel, clerical workers, service personnel and sales representatives with vocational training.	%	%
<b>c) Workers/ Other employees</b> Manual workers, processing and machinery operators, transport workers, service workers and other employees engaged in work that does not require particular vocational training.	%	%
	<b>Total 100 %</b>	<b>Total 100 %</b>

<b>18. Distribution of the company's total revenues by products/services</b> State the main products/services, the four-digit SNI-code and their share of the total revenues. <i>See instructions IX for a list of Statistics Sweden Standard for Industry Classification codes (SNI).</i>		
<b>Product/Service</b>	<b>SNI-code</b>	<b>Share of total sales or revenues</b>
		<b>Total 100%</b>

### Part III. Information regarding export

**NB!** The remaining questions concern only companies within manufacturing and construction industries.

	Mill SEK 2003	
	Total	of which exports to other companies of the group
<b>19. (a) Total invoiced exports</b>		
<b>(b) of which exports to Sweden</b>		

<b>20. Distribution of exports by regions/country groups.</b>			
Total invoiced exports, including exports to companies of the group and all other exports to the region. State zero if the company does not export to the region.			
	Mill SEK 2003		Mill SEK 2003
EU (incl. Sweden)		Asia	
Other European countries		Oceania (Australia and New Zealand)	
North America		Other Countries	
Central- and South America			

#### Part IV. Information regarding sales and expenditures of goods

<b>21. Distribute the company's total sales/revenues (question 5) in processed goods and imported final goods for resale.</b> <i>See instructions VIII:7.</i> Make reasonable estimates in percent.	Share 2003
<b>(a) Sales of goods produced or assembled by the company</b> Excluding goods that have been sold without further refinement by the company.	%
<b>(b) Sales of final goods imported from companies of the group located in Sweden</b> Include only the goods that have been sold without further refinement by the company.	%
<b>(c) Sales of final goods imported from companies of the group located in other countries</b> Include only the goods that have been sold without further refinement by the company.	%
	<b>Total 100 %</b>

	Mill SEK 2003	
	Total	of which, purchases from other companies of the group
<b>22. (a) Total expenditures for intermediate goods</b> Exclude goods that have been resold without further refinement. <i>See instructions VIII:7.</i>		
<b>of the above (b) intermediate goods produced in the same country</b>		
<b>(c) intermediate goods imported from Sweden</b>		
<b>(d) intermediate goods imported from other countries</b>		
<b>23. Total expenditure for purchased services</b>		

Thank You for Your Contribution!