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J.C.B. MOHR (PAUL SIEBECK) TÜBINGEN

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Abbreviations

ACP	African, Caribbean and Pacific Countries associated with the European Community under the Lomé Convention
ASEAN	Association of South-East Asian Nations
CUSTA	Canadian-US free trade agreement
DC	developing country
ECU	European Currency Unit
EFTA	European Free Trade Association
EMS	European Monetary System
EU	European Union
FDI	foreign direct investment
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
INSEAD	Institut Europeen d'Administration des Affaires
MERIT	Maastricht Economic Research Institute on Innovation and Technology
MFA	Multifibre Arrangement
MFN	most-favoured nation
na	not available
NAFTA	North American Free Trade Agreement
NEC	non-equity forms of international cooperation
NIE	newly industrialising economy
OECD	Organisation for Economic Cooperation and Development
R&D	research and development
TNC	transnational corporation
TRIMs	trade-related investment measures

Preface

Since the 1980s, competitive pressure has increased in the world economy. In addition to traditional trade flows, the globalisation of production and markets has greatly enhanced the complexity of the international division of labour. Declining transaction and information costs have stimulated the fragmentation of production processes on a worldwide scale and the relocation of non-competitive industries. As a result, in both industrialised and developing countries, newly emerging competitors have increasingly challenged established suppliers.

The aim of this study is threefold. First, the authors portray the trend towards globalisation and assess by which means enterprises have gone global. Second, they discuss the adjustment needs of traditional producers by evaluating the consequences of globalisation on trade, production, employment and wages. Third, they analyse whether the economic policy reactions to globalisation in industrialised countries are adequate to deal efficiently with competitive challenges.

It turns out that the scope of national policies has been significantly reduced by globalised production and markets, while corporate strategies have increasingly been less constrained. Consequently, major policy revisions are indispensable. Most importantly, governments in industrialised countries should focus their attention on human capital formation, rather than on defensive trade policies, whose effectiveness has been seriously eroded.

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Kiel, July 1994 Horst Siebert

There are some economic forces so powerful that they constantly break through all barriers erected for their suppression [Baumol, 1967, p. 415].

I. Introduction

Globalisation has become a catchword for a number of political, sociological, environmental and economic trends that are supposed to present challenges on a worldwide scale. Most of the time, the exact meaning of the term has remained unclear. In a purely economic sense, globalisation means the increasing interdependence of markets and production in different countries through trade in goods and services, cross-border flows of capital and exchanges of technology. Hence, globalisation results in an increase in the international division of labour, achieved by an international fragmentation of production.[1] While it is relatively easy to say where certain products have been assembled, it will become increasingly difficult to say where they actually have been "made" if firms place their production around the world, sourcing this component from one country and that component from another country.

An increase in the international division of labour is by no means a new phenomenon. Over approximately the last 30 years, international trade has grown faster on average than production [GATT, c]. A faster growth of trade relative to production means that the world economy has become more integrated. International trade provides the opportunity for specialisation, i.e., it allows for differences in the consumption and production structures of economies, and this increases interdependency. What has been identified by some observers as a relatively new trend in the world economy is a dramatic increase in the international redistribution of ownership that has occurred especially during the last decade. Flows of foreign direct investment (FDI), for instance, have grown even four times faster than international trade flows [IMF, a]. In addition to rising FDI flows, other forms of international investment cooperation such as licensing, offshore processing and so-called strategic alliances have become more important in recent years.

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1 For recent summaries of the causes and consequences of globalisation, see Dicken [1992] and Harris [1993]; for a somewhat dissenting view, see The Economist [1993].

The increasing internationalisation of production and markets implies a new international division of labour. The relatively simple pattern of core and periphery suggested by the standard economic theory may not apply any longer. Trade flows have become more complex. Today, they cannot be explained solely on the basis of factor endowments, and they increasingly include services, either as a final product or as an intermediate input. As a result, many production processes can be geographically fragmented and relocated on a global scale. According to this view, more FDI and more non-equity forms of investment cooperation indicate that national boundaries tend to lose their relevance for international business strategies. Furthermore, international investment cooperation no longer seems to be confined to transnational corporations (TNCs).

The main driving force behind globalisation strategies of firms is not different from what drives international trade. Firms seek to maximise profits, given the constraints they face. Changing or vanishing constraints imply new profit opportunities and thus require new strategies of firms. Hence, globalisation can be interpreted as an entrepreneurial response to a changing environment, while the leitmotiv of firm behaviour — constrained profit maximisation — remains unchanged.

One of the most important reasons for globalisation is that large parts of the world have become industrialised since the Second World War. Many developing countries (DCs), especially Southeast Asian DCs, have attained, or are about to attain, the status of an industrialised country. This successful catching-up has increased the number of suppliers on world markets. Hence, global production capacities and international competition have increased, and so have the opportunities to exploit market niches. This process will gain momentum once the large markets of China, India and Eastern Europe, which represent roughly one half of the world's population, will be fully integrated into the world economy. Put differently, the constraint of market size, which may have hindered globalisation strategies in the past, has become less relevant and probably no longer applies at all.

At the same time, other constraints that prevented firms from implementing globalisation strategies have disappeared. Thanks to the micro-electronics revolution, communication technologies have undergone a dramatic change during the last decade, and new production and organisation technologies such as CAD (computer-aided design) and CIM (computer-integrated manufacturing) have evolved. Successive GATT rounds have substantially reduced tariff barriers for trade, and capital markets have also been liberalised, especially during the 1980s. Many business services have become internationally tradable. As transaction and communication costs fall, the proximity between sellers and buyers, which has traditionally been considered to be essential for many services, fig-

ures less prominently. Most important in this regard is that financial capital has gone global. Nowadays, the financial centres of the world economy provide the possibility for 24 hour trading in all sorts of financial assets. The deregulation of other business services such as banking and insurance also provides new opportunities for the tradability of services. Hence, standardised business services have become available around the world, which, in turn, has made the international fragmentation of production feasible. As a consequence of all this, the constraints for firms and governments have completely changed.

An almost perfect mobility of international financial capital flows across the world guarantees that no government can pursue economic policies that do not fit into the international framework set by the major players without risking a devaluation of its currency. The experience of France with a socialist economic policy in the early 1980s and the de facto collapse of the EMS in 1993 due to inconsistent macroeconomic policies of the member countries provide evidence in this respect. Since a devaluation implies a lower standard of living and is, therefore, not desirable, the increased worldwide competition for financial capital has somehow created a more or less stable macroeconomic environment. Furthermore, improved macroeconomic stability allows globalisation of production and markets to proceed, not only through FDI by TNCs but also through non-equity forms of international investment cooperation among independent firms.

In the absence of exchange rate risks, the consequences of globalisation strategies would be felt even stronger because then physical capital flows could be expected to increase as well. However, almost perfectly mobile financial capital flows do not necessarily imply an increase in physical capital mobility, which requires an increase in current account imbalances. Since the current account mirrors the difference between saving and investment of an economy, net trade flows and net physical capital flows are two sides of the same coin. Physical capital flows are surprisingly immobile, as is indicated by a strong positive correlation of cross-country saving and investment rates, which have shown signs of a moderate decline only for the last decade [Sinn, 1992]. Therefore, physical capital markets seem to be much less integrated than financial capital markets.

The main reason is exchange rate volatility. Widely fluctuating real exchange rates seemingly not related to so-called economic fundamentals require an additional compensation for potential investors to cover the additional risks. This risk premium may be just high enough to offset the incentive for increasing physical capital flows, especially towards developing countries with a well-known history of disastrous macroeconomic policies resulting in hyperinflation and political chaos. As a matter of fact, physical capital mobility is much higher within countries, where an exchange rate risk is absent, than between

countries. Therefore, globalisation strategies of TNCs, as indicated by increasing FDI flows and other forms of investment cooperation, may be the appropriate answer to the situation where a liberalisation of goods and factor markets, declining transaction and information costs, and a relatively stable macroeconomic environment provide new opportunities for a finer international division of labour through an international fragmentation of the production process, but where exchange rate risks are still prevailing.

In the following, we interpret the emerging trend towards globalisation of production as the outcome of the complex interaction between TNCs, which operate on a worldwide scale, independent national firms, which seek international investment cooperation, and national governments, which try to influence trade and factor flows through a combination of trade, industrial and macroeconomic policies. The basic hypothesis advanced in this study is that the effectiveness of national economic policies is likely to suffer under the condition of globalisation. Specifically, national governments in developing and industrial countries will find it increasingly difficult to apply policies that aim at protecting internationally less competitive domestic production factors. This is because in doing so they run the risk of losing attractiveness as a location for international production. Increasing unemployment and an erosion of the tax base will be the result and may lead to a vicious circle of ever increasing protectionism and further declining attractiveness.

This study presents empirical evidence on symptoms and consequences of the ongoing globalisation of production and markets. Chapter II reviews recent trends in FDI flows from the perspective of major home countries and discusses whether recent integration schemes in Europe and North America have slowed down the trend towards globalisation, i.e., whether recent increases in FDI flows merely reflect regionalisation rather than globalisation. As was noted before, FDI is not the only instrument of globalisation strategies. There are other forms of international investment cooperation such as licensing, offshore processing and strategic alliances. Chapter III provides an overview of these alternative instruments of globalised production and discusses their motivational background. In Chapter IV, we present case studies for selected manufacturing industries. They reveal that globalisation strategies differ: first, according to industry-specific characteristics such as factor intensities and the international competitive environment, and second, according to major players in the world economy.

In Chapter V, we evaluate the links between FDI flows and international trade beyond an industry-specific perspective. We suggest that the trend towards globalised production should show up in a positive correlation between FDI flows on the one hand and exports and imports on the other hand. This proposition has several implications:

(i) complementarities between FDI and trade flows are supposed to dominate over possible substitution effects resulting from the use of FDI as an instrument to circumvent trade barriers;
(ii) a trend towards intra-industry trade is expected even for trade between countries with different factor endowments;
(iii) intra-firm trade is likely to figure prominently as a result of globalisation strategies.

In Chapter VI, we attempt to identify the consequences of globalisation for wages and employment in advanced countries. Globalisation is most likely to affect the earnings of the least mobile factors of production. In a general perspective, labour is internationally less mobile than capital, and unskilled labour is less mobile than skilled labour. Hence, increasing globalisation is expected to have severe consequences for the wages of workers of different skill levels, and especially for the distribution of incomes within rich industrial countries.

In Chapter VII, we evaluate possible trade policy responses to these potential threats of globalisation with respect to their likely economic costs and benefits. We discuss whether the results of multilateral trade negotiations are well suited to meet the challenge of globalisation. Furthermore, we scrutinise the feasibility of internationally harmonised production standards and of industrial policies. A successful response to globalisation seems to require a forward-looking approach, in which human capital formation has to play an important role.

Chapter VIII summarises and presents major policy conclusions. In the past, protectionism was an inefficient but possible answer to the effects of international trade on relative factor incomes, with overall welfare-reducing consequences. In the age of globalisation, this policy will not work any longer, because production has become internationally mobile. In the long run, it is hardly imaginable how to escape the tendencies towards factor price equalisation by defensive strategies. In an integrating and growing world economy, the message for national governments is, therefore, to concentrate on the provision of public goods to get an edge in locational competition. Improving the skills of the workforce by investing more in basic education and training may prove to be the most promising task to avoid the potential losses that may result from intensified globalisation without foregoing the gains that can be achieved. However, the benefits of such a strategy will only accrue after a long gestation period. In the meantime, alternative responses to globalisation are declining relative wages or mounting unemployment of low-skilled workers in advanced countries.

II. Globalisation versus Regionalism: Trends in FDI

1. Overall Trends

The world economy has witnessed a strong move towards regional integration during the last decade. The European Union (EU) has traditionally been known for its "enthusiastic support for and active involvement in free trade arrangements of a regional character" [GATT, 1991, Vol. II, p. 32]. Institutionalised integration received a further push by the Commission's White Paper of July 1985, which outlined the strategy towards achieving the Internal Market by the end of 1992.[2] Moreover, the deepening and widening of integration in Europe continued beyond the Internal Market programme. The Maastricht Treaty of December 1991 has established the timetable and the conditions for a European Monetary Union. Several EFTA countries are going to join the EU soon, and membership will be extended to post-socialist economies in Central Europe in the medium run. The EU is becoming a regional trading bloc encompassing most of Europe.

Partly as a response to European integration, regional integration schemes have spread all over the world. Especially in the Third World, the EU has served as a model, although the economic and political conditions for successful integration have typically not been given [Langhammer, Hiemenz, 1990]. More importantly, the United States concluded the North American Free Trade Agreement (NAFTA) with Canada and Mexico, which is "the most comprehensive free trade pact (short of a common market) ever negotiated between regional trading partners, and the first reciprocal free trade pact between a developing and industrial countries" [Hufbauer and Schott, 1993, p. 259]. Even in the Asian-Pacific region, new attempts at institutionalised integration have gained momentum, a prominent example being the Malaysian initiative to form an East Asian Economic Caucus (for details, see Ohno et al. [1993]). Compared with other regions, however, the regionalisation of economic activities in East and Southeast Asia continues to be primarily driven by market forces, rather than by institutional reforms and administrative regulations.

A second development of worldwide dimension that has been of crucial importance during the last decade concerns the unprecedented growth of FDI. During eight years after the worldwide recession of 1982–1983, FDI outflows increased by 35 per cent per annum, nearly five times the growth of the value

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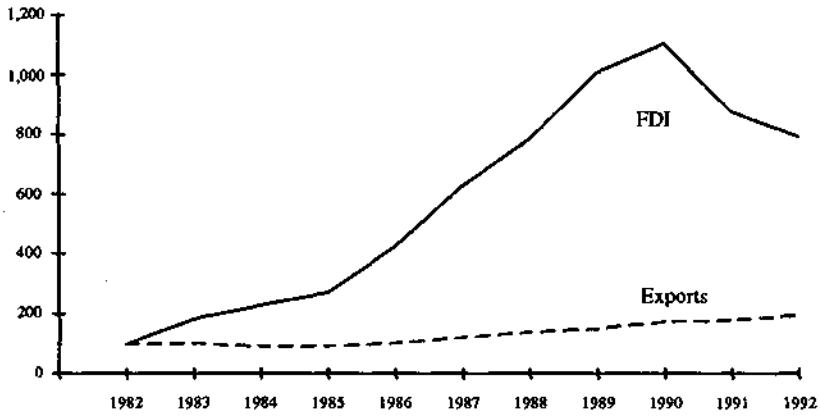
2 For a detailed analysis, see Hiemenz et al. [1994].

of exports of goods and services (Figure 1 and Table A1).[3] The growth of FDI outflows also superseded the growth of GDP and gross domestic investment at a global level [UNCTAD, 1993, p. 15]. This raises the question whether it was just by coincidence that FDI increased steeply when the move towards regionalisation gathered momentum.

Figure 1 — FDI Flows and Trade Flows, 1982–1992 (1982=100)



Source: IMF [a].

For several reasons, it appears plausible to argue that FDI boomed in anticipation of regional integration. Frequently, integration schemes are not only targeted at closer intra-regional trade relations. They are increasingly considered a means to attract risk capital and, thereby, foster productive activities and economic growth within the region. Market size has turned out to be an important determinant of FDI in various empirical investigations, and international investors have tended to respond positively to promising market integration efforts ever since the Treaty of Rome in 1957.[4] This tendency may have been reinforced recently by the renewed focus on the relationship between markets and plant location [Miller, 1993]. Production in proximity to large markets may help adapting to specific customer demands, for example.

---

3 In 1991–1992, FDI flows fell sharply (to 72 per cent of the 1990 amount) [see also UNCTAD, 1993, p. 16]. However, this downturn is probably a cyclical phenomenon triggered by the recession in the United States in 1990 and its later spread to Japan and Europe.

4 For an overview of the literature, see Agarwal [1980] and UN [f].

These arguments notwithstanding, it remains open to question whether a stronger focus of foreign investors on regional markets will divert away FDI from other host countries. The diversion hypothesis implicitly assumes that worldwide FDI flows are a zero sum game. However, there is not necessarily a loser if an integrated region attracts additional FDI. The counterhypothesis expects regionalisation and globalised FDI patterns to go hand in hand. Globalisation beyond regional boundaries is supposed to continue for a variety of reasons: Globalisation is expected to result from the perpetual search of TNCs[5] for cost efficient production sites and lucrative markets, which are not necessarily part of an integrated region.[6] Moreover, globalisation is encouraged by technological progress with respect to transport and communication systems, which has substantially reduced the cost effects of geographical distance. Finally, many host countries have liberalised FDI regulations unilaterally [UNCTC, a; ERT, 1993], may be partly in response to regionalisation elsewhere, in order to remain attractive for foreign investors.[7]

By focussing on the EU, the United States and Japan, i.e., the so-called Triad, we analyse if regional integration has led to creation or diversion of FDI flows. Before looking at each of the major players in more detail, we portray some broader trends in FDI. The Triad supplies and hosts most of worldwide FDI (Figure 2 and Table A2). In terms of FDI outflows, it strengthened its position from about 72 per cent in 1982 to 83 per cent in 1992. The Triad's share in global FDI inflows increased only slightly to 64 per cent in 1990–1992. The weakest link here is Japan receiving less than one per cent of global FDI flows in the 1980s. The EU has become the largest recipient of FDI flows. Apparently, the Internal Market programme on completing the Internal Market has raised its attractiveness for foreign investors and has made it the largest integrated host and home region for FDI. Figure 2 points to a dramatic shift of FDI inflows from the United States to the EU, but this shift exaggerates the significance of the Internal Market programme for FDI flows.

The shifts in regional FDI shares are less pronounced with regard to FDI stocks, whose distribution is inherently more stable.[8] Major findings as concerns the distribution of FDI stocks are as follows (Table 1):

---

5 TNCs are estimated to have one third of productive assets of the world under their governance [UNCTAD, 1993, p. 101].

6 China is probably the most relevant case in point.

7 The less restrictive stance towards TNCs is also evident from privatisation schemes that allowed for foreign equity participation in privatised state enterprises.

8 The global FDI stock was estimated to have increased to $1937 billion in 1992, up from $517 billion in 1980 and $680 billion in 1985 [Rutter, 1993, p. 1].

— Almost all of the FDI stocks are held by developed countries. DCs raised their share by less than one percentage point (to 3.3 per cent) between 1980 and 1991. DCs were much more important as hosts of foreign equity capital: they accounted for a share fluctuating around 25 per cent. This pattern is consistent with the conventional wisdom that industrialised economies will channel risk capital to less advanced countries.
— Among the developing countries, international investors shifted their locational preference from Latin America to Asia because of the opposing developments of investment conditions in these two areas, especially during the mid-1980s [Agarwal et al., 1991; Nunnenkamp, Agarwal, 1993].
— The EU has emerged as the largest owner of international equity capital, the place occupied by the United States in 1980. Likewise, the EU is the biggest locational site in terms of inward FDI stocks. However, the increase in the amount of FDI stocks held in the United States support the conclusion that this country has remained an attractive location for globalised production.
— As concerns the net international investment position,[9] Japan has beaten all its competitors. In 1991, Japan's net position was 4.2 (2.6) times higher than that of the United States (EU). This outstanding position is due to two factors. First, Japanese TNCs have globalised their production faster than any other major investor country in the last decade. Second, FDI stocks held in Japan have remained very low.[10] FDI in the country was inhibited by a host of factors such as the government's preference for licensing over equity capital, a rather slow process of liberalising FDI regulations, difficulties of buying existing Japanese firms due to a relatively high equity involvement of local financial companies, as well as "Keiretsu" relationships putting foreign firms at a disadvantage.

While the Triad has dominated the overall development of FDI, the shifts in the ranking of its members as home and host countries are remarkable. The following sections analyse the regional clusters in the foreign investment behaviour of the Triad members to find out if they have undergone significant

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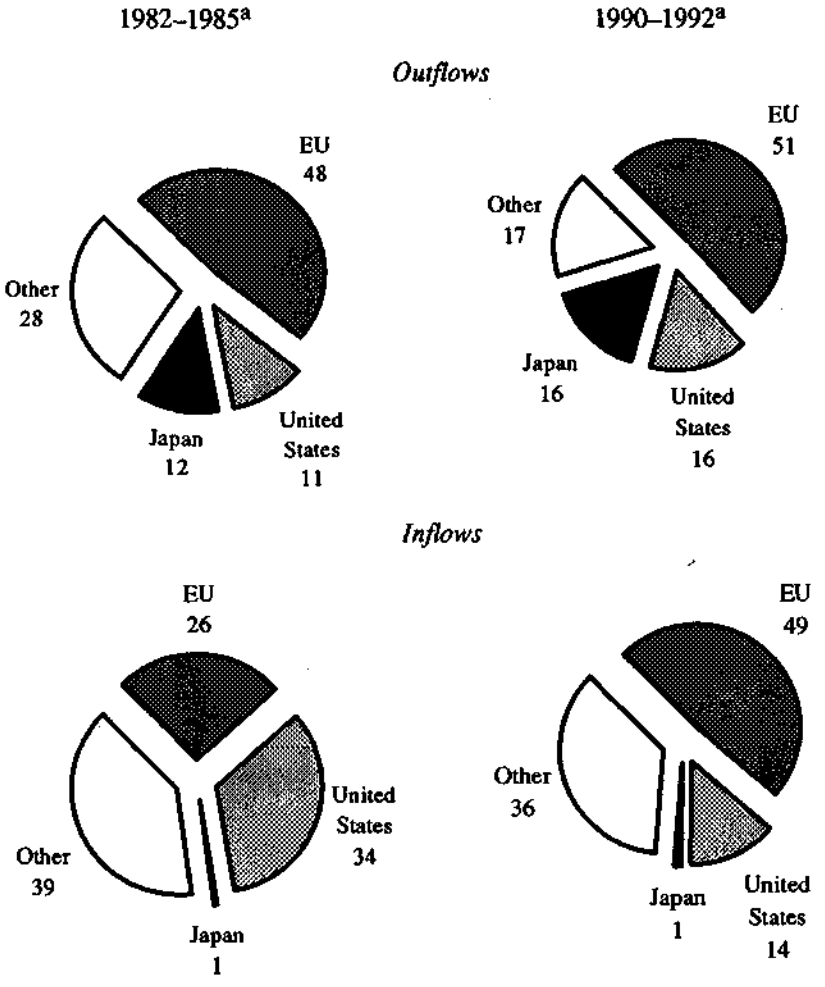
9 The net position is the difference between FDI stocks held abroad by country A and FDI stocks held by other countries in country A.

10 The total foreign involvement in the Japanese economy is higher than indicated by the inward stock of foreign equity capital only. During 1987–1991, Japanese payments for royalties and license fees for foreign patents, copyrights, etc. were nearly ten times higher than the inflows of FDI [UNCTAD, 1993, pp. 42–43]; see also Section III.2.

changes in response to regional integration and globalisation efforts during the last decade.

Figure 2 — Regional Distribution of Global FDI Outflows and Inflows (per cent), 1982–1985 and 1990–1992



[a]Annual averages.

Source: IMF [a].

Table 1 — World Stock of FDI by Regions and Selected Countries, 1980–1991 (per cent)

	Stock of direct investment held abroad (outward)					Stock of foreign direct investment (inward)				
	1980	1985	1991	1980–1985[a]	1985–1991[a]	1980	1985	1991	1980–1985[a]	1985–1991[a]
All countries[b]	516.9	679.5	1,836.5	5.6	18.0	505.3	733.6	1,882.7	7.7	17.0
Developed countries	97.4	96.6	96.7	5.4	18.0	78.0	73.7	76.6	6.5	17.8
United States	42.6	36.9	25.4	2.7	10.9	16.4	25.2	22.0	17.3	14.4
EU-12	38.7	39.5	43.5	6.0	19.9	37.0	30.1	37.9	3.4	21.6
Belgium-Luxembourg	0.9	0.6	1.5	-1.8	36.8	1.5	1.1	2.1	2.0	29.6
Denmark	0.2	0.3	0.5	11.2	32.3	0.8	0.6	0.5	1.8	12.2
France	4.0	4.6	7.6	8.7	28.1	4.2	4.3	4.7	8.6	18.6
Germany	8.3	8.8	9.3	6.8	19.1	9.5	6.7	6.5	0.7	16.3
Greece	na	na	na	na	na	0.6	0.7	0.5	12.1	11.7
Ireland	na	na	na	na	na	0.4	0.4	0.2	8.1	2.3
Italy	1.4	2.6	3.8	20.8	25.5	1.8	2.7	3.3	17.5	20.7
Netherlands	8.2	7.0	6.5	2.4	16.4	3.8	3.4	4.2	5.5	20.9
Portugal	0[c]	0[c]	0[c]	14.9	28.5	0.2	0.3	0.5	15.9	27.3
Spain	0.4	0.7	1.1	18.8	29.1	1.8	1.0	3.0	-4.3	40.4
United Kingdom	15.3	14.8	13.1	4.8	15.6	12.5	8.7	12.5	0.3	24.3
Japan	3.8	6.5	12.6	17.6	31.9	0.7	0.6	0.7	7.3	17.4
Canada	4.2	5.7	4.4	12.4	12.9	10.2	8.5	6.0	3.9	10.5
South Africa	1.1	1.0	0.4	3.4	2.6	3.3	1.4	0.6	-8.6	0.9
Developing countries	2.6	3.4	3.3	11.6	17.3	22.0	26.3	23.4	11.6	14.8
Africa	na	na	na	na	na	2.6	3.2	2.1	12.1	8.9
Latin America	na	na	na	na	na	12.3	12.0	7.0	7.1	7.0
Middle East	na	na	na	na	na	0.9	0.9	0.7	9.6	10.5
Asia	na	na	na	na	na	6.2	10.2	13.6	18.9	22.8

[a]Average annual growth rate. — [b]1980, 1985 and 1991 in billin dollars. — [c]Less than one-tenth of one per cent.

Source: Rutter [1993].

2. The European Union

Apart from further strengthening intra-regional trade linkages, it was also expected from the Community's Internal Market programme that investors would focus their attention on the Single Market. As a result, the globalisation of EU companies beyond regional boundaries may have been retarded or even reduced. Two factors appear to be of major relevance in motivating stronger intra-EU FDI. First, FDI has provided a means to penetrate markets that had traditionally been protected by national governments and for which the completion of the Internal Market promised substantial liberalisation. This applies to

services such as banking, insurance, transport and telecommunication in the first place. Second, FDI in manufacturing might have been encouraged by the search for scale economies in the large unified market. Although the importance of the second factor has remained heavily debated,[11] the Internal Market programme indeed provoked unprecedented amounts of FDI of the member countries to each other. The intra-EU share in their total outward investments increased by 20 percentage points from 1985–1987 to 1988–1990 and by additional 6.7 percentage points in 1991 (Table 2). A revival of direct investments in the United States, following US economic recovery, may reduce this tremendous increase. But it is unlikely to be wiped out completely. This is evident from regional shares in FDI stocks, which tend to be much more stable than the distribution of flows. The intra-EU share of FDI stocks soared from 25 per cent [UNCTC, d, p. 32] in 1980 to 44 per cent in 1991. Hence, it is beyond any doubt that the EU has become a most attractive host region for FDI.

The aggregate of FDI at the EU level hides considerable differences among individual member countries, however. Germany and the United Kingdom represent the extremes. Germany, which was the world's fourth biggest host country of FDI in 1980, participated in the recent boom of FDI in the EU only to a limited extent. Its share in the global stock of inward FDI went down from 9.5 per cent in 1980 to 6.5 per cent in 1991 (Table 1). This is probably due to its reputation as a high-cost location, which made foreign investors to look for more attractive production sites in the EU. The United Kingdom, the biggest host country in the EU and second biggest in the world (after the United States) was able to accelerate its annual growth of inward FDI stocks from 0.3 per cent (1980–1985) to 24.3 per cent (1985–1991). The above average increase of FDI stocks resulted from both intra and extra-EU inflows [OECD, e]. The remaining EU countries can be divided into two groups:

— Measured by the growth of total FDI stocks during 1985–1991, foreign investors found Denmark, Greece and Ireland relatively unattractive investment locations within the EU. The latter two cases suggest that the availability of relatively low-cost labour does not automatically make a country attractive for foreign investors who are interested in capturing gains from the Single European Market.

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11 In earlier evaluations of the Internal Market programme, scale economies figured prominently as a source of integration induced economic gains [Emerson et al., 1988]; for a critical assessment, see Hiemenz et al. [1994].

Table 2 — Regional Distribution of EU[a] Direct Investment Abroad, 1985–1991

	Flows			Stock
	1985–1987[b]	1988–1990[b]	1991	1991[c]
	million ecus			
World	42,310	76,108	74,933	534,456
	per cent			
Industrialised countries	87.5	89.3	82.8	86.0
EU–12	30.6	50.6	57.3	43.6
Rest of Europe	3.1	4.1	4.5	7.4
United States and Canada	49.9	30.2	17.6	30.6
Japan	0.7	0.9	0.7	1.3
Central and Eastern Europe[d]	0.1	0.2	1.6	0.2
Developing countries[e]	9.5	8.4	10.1	13.9
Africa	0.7	1.2	1.3	1.8
Latin America	5.9	4.8	5.0	6.7
Middle East	0.7	0.6	1.0	0.8
Asia	2.2	1.7	2.7	3.5
Asian NIEs[f]	1.7	1.1	1.1	2.2

[a]Without Greece and Ireland. — [b]Annual average. — [c]France (1990), Germany, Italy, Netherlands, United Kingdom. — [d]Excluding FDI from Belgium-Luxembourg (1982–1986), Denmark (1982–1989), Italy (1982–1985), Portugal (1982–1983 and 1985–1991), Spain (1982–1990) and United Kingdom (1982–1991). — [e]Non-OECD area + Turkey – Central and Eastern Europe. Data for the individual regions are incomplete in many cases. — [f]Hong Kong, Malaysia, Singapore, South Korea, Taiwan, Thailand.

Source: OECD [e]; Deutsche Bundesbank [1993].

— More than EU-average rates of growth in FDI stocks were registered in Belgium-Luxembourg, Portugal and Spain. But France, Italy and the Netherlands were also able to raise their shares in FDI stocks during 1980–1991. France and the Southern periphery are vying for the position of the second most important host region for FDI within the EU in the 1990s.

The most relevant question is whether stronger investment activities at the regional level occured at the expense of other host countries of EU FDI. Of course, the counterfactual of what would have happened in the absence of European integration is impossible to establish. Hence, it is difficult to decide

whether globalisation has lost ground due to the deepening of integration. However, FDI diversion can definitely be ruled out for regions that have attracted higher shares of EU FDI despite the progress made in completing the Internal Market. As a matter of fact, EU investors have expanded their engagement not only in EU member countries but also in other regions (Table 2):

— Rising FDI shares have been devoted to European industrialised countries outside the EU. This indicates that investors were stimulated not only by the impending completion of the Internal Market but also by the envisaged integration between EU and EFTA in the form of the European Economic Area.
— The high growth of EU investment in Central and Eastern Europe, albeit from a very low level, is also remarkable. This is a result of the change from command to market economy in this region. FDI was encouraged by the preferential access of post-socialist economies to EU markets under the Europe Agreements, by historical, geographical and cultural links between the home and host countries and by the investors' intention to secure first mover's advantages and to reduce production costs. Most of the new FDI in Central and Eastern Europe is likely to be additional to traditional flows. The opening of markets in this region has mobilised extra capital from smaller enterprises in neighbouring countries, expatriates living in Western countries, and TNCs such as Fiat and VW that have acquired state-owned car manufacturers such as FSM in Poland and Skoda in former Czechoslovakia.

Rising FDI shares of non-EU hosts within Europe may be attributed to the expected widening of integration. EU investors may have anticipated that EFTA countries such as Austria, Sweden and Norway will become more attractive locations because they will join the EU soon. Likewise, Central European countries such as Hungary, Poland, and the Czech and Slovak Republics are expected to receive full membership in the medium run. Hence, the development of EU FDI in non-European host regions is more telling with respect to FDI diversion.

Particularly DCs were concerned that European integration would proceed at their expense. However, conclusive evidence to the effect that the rise in intra-EU FDI has diverted FDI away from DCs does not exist. The modest decline of their share in EU FDI outflows in 1988–1990 appears to be a temporary phenomenon (Table 2). In 1991, the share of the most DC regions recovered again and surpassed the 1985–1987 share; the only exception was Latin America. The slow recovery in Latin America is hardly attributable to integration-induced FDI diversion, but has to be attributed to local factors in the first place, for ex-

ample, persistent policy failures in Brazil, which had traditionally been the most important host country in the region.

Further evidence against the notion that European integration has negatively affected the integration of DCs into globalisation strategies of EU companies is provided by the following observations:

— FDI outflows of individual EU member countries reveal significant differences. France is the only major EU investor country for which the share of FDI outflows to both all DCs and Asian DCs has declined over the whole period under consideration (Table A3). By contrast, Asia has attracted higher shares from three of the four larger home countries of EU investors (Germany, the Netherlands and the United Kingdom) and also from Belgium and Luxembourg.[12] This indicates that European integration has not eroded Asia's attractiveness for major EU investors who were looking for cost advantages and promising markets.

— Lower FDI shares are a necessary, but not a sufficient condition for FDI diversion. As a matter of fact, regional FDI inflows continued to rise in absolute amounts throughout the period under consideration. Comparing 1985–1987 and 1988–1990, EU FDI flows to Latin America and Asia increased by 46 and 39 per cent, respectively.

— Data on FDI stocks make a strong case against any presumed delinking of DCs from the globalisation strategies pursued by EU investors. During 1985–1991, FDI stocks held by Germany, Italy and the Netherlands roughly doubled in the case of Latin America and nearly tripled in the case of Asian DCs [OECD, e; Deutsche Bundesbank, var. issues].[13]

— Finally, it has to be taken into account that globalisation is an issue with respect to manufacturing in the first place. Hence, further insights may be gained from a sectoral breakdown of FDI stocks, which is available for Germany and the Netherlands [Deutsche Bundesbank, var. issues; De Nederlandsche Bank, var. issues].[14] FDI stocks in the manufacturing industries of Asian DCs, originating from both Germany and the Nether-

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12 The Netherlands as well as Belgium and Luxembourg reported continuously increasing shares of FDI outflows to all DCs as well.

13 Corresponding data for 1985 and 1991 are not available for other major EU investor countries. France and the United Kingdom may be included, however, when the comparison of FDI stocks is restricted to the period 1987–1990. It then turns out that FDI stocks held by all five EU countries increased by 43 per cent in Latin America (to $42 billion) and by 64 per cent in Asia (to $20.5 billion) within three years.

14 For a detailed analysis of the sectoral structure of EU FDI, which is beyond the scope of this chapter, see Agarwal et al. [1994].

lands, has increased not only in absolute amounts since 1985; in the early 1990s, this region also accounted for a larger share of total German and Dutch FDI stocks in manufacturing. The same applies to all DCs in the case of FDI originating from the Netherlands.[15]

What we have said for Asian DCs largely applies to Japan as well. Japan continued to be a minor host of EU FDI. In other words, the potential for any FDI diversion arising from European integration was extremely small from the very beginning. Starting from a very low level, EU FDI flows to Japan indeed increased during the second half of the 1980s, followed by a minor decline in 1991 (Table 2). The emerging attractiveness of Japan as a host of EU FDI is more clearly revealed by stock data. FDI stocks held by Germany, Italy and the Netherlands have more than quadrupled to $4.9 billion in 1991 [OECD, e; Deutsche Bundesbank, var. issues].[16]

In terms of EU FDI outflows, North America was the main loser. Its share declined from almost 50 per cent in 1985–1987 to 30 per cent in 1988–1990 and merely 17.6 per cent in 1991 (Table 2). This implies that North America was the only region where FDI inflows originating from the EU declined in absolute amounts, though only very recently.[17] Even for this region the evidence with respect to FDI diversion is inconclusive. It is debatable whether the recent decline of FDI outflows is a cyclical phenomenon, rather than pointing to a longer-term decline in the propensity of EU investors to globalise their operations.

Two observations render the cyclical interpretation more plausible. First, the declining trend of the North American share in EU FDI outflows appears to have come to an end recently; the share increased from 16.4 per cent in 1990 to 17.6 per cent in 1991. Second, and more importantly, the development of FDI stocks held by EU countries in the United States is in striking contrast to flow data.[18] Stocks owned by German, Italian and Dutch investors more than dou-

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15 By contrast, the share of all DCs in total German FDI in manufacturing declined during the 1980s. This was mainly due to policy failure and economic stagnation in Latin America. Even for this region, however, FDI stocks in manufacturing were higher in 1991 than in 1985–1987.

16 Including FDI stocks held in Japan by France and the United Kingdom, the European engagement rose from $4.7 billion in 1987 to $7.6 billion in 1990.

17 Inflows amounted to ECU 21.1 and ECU 23 billion per annum in 1985–1987 and 1988–1990, respectively. In 1991, they declined to ECU 13.2 billion.

18 Of course, stock data have their own flaws. While the volatility inherent in flow data does not affect stock data as significantly, the latter may be subject to considerable valuation effects; distortions may arise from exchange-rate fluctuations in the first place. For a detailed discussion with respect to German FDI data, see Agarwal et al. [1991, pp. 19 ff.].

bled in the period 1985–1991 [OECD, e; Deutsche Bundesbank, var. issues]. Data on French and UK FDI stocks held in the United States in 1987 and 1990 suggest an even steeper increase for these two home countries.

Although the picture remains ambiguous with respect to the United States, there is little evidence that EU investors have reduced their efforts for globalisation because of European integration. It is reasonable to conclude that rising intra-EU FDI has been additional, rather than having replaced the engagement in other regions. The companies can obviously not afford to lock themselves into a fortress Europe, i.e., rising trade protection against outside competitors, and forego the cost advantages and market chances to be exploited by means of globalised FDI patterns. Otherwise, they would ultimately lose their competitiveness even in the European market.

The sectoral breakdown of EU FDI supports the notion of additionality. The shift towards the EU was much less pronounced in manufacturing activities than in services (for details, see Agarwal et al. [1994]). This differential pattern is related to EU trade policies. Remaining barriers to trade within the EU were highest for services, while trade in most manufactured products had already been liberalised completely prior to 1985 [Hiemenz et al., 1994]. Hence, potential benefits of market integration could be expected to accrue primarily to services and only to a much more limited extent to manufacturing activities. As concerns the latter, intra-EU FDI took largely the form of mergers and acquisitions in neighbouring countries, in order to restructure production at the regional level in the wake of the Internal Market programme. This restructuring resulted in relatively declining domestic production, rather than adversely affecting globalisation (Chapter IV).

3. The United States

Regional integration in America has largely been a reaction to the widening and deepening of integration in Europe. Traditionally close economic relations of the United States with Canada and Mexico notwithstanding, institutionalised integration started only in 1989, when Canada and the United States formed the free trade agreement CUSTA (Canadian-US free trade agreement). This arrangement has recently been extended to Mexico under the NAFTA. In the future, regional trade and investment cooperation may gather further momentum on the American continent. Latin American DCs (for example, Argentina) have announced to apply for membership in the NAFTA, and the "Enterprise of the Americas" initiative of the US government may ultimately result in substantial

widening of integration encompassing America as a whole. Assuming that US investors anticipated the recent move towards regional integration and its future extension, it appears reasonable to consider the American continent to be their regional "home turf". It may then be assessed whether US investors have diverted FDI away from other regions, which would indicate that regionalism has been favoured over globalisation. Similar to European integration, apprehensions to this effect were raised by (non-American) DCs.[19] However, integration-induced diversion effects are difficult to be isolated from the "normal" pattern of US FDI:

— The link between integration and FDI is more ambiguous in America than in Europe. While intra-EU trade in manufactured products was not impeded by significant trade barriers even before launching the Internal Market programme, the removal of such barriers figured high on the integration agenda in America. An integration-induced expansion of FDI might then be offset by trade-replacing FDI, if the latter had been used as a means to jump over protectionist fences prior to trade liberalisation.
— The first moves towards regional integration in America coincided with comprehensive economic reforms in several Latin American economies (notably Mexico and Argentina). Hence, it is difficult to decide whether higher FDI inflows originating from the United States occurred in anticipation of integration or were, rather, due to improved local investment conditions.[20]
— Finally, regional shares in US FDI outflows (especially outflows to Latin America) are rather volatile because of significant fluctuations in capital transfers to and from the Caribbean financial centres. Consequently, we mainly refer to FDI stock data in the following.

These qualifications notwithstanding, it is evident from Table 3 that US direct investment abroad reveals a more globalised pattern than EU FDI. Canada and Latin America together accounted for less than one third of total US FDI stocks in 1992, compared with an intra-EU share in total EU FDI stocks of more than 50 per cent (Table 2). Furthermore, the overall share of all hosts of US FDI outside America slightly increased from 65.6 per cent in 1982 to 67.4 per cent in 1992. Put differently, the high level of globalisation achieved in the early 1980s was maintained.

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19 On the competition for risk capital from the US (and for access to US markets) between Latin American DCs and other DCs, especially Asian DCs, see Langhammer [1992b].

20 Latin America regained its attractiveness for FDI also because debt problems were overcome [Nunnenkamp, Agarwal, 1993].

Table 3 — Regional Distribution of US Direct Investment Abroad[a], 1982–1992

	Flows [b]			Stock	
	1982–1985	1986–1989	1990–1992	1982	1992[c]
			million $		
World	8,034	23,681	31,821	207,752	488,609
			per cent		
Industrialised countries	82.8	66.5	61.0	72.2	71.9
EU–12	55.5	44.4	34.9	35.8	41.0
Rest of Europe[d]	12.1	2.6	11.1	8.7	7.5
Canada	7.9	12.4	7.8	20.9	14.0
Japan	4.3	2.9	1.9	3.1	5.4
Central and Eastern Europe	na	na	0.9[e]	na	0.2
Developing countries[f]	17.2	33.9	38.4	26.8	27.2
Africa	2.9	–1.2	–1.4	3.1	0.7
Mexico	–0.9	2.0	5.7	2.4	2.7
Other Latin America	–5.7	30.2	22.1	11.1	15.9
Middle East	6.2	–0.1	2.3	1.7	1.2
Asia	15.2	3.8	10.1	5.8	6.6
Asian NIEs[g]	5.9	3.7	7.6	3.8	5.1

[a]Excluding Netherlands Antilles. — [b]Annual average. — [c]Stocks on historical cost basis. — [d]Austria, Finland, Iceland, Norway, Sweden, Switzerland, other Europe. — [e]1991–1992. — [f]Non-OECD area + Turkey – Central and Eastern Europe. — [g]Hong Kong, Malaysia, Singapore, South Korea, Taiwan, Thailand.

Source: OECD [e]; USDOC [a].

Traditionally, the overseas engagement of US investors has been concentrated on Europe, notably the EU. The focus on the EU has become even stronger over time, especially since the mid-1980s [USDOC, a]. This suggests that the Community's Internal Market programme has provided a stimulus for US investors. Starting from significantly lower base levels in 1982, an expanded US engagement is also observed for Japan and Asian DCs. Promising markets in this fast growing region and cost advantages to be exploited by production sharing are the motives underlying this further move towards globalisation.

It would be premature, however, to conclude that regional integration had no effect at all on the distribution of US FDI. Table 3 indeed reveals striking shifts between stocks held in different countries on the American continent. As a host

of US FDI, Canada has not benefited from integration.[21] Its share in FDI flows stagnated when comparing the early 1990s with 1982–1985,[22] while its share in stocks even declined. This shows that free trade and investment agreements are no guarantee for increasing the regional involvement, compared with global sourcing and marketing efforts of TNCs. Rather, the removal of tariff and non-tariff trade barriers may have stimulated US firms to exploit scale economies at their home production base. Falling transport and communication costs and converging demand patterns facilitated this process. Regional integration did not help to promote Canadian FDI in the United States either. In 1991, the US share in Canadian outward FDI was seven percentage points below the level reached in 1988 [OECD, e]. Multinationally operating firms from both countries seem to have continued the globalisation of their sourcing and marketing strategies irrespective of the administrative efforts to seek greater regional integration.

Compared with Canada, the experience of Mexico was strikingly different. The North American agreement with Mexico not only envisages freedom of trade but also contains wide-ranging provisions for encouraging FDI among the partner countries [UNCTAD, 1993, pp. 51–52]. The rise in Mexico's share in US FDI (Table 3) may reflect integration effects to the extent that anticipation by US investors has played a major role. Such an interpretation would be misleading for several reasons, however:

— First, products manufactured by US firms across the border in Mexico enjoyed import preferences in the United States even before the NAFTA was signed. This preferential treatment has traditionally been an important stimulus for US FDI in the so-called "maquiladora" industries.
— Second, it is highly likely that the increase of US FDI in Mexico would have occurred in the absence of institutionalised integration as well. Probably, the increase is largely the result of successful liberalisation and stabilisation efforts launched by the Mexican government since the

21 Canada used to be the world's biggest host of worldwide FDI in the 1960s. However, the comparative attractiveness of Canada in international competition for risk capital has been losing ground for long. Its share in the world stock of inward direct investment had declined from 18 per cent in 1967 to 10 per cent in 1980 [Rutter, 1993]. Canada's association with the United States as the single largest home country of TNCs has not been able to stop this decline, and the Canadian share has fallen to 6 per cent (1991), below that of Germany. Now the United States host 3.7 times more stock of inward FDI than Canada and has become the single largest recipient of FDI in the world [ibid.], thanks to the massive inflow of Japanese FDI (see also Section II.4).

22 The temporary rise of the Canadian share in US FDI outflows in 1986–1989 is consistent with reports of US firms planning higher direct investments there in anticipation of CUSTA [UNCTC, b, p. 32].

mid-1980s [Hiemenz, Nunnenkamp et al., 1991]. This proposition is supported by the fact that the recovery of FDI in Mexico was not restricted to flows originating from the United States; also other industrialised countries such as Germany and Japan have strengthened their engagement in Mexico recently.[23]

— Third, the recovery of US FDI in other Latin American countries has been more pronounced than in Mexico (Table 3). The hypothesis of integration effects dominating the behaviour of US investors would suggest the opposite pattern; as the prospects of NAFTA were relatively easy to anticipate as compared with the fairly vague vision of the "Enterprise of the Americas".

All in all, the revival of US FDI in Latin America appears to be driven primarily by local factors, rather than by anticipated integration. Among DCs, Latin America has traditionally been the principal region of international sourcing and marketing activities of US companies. Most countries in this region have recovered from the debt crisis, which adversely affected the activities of foreign investors from the United States and other home countries during the 1980s. Economic reforms, comprising macroeconomic stabilisation, liberalisation and privatisation schemes, and the consolidation of foreign debt (for example, via debt-equity swaps and debt reduction offered under the Brady plan) have contributed to restoring the foreign investors' confidence in the region. It now hosts a greater share of the total stock of US FDI than prior to the debt crisis. The globalisation of US companies beyond the American continent remained unaffected, however.

4. Japan

Institutionalised regionalism is largely absent in Asia. It is, rather, in the sense of a market-driven regionalisation of corporate activities that Japan can be viewed as a member of an economically integrated region. In the early phase of Japanese FDI in East Asian DCs, the investors were motivated to take advantage of low-cost labour. Now FDI is also targeted at penetrating promising markets, for example, for consumer goods, in view of the increased income

[23] German FDI stocks held in Mexico nearly tripled during the period 1984–1991 [Nunnenkamp, Agarwal, 1993, Table 3]. Japanese FDI flows to Mexico, which averaged $50 million in 1987–1989, rose to $168 and 193 million in 1990 and 1991, respectively [OECD, e].

levels and high growth rates in this region. Many Japanese TNCs have integrated their Asian affiliates on a regional scale, with a wide-ranging network of intra-company trade between different countries. These regional networks, especially in electronic equipment and more recently in the automobile industry, suggest that the East Asian region can be viewed as an integrated group of countries, among which Japan is the most important player.

The importance of Asia as a low-cost location and a promising outlet for consumer and investment goods continues to be high. Consequently, the medium-term outlook for Japanese FDI in Asia is highly positive. Among the host countries targeted by Japanese TNCs in the near future, China, Indonesia, Vietnam, Thailand, Malaysia, Singapore and India occupy prominent positions besides the United States, the United Kingdom, Germany and Mexico [EXIM, 1993]. The recent strong appreciation of the Yen has encouraged Japanese firms to use their Asian bases for exporting to Japan as well, whereas formerly they served as export bases mainly to other developed countries.

However, favourable investment conditions within Asia have not prevented large-scale globalisation of Japanese TNCs beyond regional boundaries, and they are unlikely to do so in the future. To the contrary, the Asian share in Japan's stock of FDI abroad declined considerably (Table 4), while the absolute value of FDI stocks held in Asia soared from $15 billion in 1982 to $60 billion in 1992. Correspondingly, there was a fall in the share of all DCs in Japan's FDI stocks, whereas the absolute value of FDI stocks continued to increase in all DC regions.[24]

The main reason for the relative decline of Japanese FDI in Asia and in other DCs, too, is the phenomenal boost of Japan's engagement in the United States and the EU. The significant move of Japanese companies towards integrating these two regions into their globalisation strategies was in response to actual or conceived trade protection and the need for consumers' proximity. Japanese TNCs were eager to raise their market share through local production, which can be more easily adapted to local market needs than exports. Furthermore, local production was expected to enable Japanese companies to get an insider status in the United States and the EU.

The United States are by far the biggest single host country of Japanese FDI. More than two fifths of FDI stocks are placed there. Japan's investments increased by 28 per cent per annum in the period 1982–1992 [MOF, var. issues].

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[24] Relating 1992 stocks to 1982 stocks, the highest increase was in a group of six advanced Asian DCs (by a factor of 6), followed by Latin America (5.2); Africa and the Middle East ranked at the bottom, but Japanese FDI stocks held there still increased by a factor of 2.7 and 1.7, respectively.

Table 4 — Regional Distribution of Japanese Direct Investment Abroad, 1982–1992

	Flows[a]			Stocks	
	1982–1985	1986–1989	1990–1992	1982	1992
			million $		
World	9,557	42,562	44,211	53,131	386,530
			per cent		
Industrial countries	56.46	73.43	75.23	46.05	68.93
EU–12	13.65	18.75	21.65	10.30[b]	18.28
Rest of Europe	1.39	1.09	1.19	0.91	1.09
United States	36.77	46.47	43.71	26.03	42.01
Canada	1.54	1.71	1.97	2.34	1.86
Central and Eastern Europe	na	0.03	0.22	0.36[c]	0.14
Developing countries	43.54	26.55	24.55	53.95	30.39
Africa	3.53	1.12	1.16	4.72	1.76
Latin America	21.68	12.46	7.31	16.66	12.04
Middle East	1.62	0.25	0.62	4.67	1.09
Asia	16.43	12.33	14.64	27.91	15.49
Asian NIEs[d]	10.88	9.50	9.35	11.83	9.86

[a]Annual averages. — [b]Excluding Denmark, Greece and Portugal. — [c]USSR. — [d]Hong Kong, Malaysia, Singapore, South Korea, Taiwan, Thailand.

Source: OECD [e]; MOF [var. issues].

The recession in Japan and the United States prompted a deceleration of FDI growth in the early 1990s. However, FDI flows to the United States are expected to resume their basic upward trend. In the 1993-survey of the Export-Import Bank of Japan, investors voted the United States as the second most important host country, after China, for their future direct investments abroad [EXIM, 1993]. This optimistic evaluation is based on the persistence of the basic motivations of Japanese direct investors in the United States. It is the largest final market for Japanese goods, and its long-term growth prospects are considered favourable.[25] Growth and FDI inflows are generally highly correlated.

25 Investment conditions appear to have further improved because of the NAFTA. Japanese FDI in the other two member countries, Canada and Mexico, is still relatively low, but it increased in the early 1990s. Japanese firms are expected to raise their production facilities in Mexico and other Latin American countries. Traditionally, most of the Japanese FDI in Latin America has been in finance and shipping, notably in Panama, the Cayman Islands and the Bahamas. Regional integration and economic recovery of major Latin American countries may unleash a re-

This is more so in the case of extremely large host markets such as the United States. Moreover, the high growth of Japan's FDI in the United States is also a response to its persistent trade surpluses, which have provoked various government actions against Japanese exports and resulted in the appreciation of the Yen. The latter has, in turn, made it cheaper for Japanese TNCs to install more production capacities in the United States. The strong flow of Japanese FDI into the United States is thus likely to continue.

The highest rate of growth of Japanese FDI during 1982–1992 was recorded in the EU. In terms of flows, the EU share rose from 14 per cent in the early 1980s to 22 per cent in the early 1990s. The EU now hosts a greater stock of Japanese FDI than Asia, while it accounted for only about one third of the Asian share ten years earlier (Table 4). Most of Japan's engagement in Europe is in services, and it has traditionally been undertaken to support trade. The liberalisation of service sectors in European countries and the boom in capital market transactions in the 1980s have led to a further expansion of the activities of Japanese TNCs in services. Japanese banks and security houses have become influential players in European capital markets, especially in London.

Nevertheless, the pull effect of the Internal Market has been greater on Japanese FDI in the manufacturing sector. Its share in Japan's FDI flows to Europe increased from 18 per cent in 1987–1989 to 31 per cent in 1990–1992 [Tejima, 1993, p. 47]. This shift has been triggered by several factors, including favourable growth prospects offered by the Internal Market programme and the widely perceived potential for economies of scale after the removal of remaining trade barriers within the EU. Frequently, however, fears of a fortress Europe, i.e., rising trade protection against outside competitors, are considered to be the most important motive of increasing Japanese FDI in manufacturing industries [Heitger, Stehn, 1990]. Such fears appeared reasonable given that Japanese exporters have been among the principle targets of "voluntary" export restraints, orderly marketing agreements, or outright quotas on automobiles, colour televisions, semi conductors, machine tools and video cassette recorders [UN, 1993, p. 89].

Economic integration in Europe so far was not accompanied by a seriously deteriorating market access for third country suppliers (see also Hiemenz et al. [1994]; GATT [c]). Even though respective concerns may vanish, Japanese FDI can be expected to continue, as it provides the most effective means to preserve and expand market shares in the EU. This motivation has dominated the locational decisions by Japanese investors. Relatively low labour costs in the EU's Southern periphery and related factors are less important [Tejima, 1993, p. 60],

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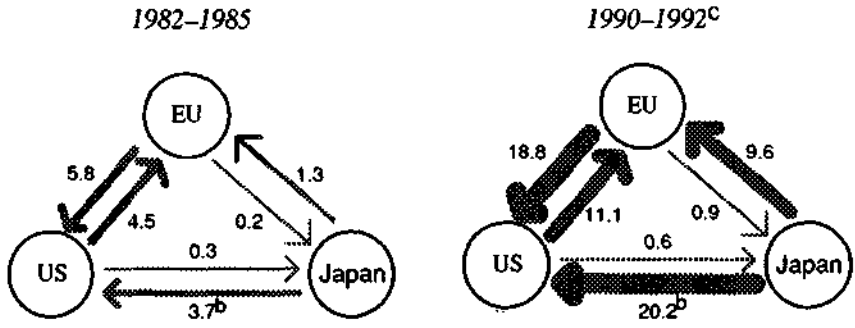
covery of manufacturing FDI [Tejima, 1993]. For a detailed discussion of Japan's engagement in Mexican "maquiladora" industries, see Kenney and Florida [1994].

which is evident from the United Kingdom and the Netherlands being the major targets of Japanese FDI in the EU. Cost advantages are sought, rather, in Asia or other DCs.

5. Summary

FDI by investors based in the EU, the United States and Japan has become a major vehicle of globalising production patterns. Since the early 1980s, FDI has increased at an unprecedented rate (see also Figure 3). The interruption of this tremendous growth in the early 1990s, as shown in Figure 1, can safely be assumed to remain a short-lived phenomenon. FDI is likely to resume its upward trend once the recent economic recovery in the United States will spread to Europe and Japan.

Figure 3 — FDI Flows within the Triad,[a] 1982–1985 and 1990–1992 (billion dollars)



[a]Annual averages; Ireland and Greece are not included in EU outflows. — [b]Including Canada. — [c]1989–1991 for EU outflows.

Source: OECD [e]; USDOC [a]; MOF [var. issues].

Foreign investment activities are highly concentrated on industrialised countries. The EU, the United States and Japan are the major players in terms of the source and the target of FDI:

— The United States have been the frontrunner with respect to globalisation. So far there is no evidence of investment diversion as a conse-

quence of NAFTA. The reemergence of Latin America as a host region is primarily the result of domestic economic reforms and the ensuing improvement of investment conditions, rather than of the still vague initiative of the "Enterprise of the Americas".

— Japan's performance has been most impressive in terms of catching-up with the degree of globalisation achieved by US companies. Most of the growth of worldwide FDI outflows stemmed from Japan's overseas investment. While the regional focus on Asia has been reduced in the past, the high priority attached to China may lead to some resurgence of the Asian share in Japan's FDI in the future. But this is unlikely to affect Japan's engagement in Europe and the United States to a significant extent. To the contrary, the FDI-to-exports ratio, which is still much smaller in the case of Japan than in the case of the United States, suggests that there is further scope for globalisation of Japanese production. Finally, as a host of FDI, Japan is lagging far behind the EU and the United States despite of its liberalisation efforts with regard to FDI regulations.

— Concerns for FDI diversion triggered by regionalism have been most pronounced in the case of the EU. The deepening of integration and the prospects of the widening of integration have definitely contributed to the boom of intra-European FDI. However, the large bulk of integration induced EU FDI appears to be additional. There is no conclusive evidence that the globalisation of EU companies has been adversely affected.

To conclude, the recent move towards regional integration has not put an end to the globalisation of companies based in the member countries of integration schemes (Figure 3). Moreover, the formation of integrated markets has prompted further globalisation by companies from outside the region. The EU is the best example in this respect. While it had attracted Japanese FDI flows in the order of one-third of Japanese FDI flows to the United States in 1982–1985, this relation amounted to nearly 50 per cent in 1990–1992. US FDI flows to the EU increased by a factor of 2.5. At the same time, EU companies strengthened their presence in the United States and in Japan, although flows have remained small in the latter case. Evidently, regional integration does not only benefit the member countries but stimulates FDI from outside the region as well, and companies based in an integrated region cannot afford to lock themselves into a regional fortress.

III. Non-Equity Forms of Globalised Production

The previous analysis of recent trends in FDI revealed that the widening and deepening of integration at the regional level have added to the attractiveness of member states for internationally mobile capital, notably in the EU. However, there is hardly any evidence on investment diversion at the expense of countries that remained outside major integration schemes. Furthermore, significant FDI flows between different regions indicate that investors did not consider their stronger regional engagement to be an alternative to worldwide production, sourcing and marketing. The investment behaviour of TNCs suggests that the formation of antagonistic regional blocs would run counter to their efforts for globalised production patterns. Economic policies directed at closed-shop regionalism can, therefore, be expected to be resisted by worldwide operating firms, though the reaction of producers and investors may depend on their current competitive position in world markets.[26] The effectiveness of such policies may suffer from entrepreneurial evasion activities. FDI provides a means to jump over protectionist fences, thereby eroding the effectiveness of discriminating trade policies against foreign competitors. Similarly, non-equity forms of international cooperation may be referred to if FDI is controlled and regulated. In the following, we complement the analysis of FDI by an assessment of non-equity forms of international cooperation (NEC).

1. The Relationship to FDI

The argument that FDI is not the only means by which the production chain may be fragmented on a worldwide scale suggests that the degree of globalisation is underestimated unless NEC is taken into account. NEC stands for "intercorporate, international business operations that lie in a grey area between arms-length trade and traditional FDI" [Oman, 1989, p. 9].[27] This definition

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[26] In this context, it is interesting to note that General Motors did no longer support the US automobile industry's demand for an export restraint agreement with Japan after this company had concluded a joint venture with Toyota [Bhagwati et al., 1992, p. 187].

[27] In the literature, the term *new forms of investment* is frequently used for such operations [for example, Oman, 1984; 1989]. NEC is preferred here, as the so-called new forms have a fairly long tradition in some industries, for example, in textiles

covers a broad and heterogeneous range of cross-border activities of companies. It includes in particular: joint ventures with minor foreign equity stakes,[28] the supply of technology or trademarks through licensing agreements, production sharing arrangements, international subcontracting that involves firms with a local majority stake, as well as contracts on franchising and turnkey projects.[29]

The common denominator of the various types of NEC is that tangible or intangible assets are supplied by a foreign company to a local enterprise, while local interests in the host country retain majority or full ownership. The foreign company's equity stake, if any, does not constitute ownership control, though NEC may entail a significant degree of effective control by other means. The foreign company's interest in the local enterprise goes beyond immediate profit to be derived from selling goods. The company is interested, rather, in the ability of the local partner to generate a surplus in the longer run, on which the returns on its asset depend.

From an analytical point of view, the relation between NEC and FDI is not straightforward. The ambiguities are similar to those known from the trade-FDI nexus and largely stem from economic policy interventions. The positive effect of past and present exports on FDI, postulated by the theory of optimal timing of FDI, may be neutralised if large and important markets are not accessible via exports and FDI is undertaken to overcome protectionist trade barriers.[30] Trade liberalisation may then have even a negative effect on FDI. Similarly, NEC

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and clothing (Section IV.3). It should be noted, however, that minor foreign equity stakes in joint ventures are included in NEC. The subsequent paragraphs draw on Oman [1989, pp. 10 ff.].

28 An unanimous border line of foreign equity stakes that would adequately serve to distinguish FDI from NEC does not exist [see also IMF, d, pp. 136 ff.]. Analytically, the relevant criterion for FDI is that the foreign investor has an effective voice in the management of an enterprise. However effective ownership control does not only depend on the proportion of foreign equity stakes, but also on whether the remaining shares are widely dispersed or rather concentrated. The information required for an analytically sound differentiation between FDI and NEC is generally not available. Consequently, there is no alternative but to refer to the proportion of foreign ownership in defining FDI. The border line applied differs considerably between different sources. While the percentage chosen is typically quite low in balance-of-payments statistics (ranging from 25 per cent down to 10 per cent), FDI is restricted to foreign *majority* ownership according to Oman [1989]. For the specific criteria applied in the empirical studies referred to below, see Section III.2.

29 See also Contractor, Lorange [1988, pp. 5 ff.]; Business International Corp. [1987, pp. 21 ff.].

30 For a detailed analysis, see Chapter V; for an empirical analysis of German FDI, see Agarwal et al. [1991].

may be a second-best alternative to FDI if the latter is regulated or even prohibited. Globalisation through NEC might then become less relevant once FDI restrictions are lifted.[31]

Substitution effects between NEC and FDI (as well as trade and FDI) reflect that corporate strategies and government regulations are intertwined. Until the early 1980s, many countries were concerned about "foreign dominance" by TNCs in their economies. Globalisation through FDI was hindered by a host of restrictions, ranging from the closure of strategic industries to any foreign equity investment to performance requirements in terms of local content and export obligations.[32] Such a restrictive policy stance left no alternative but to globalise via NEC, or at least increased the attractiveness of NEC relative to FDI.[33] At the same time, a recourse to NEC suggests that entrepreneurial adaptation to policy interventions reduced the effectiveness of the latter in achieving the host country's objective to limit foreign involvement in the economy. Given that NEC, too, involved effective control by foreign companies, majority ownership by the host countries was insufficient to guarantee exclusive local control. Host countries, especially in the Third World, continued to depend on TNCs for gaining access to technology and world markets. The complexity of corporate behaviour and the variety of innovative globalisation strategies may easily overcharge the government's administrative and regulatory capacity. Particularly in DCs with less advanced structures of public governance, the actions of TNCs constrain "an individual nation state's degrees of economic freedom — its economic autonomy" [Dicken, 1992, p. 149].

The limited effectiveness of government regulations may have contributed to the more liberal stance towards FDI since the 1980s.[34] In many DCs, however, the significant relaxation of FDI restrictions was an attempt to overcome for-

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31 Exogenous factors may further complicate the relation between FDI and NEC. Low or even negative real interest rates in the 1970s may provide a case in point. Many DCs had easy access to low cost credits, which led them to rely more on international borrowing and less on FDI. NEC was stimulated by this financial restructuring to the extent that DCs used cheap credits to finance imports, and concluded contractual arrangements with foreign companies which went beyond arm's length trade relations, e.g. in order to get access to technology.

32 FDI was heavily regulated by many DCs in the first place; for an overview on the types and coverage of regulations in selected DCs, see Agarwal et al. [1991] and the literature given there. However, restrictions were applied by industrialised countries as well, and some of them are still in place; for the case of Europe, see for example, Welfens [1992, p. 38]. High local content requirements for Japanese FDI in the automobile sector of the EU (reportedly up to 80 per cent in the case of investments in the United Kingdom) provide a prominent example.

33 For a similar reasoning, see Contractor [1989].

34 For empirical evidence on FDI liberalisation, see ERT [1993] and UNCTC [a].

eign exchange constraints and to improve the chances for a closer integration into the world economy. Even if higher FDI inflows were induced by such a move, the effectiveness of the policy change may again suffer from substitution effects. A rise in FDI would then go hand in hand with less globalisation through NEC; an earlier rise in NEC would turn out to be temporary.

Policy-induced substitution effects notwithstanding, we can maintain the above proposition that the degree of globalisation is underestimated when NEC is ignored. Two factors are of particular relevance with respect to the growth of NEC: (i) general changes in TNC perceptions on the advantages of NEC, which are of a longer-term nature and independent of policy-induced biases in corporate decision making, and (ii) industry characteristics that have as a consequence that NEC is the superior way of globalisation in certain sectors, while there may be no alternative to FDI in other sectors.

As concerns corporate views, risk considerations figure prominently in shaping the growth of NEC. While FDI provides a way for the host country to share economic risks with foreign investors, TNCs may aim at risk diversification by unravelling the FDI package. NEC offers various options to this effect. Political risks in general and expropriation risks in particular can be contained in the case of joint ventures with local majority stakes. By providing intangible assets through licensing, investment and operation costs are shifted to local or other foreign partners. Subcontracting implies that the effects of fluctuations in final demand are shared with the subcontracting firm in the host country. Financial risks can be diversified by delegating the financing of investment projects to commercial banks.

The favourable risk properties of NEC render it easier for newcomers to go global, especially in the case of smaller companies for which the potential of intra-firm diversification of risks is limited.[35] NEC helps overcoming a major dilemma of these companies. On the one hand, the earlier globalisation of competing TNCs adds to the pressure to follow suit, in order to remain competitive by participating in international production sharing according to comparative advantages. On the other hand, such a move could entail unmanageable risks for smaller newcomers if they had no alternative to FDI with its inherent threat of considerable sunk costs. This reasoning suggests that NEC offers more opportunities and better chances to compete with established TNCs in world markets, and that more FDI by market leaders is likely to provoke more NEC by market followers. The development of FDI *and* NEC can thus be expected to be on a rising trend in the longer run.

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35 See also Contractor, Lorange [1988, pp. 14–15]; Oman [1989, p. 15] argues that newcomer TNCs based in Japan, Europe and DCs tended to favour NEC; for earlier evidence on ownership patterns of Japanese investment abroad, see Ozawa [1984].

The proposition that different globalisation avenues will be followed at the same time can be further substantiated by considering the relevance of industry characteristics for corporate strategies. It is well known from the eclectic theory of FDI [Dunning, 1977] that owners of intangible assets prefer to internalise, i.e., to maintain control over the use of such assets, if external markets are inefficient and the transfer of assets through market exchange involves high transaction costs. The asset-specific significance of market imperfections and transaction costs may also have an effect on the way in which internalisation occurs. Hence, it can reasonably be assumed that the suitability of different globalisation strategies depends on the intangible asset in question. For example, market inefficiencies are supposed to be particularly pronounced as concerns ownership advantages related to products and markets so that internalisation is most likely to occur through FDI [Kumar, 1989]. As concerns ownership advantages related to process technology, the propensity to FDI is expected to be relatively high in the case of innovative technologies, whose management requires particular skills of the owner's employees. By contrast, licensing is expected to be a prime vehicle of globalisation if standardisation is well advanced [Caves, 1974; Teece, 1981].

The importance of intangible assets related to products and markets and the technologies applied vary across industries. Hence, the propensity to internalise and the preferred mode of internalisation will be industry-specific [Dunning, 1981; Kumar, 1989]. Globalisation may be dominated by FDI in industries producing differentiated goods, for the sale of which brand names and quality control feature prominently. The same applies when globalisation necessitates the transfer of highly skilled personnel, for example, for purposes of management and organisation, marketing, and research. By contrast, NEC may be favoured in industries with the following characteristics: knowledge is embodied in capital goods, production processes are easier to manage, and the R&D intensity of production is low.

Apart from corporate adaptation to industry characteristics, industry-specific globalisation strategies may also result from DC hosts preferring FDI in some industries and NEC in others. Many DCs have built up considerable domestic capacities in management, technological development and marketing. Depending on the advances made in these areas, they may rely on local resources to the largest extent possible in order to reduce foreign exchange costs [Oman, 1989, p. 17]. Consequently, they will prefer NEC in industries that can be run locally once specific assets are supplied from abroad, for example, through licensing. By contrast, FDI will be welcomed particularly in industries where the operations would put too much strain on local resources and which, therefore, require the package of foreign assets typically embodied in FDI.

2. Empirical Evidence

An empirical assessment of the aforementioned propositions on the significance of NEC and its relation to FDI suffers from serious data shortcomings. In contrast to the comprehensive, though not always consistent data collection on FDI, the available statistical information on NEC is fragmentary and incomplete. Contractual arrangements between companies of different legislations largely escape balance-of-payments statistics. The flow of goods, services and income induced by such arrangements is typically hard to identify, as the relevant items are included in more broadly defined statistical categories. Finally, FDI and NEC are sometimes difficult to disentangle.

Notwithstanding the lack of comprehensive data on NEC, there appears to be a fairly broad consensus that globalisation has not only been pursued via FDI but also increasingly so through various forms of collaborative ventures.[36] Empirical support for this view is mainly derived from two sources:

- The INSEAD Business School in Fontainebleau compiled information on 839 collaborative agreements as of mid-1986. Major results are summarised by Hergert and Morris [1988].
- The Maastricht Economic Research Institute on Innovation and Technology (MERIT) runs a data base on more than 10,000 ventures [Hagedoorn, Schakenraad, 1990, Appendix I].

Both sources basically rely on newspaper reports on business events. Hence they suffer from similar limitations, though the coverage of MERIT is much broader. Smaller deals are likely to go unrecorded, especially in the case of INSEAD, which draws on only two sources (The Economist and The Financial Times). The same applies to the dissolution of agreements, which is generally not published. Collaborative agreements considered by INSEAD and MERIT are not necessarily identical to what is labelled NEC in this study. For example, only those inter-firm deals that contain some arrangements for transfering technology or research are included in MERIT's data base; mere production or marketing joint ventures are not taken into account. Both data bases are likely to include cases for which equity participation is sufficiently large to classify them as FDI, though partnerships involving majority ownership are explicitly excluded by MERIT. Nonetheless, the approach of both institutions comes close to the NEC concept. Hergert and Morris [1988, p. 100] define collaborative agreements "as an intermediate position along a spectrum of inter-firm

36 See, for example, Business International Corp. [1987]; Hergert, Morris [1988]; Oman [1989]; Dicken [1992, pp. 213 ff.]; The Economist [1993, pp. 18 ff.].

dealings encompassing arms-length transactions at one end and full mergers at the other". The main attributes of such agreements also reveal strong similarities to the above characterisation of NEC. They include risk sharing as the main purpose of collaborative agreements, the concentration on specific activities, and the provision of assets (for example, funding, skills, personnel) to the project on a continuing basis.

The INSEAD data base reveals a significant growth of collaborative agreements in the period 1975–1986. Although more recent information was not available from this source, the subsequent findings are noteworthy [Hergert and Morris, 1988]. First, cooperative behaviour gained prominence in the relations between all major actors in the world economy. The increase of collaborative agreements was most pronounced in EU-US relations. However, the number of such arrangements also increased steadily between Japanese companies on the one hand and US and EU companies on the other hand. Second, 31 per cent of all collaborative agreements were struck between partners within the EU and 8 per cent between US companies.[37] The majority of arrangements (about 60 per cent) was between partners located in different regions, which underscores our above reasoning that international cooperation is global rather than purely regional. Third, surprisingly few collaborative agreements involved partners on different vertical stages of the production process. About 71 per cent of all deals were made between competitors in the same market.

Fourth, collaborative agreements were heavily concentrated on the automobile industry, aerospace, telecommunication and computers. At first sight, this concentration on relatively human-capital-intensive industries appears to conflict with the hypothesis that FDI would be the preferred mode of globalisation under such conditions. However, the sectoral distribution of NEC does not allow conclusions as to the relative importance of NEC and FDI. As a matter of fact, a closer analysis of the automobile industry will show that FDI is still of utmost importance, although NEC is widely used at the same time (Section IV.1). Rather, the significant role of NEC in human-capital-intensive industries is to be attributed to its risk sharing properties. This interpretation is consistent with the finding of Hergert and Morris [1988] that risk diversification and cost sharing were major motivations underlying the cooperation of competitors in industries in which potentially high sunk costs and considerable operating risks are typical. While risk considerations encouraged globalisation through NEC, particularly in early stages of product development, a go-it-alone strategy with FDI may well be pursued at the same time for other purposes, for example, to

[37] EU companies are likely to be overrepresented in the data set, as the announcements made in The Economist and The Financial Times may tend to have a weaker coverage of deals between non-European companies.

globalise brand names and transfer human skills. This supports the view that the growth of FDI and NEC will proceed hand in hand.

More recent and comprehensive information provided by MERIT confirms that cooperative alliances increased because companies accepted their geographical, financial or technological limitations [The Economist, 1993, pp. 18 ff.]. When a go-it-alone strategy was considered too risky and too costly, cooperation offered a way to close the gap between ambition and ability and, at the same time, to lessen the uncertainty associated with arm's length transactions. The survey by Hagedoorn and Schakenraad [1990] reveals that the most commonly cited reasons for strategic alliances were to gain access to a market, to exploit complementary technologies and to reduce the time required for innovation (Figure 4). Especially technology cooperation gained in importance, by which companies attempted "to cope with the complexity and inter-relatedness of different fields of technology and ... to gain time and reduce uncertainty in joint undertakings during a period of growing technological intricacy" [ibid., p. 14]. It is interesting to note, however, that *basic* R&D is rarely found to be a subject of cooperation. This is probably because basic R&D concerns the core activity of companies, which they are reluctant to share with other independent firms. This finding again suggests that different globalisation strategies are complementary to each other, the mode of globalisation depending on the importance and specificity of particular corporate assets and the asset-specific transaction costs involved.

The relative importance of different motives to enter strategic alliances varies between sectors.[38] Technological complementarity and reduced innovation periods are less relevant in motivating cooperation in mature industries. The latter comprise chemicals, consumer electronics, food and, to a certain extent, also the automobile industry, which together account for 17 per cent of the total number of alliances (Figure 5).[39] Market-related motivations dominate in these industries.[40] By contrast, technology-related motivations dominate in biotechnology, new materials, industrial automation and software (which are subsumed under information technology in Figure 5), and partly also in aviation. How-

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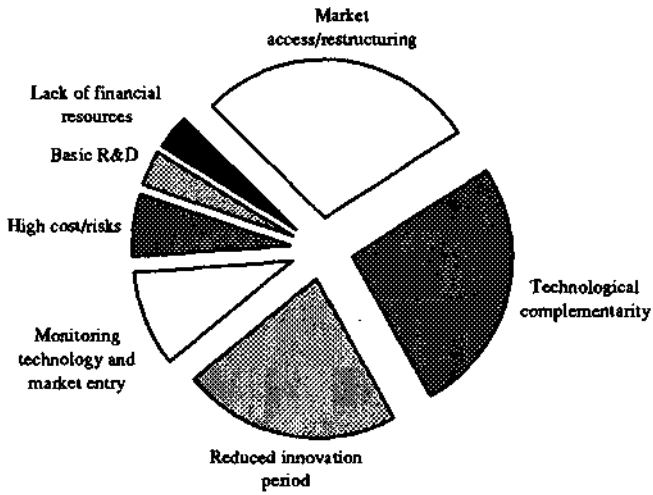
38 The sectoral classification of Figure 5 differs considerably from that presented by Hergert and Morris [1988]. Most importantly, Figure 5 lists both specific industries and different fields of technology.

39 As a consequence, these industries are likely to be underrepresented in the study by Hagedoorn and Schakenraad [1990], who focus on technology cooperation and disregard pure production and marketing joint ventures.

40 The same applies to computers and microelectronics, which are subsectors of information technology. A major purpose of strategic alliances in these branches is that they may help the restructuring and adjustment of firms confronted by fierce competition and excess capacity.

ever, alliances with respect to basic R&D activities are of minor relevance in most of these sectors, too. This supports the view that cooperation is not the preferred globalisation strategy when it comes to highly firm-specific assets and the core activities of companies.

Figure 4 — Major Motives for Strategic Alliances,[a] 1970–1989



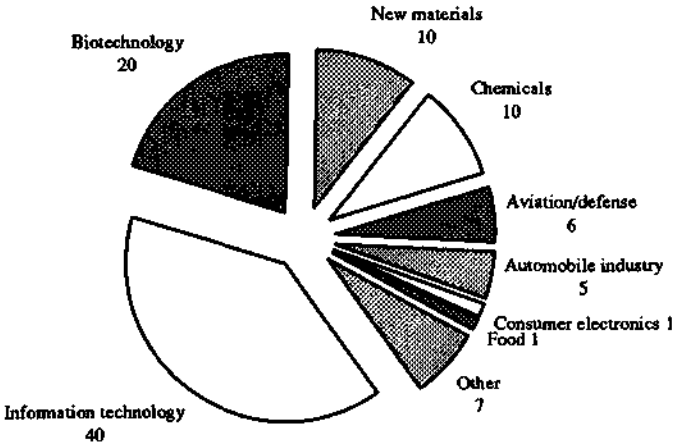
[a]Total number of alliances: 4,986; alliances are sometimes motivated by more than one factor.

Source: Hagedoorn, Schakenraad [1990, Table 3].

On the relation between different approaches to globalisation, additional information is available for individual host and home countries. Kumar [1989] presents a regression analysis on the determinants of equity and non-equity forms of foreign investment in Indian manufacturing, based on firm-specific data for 1,720 companies in 49 industries in the late 1970s and early 1980s. Foreign equity stakes of 25 per cent or more are defined as FDI; the transfer of royalties, technical and professional fees is taken as an indication of NEC. The regression results support the hypothesis that industry-specific characteristics explain whether the foreign engagement is mainly in equity or non-equity terms. FDI is the dominant mode of operation in industries characterised by significant product differentiation and human-capital-intensive production pro-

cesses. By contrast, NEC is particularly important in industries whose production is physical-capital-intensive and technologically less sophisticated. Finally, there are some indications that the effectiveness of policy interventions in directing the globalisation strategies of TNCs remained limited. Neither FDI nor NEC were significantly influenced by effective rates of import protection. Earmarking priority industries for investment did induce more NEC, but proved ineffective in encouraging FDI.

Figure 5 — The Sectoral Distribution of Strategic Alliances,[a] 1980–1989 (per cent)



[a]Total number of alliances: 4,182.

Source: Hagedoorn, Schakenraad [1990, Table 4].

Among major home countries of TNCs, the United States offer detailed information on the relevance of different globalisation strategies.[41] In the late 1970s, the vast majority of US engagements abroad consisted of ventures with

[41] However, the data are published with a considerable time lag and at fairly large intervals only [USDOC, b]. The latest benchmark survey on US investment abroad was published in 1992 and presents data for 1989. Moreover, the comparability of the results of different benchmark surveys is limited because of changing data collection criteria [Contractor, Lorange, 1988, pp. 29–30].

minority stakes or no equity participation at all [USDOC, b, 1981].[42] These ventures were typically very small affairs.[43] Smaller US firms appeared to be particularly prone to engage in minority joint ventures and NEC-type arrangements. This supports the notion that the propensity to form such ventures is negatively correlated with the size of the foreign investor [Contractor, Lorange, 1988, p. 30].[44] Most of the small ventures were no longer considered in subsequent benchmark surveys, which adopted different criteria for mandatory filing of data with the Department of Commerce. The decline in the ratio of minority affiliates of non-bank parent companies (US equity stake: 10-50 per cent) to majority and fully owned affiliates of non-bank parents from 0.98 in 1977 to 0.19 in 1982 is thus a statistical artefact in the first place. Nevertheless, a trend towards majority and fully owned affiliates can be observed. The data presented in the latest benchmark survey [USDOC, b, 1992] are comparable to 1982-data, as similar criteria for filing were applied. It turns out that the ratio of minority affiliates to majority and fully owned affiliates was lower in 1989 (0.16) than in 1982.

A change in the relative importance of majority versus minority ownership may result from changing host country regulations concerning the activities of TNCs. This hypothesis has been tested by Contractor [1990], who made use of US benchmark survey results. Cross-section regression analysis was applied to clarify whether variations in ownership patterns were a function of host country regulations, or rather a function of local market conditions and other factors. This exercise was motivated by several observations. FDI regulations had been liberalised in many host countries in the early 1980s. At the same time, the number of minority affiliates declined relative to fully owned and majority affiliates of US companies in the vast majority of host countries.[45] However,

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42 The number of fully owned and majority affiliates was about the same as the number of minority affiliates (about 12,000 each). In addition, there were some 30,000 overseas licensees in which US firms or their affiliates had negligible (up to 10 per cent) or no equity stakes.

43 Fully owned subsidiaries, though vastly outnumbered by other ventures, accounted for over two thirds of the value of US investments abroad.

44 At first sight, this appears to be in contrast to Hagedoorn and Schakenraad [1990, pp. 18 ff.], who found that large companies are more cooperation-intensive. However, their conclusion is based on comparing the number of cooperation agreements between firms of different size, rather than on addressing the question which avenue of globalisation was favoured by small companies. Furthermore, the move of large companies towards a more intensive use of collaborative arrangements is of a recent nature, so that earlier US benchmark survey results were not yet affected.

45 Statistical discrepancies between the benchmark survey results for 1977 and 1982 were removed, as Contractor [1990] had access to recomputed results for the 1977 results. As Contractor [1990] does not consider NEC, for example, in the form of

this ratio continued to vary extremely across the host countries of US investment.[46]

The regression analysis supported the first impression that less restrictive ownership regulations induced US companies to increase the proportion of majority affiliates. Similarly, this proportion was higher when performance requirements (for example, in terms of local content and export targets) were less restrictive. However, the relevance of the respective variables in explaining ownership patterns was largely restricted to DCs hosting US investment. The results suggest that host country regulations affected the way in which US companies integrated Third World economies into their globalised operations. Substitution effects after FDI liberalisation may, in turn, have reduced the effectiveness of regulatory changes in inducing a stronger *overall* engagement of foreign investors. The study by Contractor [1990] does not provide conclusive evidence on this issue, however, as the dependent variable (the share of minority affiliates in all affiliates) is defined in relative terms.

In contrast to DCs, the variables reflecting ownership regulations were generally not significant in the case of industrialised host countries. US ownership patterns in these countries were determined by market-related variables in the first place. On the one hand, the higher the industrialised host country's relative importance to US investors (proxied by the sales of all US affiliates in that country, relative to total sales in all host countries), the lower the propensity to form minority affiliates was. This is attributed to stronger incentives for internalisation in more important host countries. On the other hand, market size (proxied by the host country's GDP) was negatively correlated with the proportion of majority affiliates. Minority ventures in large industrialised countries appear to be "motivated by the need for local help, synergy, and minimum scale" [Contractor, 1990, p. 65]. This result may be interpreted as an indication of emerging changes in TNC perceptions on the relative advantages of different globalisation strategies, a trend that was rather independent of host country regulations.

More recent evidence on this issue may be gained from balance-of-payments data [IMF, a]. The proposition of an increased recourse to NEC implies that the income earned from such ventures should have increased over time. Moreover, the development of these income streams to and from major home and host

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licensing, the relative decline of minority affiliates does not necessarily imply a decline of NEC relative to FDI.

46 The sales of minority affiliates accounted for 3 per cent of the sales of all US affiliates in Switzerland in both 1982 and 1989, while this share amounted to 90 per cent (1982) and 76 per cent (1989) in the case of South Korea. Because of data shortcomings, it was impossible to test the hypothesis that such differences were partly attributable to industry-specific variables.

countries, relative to income derived from FDI, may reveal cross-country variations in globalisation strategies. The subsequent analysis, too, suffers from data shortcomings. NEC-related income probably escapes statistical identification to a large extent. As a proxy, we consider non-financial property income in the following. This item of balance-of-payments statistics mainly comprises royalties and license fees paid to foreign owners of intangible assets.[47] To assess the relative importance of property income, we consider FDI-related income as a reference measure. The latter comprises two elements: (i) transfered income that accrues to a direct investor from FDI ownership, and (ii) the direct investor's portion of reinvested earnings.[48]

Figure 6 shows a significant growth of NEC, as revealed by cross-border income streams from intangible assets, in the period 1984–1992. Total receipts of property income soared from $10.3 billion in 1984 to $36.9 billion in 1992 [IMF, a]. The United States alone accounted for 55 per cent of total receipts in both years. US companies were thus not only leading foreign direct investors, but also the most important recipients of property income [see also Welfens, 1992, pp. 24–25]. While the initial level of receipts was significantly lower for all other countries, the growth rate in the period 1984–1992 was about the same across countries. Above average growth was recorded for Japan and DCs, though from extremely low starting levels in the case of DCs.

As concerns the payments side of property income transfered to foreign owners of intangible assets, the worldwide totals are more evenly distributed across host countries. Japan was the largest payer with $2.3 billion in 1984 and $7.2 billion in 1992, i.e., 20 per cent of the respective totals. This indicates that NEC was a major instrument to integrate Japan into the globalisation strategies of non-Japanese TNCs. Among industrialised countries, expenditures increased most significantly in the United States (by a factor of 5.3 when comparing 1992 and 1984)[49] and in Germany (by a factor of 4.0). These two countries apparently became relatively more important targets of globalisation through NEC. The increase of payments by all DCs to $4.3 billion in 1992 was slightly above average expenditure growth. However, the average figure for DCs obscures re-

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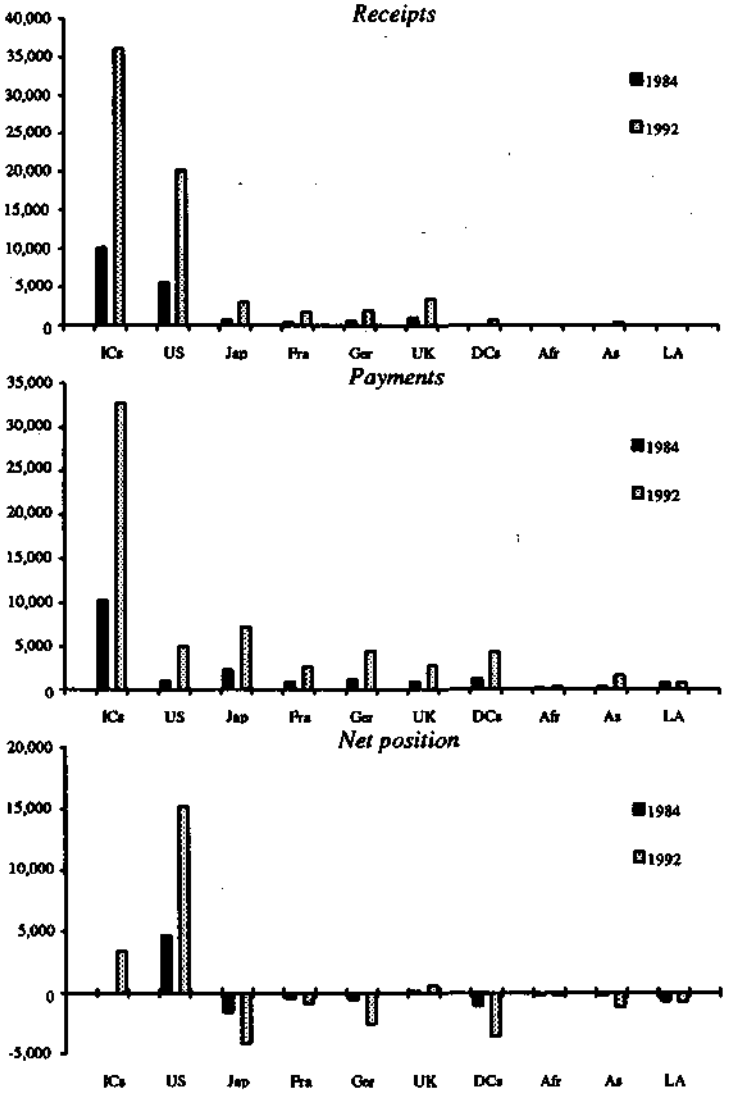
47 For statistical details, see IMF [d, pp. 109–110]. This item does not cover income from leasing and management contracts. It should be noted that a significant share of property income is likely to be an intra-firm phenomenon. According to Welfens [1992, p. 24], about three-fourths of all technology payments accrue on a parent-affiliate basis in the United States, the United Kingdom and Germany.

48 In some instances, data on reinvested earnings are not available (for example, for Japan).

49 Nonetheless, the net position (receipts minus payments) of the US remained significantly positive.

Figure 6 — Receipts and Payments of Property Income for Selected Countries and Regions, 1984 and 1992 (million dollars)



ICs: industrialised countries; *Jap*: Japan; *Fra*: France; *Ger*: Germany; *Afr*: DCs in Africa; *As*: DCs in Asia; *LA*: DCs in Latin America.

Source: IMF [a].

markable differences at the regional level. Payments increased only slightly in the case of Latin America and Africa, whereas they soared by a factor of 6.2 (to $1.6 billion in 1992) in Asia. The high growth of NEC in Asian DCs was associated with a similarly impressive growth of FDI inflows [Nunnenkamp, Agarwal, 1993, Table 1], indicating that this region became integrated into the globalisation strategies of TNCs in various ways at the same time. For Latin America, which had accounted for 60 per cent of total Third World payments of property income in 1984, the picture is less clear.

Payments exceeded receipts of property income in all countries but the United States and the United Kingdom (Figure 6). The positive net position of the two largest owners of FDI stocks abroad may be interpreted as another indication that the globalisation of major TNCs by means of FDI and NEC went hand in hand. However, the relative importance of the two approaches differed considerably between the United States and the United Kingdom, as shown in the first part of Table 5, which portrays receipts of property income in per cent of direct investment income. The 1984-ratio of the United Kingdom was the lowest among all countries considered, and the discrepancy became even wider in the late 1980s and early 1990s. By contrast, the United States reported the sharpest increase of receipts of property income relative to direct investment income.

On average, the figures on receipts and payments suggest that globalisation through, for example, licensing and production sharing has gained in importance relative to FDI. This supports our proposition that NEC has to be considered in addition to FDI to draw a complete picture on globalisation. Receipts of property income amounted to more than one-third of direct investment income of industrialised countries in 1992, which is fairly high given the partial nature of this proxy for NEC.[50] The payments side of property income indicates that the way in which different locations have been integrated into globalised production patterns varied considerably. It is evident from the second part of Table 5 that TNCs have adapted their globalisation strategies to specific host country conditions. However, we can only speculate on the role that economic fundamentals, on the one hand, and host country regulations, on the other hand, have played in shaping TNC behaviour. The cases of Japan and Germany are most interesting in this respect.

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50 It should be noted that Japanese figures are overstated because of lacking data on reinvested earnings. The relatively low figures for DCs appear to contradict the hypothesis that the globalisation of newcomer TNCs proceeds by means of NEC in the first place. However, property income is probably a flawed indicator in this respect. Royalties and license fees mainly stem from the transfer of technologies that are mainly developed in industrialised countries. If NEC is favoured by TNCs based in DCs, it is likely to be in forms not covered here.

Table 5 — The Relative Importance of Property Income, 1984, 1988 and 1992 (per cent of direct investment income)[a]

	Receipts			Payments		
	1984	1988	1992	1984	1988	1992
Industrialised countries	19.4	21.8	34.5	33.9	39.7	na[b]
United States	18.8	23.4	40.6	10.3	15.6	na[b]
Japan	31.4	43.9	39.2	294.8	251.0	388.2
Germany	31.0	45.3	39.4	70.6	50.0	49.5
United Kingdom	10.1	8.9	13.8	10.7	13.9	27.6
Developing countries	10.6	20.8	15.6	7.4	12.0	17.9
Africa[c]	na	na	na	8.0	7.7	4.8
Asia[c]	na	na	na	5.1	16.3	22.3
Latin America[c]	na	na	na	20.4	13.2	11.3

[a]Direct investment income includes reinvested earnings whenever available (not available, for example, for Japan). — [b]No meaningful calculations possible because of significantly negative entries for US expenditure on direct investment income. — [c]No meaningful calculations possible for receipts because of sometimes extremely low absolute figures.

Source: IMF [a].

The ratio of payments of property income relative to income payments for FDI is exceptionally high in Japan.[51] This fits into the common understanding that a go-it-alone strategy is much more difficult in Japan than elsewhere. Close ties with Japanese firms and local support are considered essential to enter Japanese markets successfully. Hence, TNCs may have favoured NEC over FDI (see also Section II.4). At the same time, their strategic choices were constrained by restrictive foreign ownership regulations in Japan [Contractor, 1990, p. 56]. By contrast, FDI regulations cannot be blamed for the comparatively intensive use of NEC by TNCs in Germany, where the ratio of payments for, for example, foreign licences and production sharing arrangements is also relatively high. Notwithstanding its liberal policy stance, Germany's role as a host of FDI has declined over time (Table 1). This is probably because of its reputation as a high-cost location.

51 The huge discrepancy between Japan and the average figure for industrialised countries cannot be attributed to the data-enforced neglect of reinvested earnings in calculating the Japanese ratio. The discrepancy is only slightly reduced when the average figure is recalculated by excluding reinvested earnings; the ratio for all industrialised countries then rises from 39.7 to 46.4 per cent (1988).

Although on a rising trend, the relative importance of payments of property income is fairly low in the United States, the United Kingdom and also in DCs. This suggests that globalisation continued to be mainly in terms of FDI in these countries. What may be surprising is that FDI liberalisation in many DCs did not prevent a relative increase of payments of property income for all DCs, though regional developments were widely apart. There is no evidence whatsoever on negative effects on NEC after FDI liberalisation in Asian DCs. This is in contrast to Latin America, where economic and political instability in the early 1980s may have contributed to the relatively high ratio of payments for foreign licences, etc. (20.4 per cent in 1984). Licensing offered an easier and less costly option for scaling down corporate activities in Latin America once instability became unmanageable. Subsequent efforts for economic stabilisation, together with FDI liberalisation, may induce TNCs to reconsider their earlier preference for NEC in this region.

All in all, the evidence presented so far supports the view that NEC plays an important role in the globalisation strategies of foreign investors. Substitution between different forms of globalisation that may result from changing policy regulations was of minor relevance. The dominant feature was a parallel growth of both FDI and NEC. Furthermore, the analysis provided first hints to industry-specific globalisation strategies and to different approaches taken by investors from various home countries.

IV. Globalisation at the Sectoral Level

The sectoral perspective provides insights into the effects of industry characteristics, such as factor intensities and the competitive environment, on globalisation strategies. The sector studies deal with traditional and new forms of globalised production in the automobile industry (Section IV.1), the chemical industry (Section IV.2) and textiles and clothing (Section IV.3):

— The production of automobiles is representative of a technologically advanced and human-capital-intensive sector, in which especially European suppliers are under heavy competitive pressure from Japan.
— Chemicals stand for a physical-capital-intensive industry that has been among the frontrunners of globalisation in terms of European and US FDI.
— Textiles and clothing provide an example for a highly competitive and relatively labour-intensive sector, in which policy interventions, complex institutional arrangements and NEC have a long tradition.

The focus of the sector studies is on the globalisation strategies of EU companies. Major competitors based in Japan and the United States are considered as reference cases. Thereby, globalisation strategies can be compared across countries. Furthermore, the international perspective helps clarifying the appropriate responses of EU policymakers to changes in enterprise behaviour, which will be a central topic in Chapter VII.

1. The Automobile Industry

Worldwide production of automobiles is heavily concentrated on EU member countries, Japan and the United States. These countries accounted for 77 per cent of the total volume of production of passenger and commercial vehicles in 1992 (Figure 7).[52] Globalisation in the automobile industry is thus mainly the result of corporate strategies pursued by a limited number of TNCs based in the EU, Japan and the United States.

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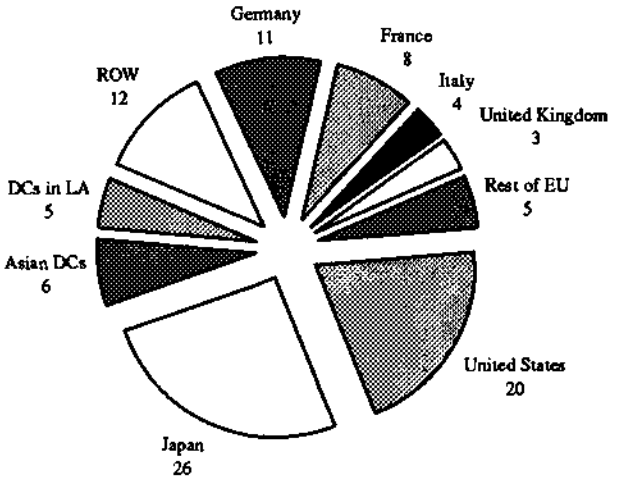
52 The share of automobile producers based in these countries is even higher if the production of subsidiaries in other regions is taken into account.

Figure 7 — Regional Distribution of Automobile Production,[a] 1992 (per cent)



[a]Number of passenger and commercial vehicles in per cent of total production volume. LA: Latin America; ROW: rest of world.

Source: VDA [a, 1993, pp. 360–361].

Japan is clearly the most important automobile-producing country, followed by the United States and Germany. It also reveals a world market orientation which is much stronger than that of its major competitors (Table 6). The export share of Japanese production was about five times as high as the export share of the United States, where the huge domestic market absorbed around 90 per cent of production. Total exports accounted for more than half of production in France and Germany as well. However, the exports of EU countries are predominantly an intra-EU phenomenon. The share of extra-EU exports in total production was typically below 20 per cent and has declined since the mid-1980s.

The different size of local and regional markets for automobiles is, of course, a crucially important factor accounting for variations in export intensity across countries. Table 6 may also indicate, however, that major automobile producers pursued different strategies in penetrating world markets. Early attempts at globalisation via FDI by US companies may have contributed to low export shares. The subsequent move in this direction by Japanese competitors may have resulted in declining export shares, starting from a high level.[53]

[53] The proposition of a negative effect of FDI by automobile producers on automobile exports does not imply that *overall* exports are negatively affected by FDI. For a

Table 6 — Export Intensity of Major Automobile Producing Countries,[a] 1980–1992 (per cent)

	1980	1984	1988	1992
France	50.5	54.8	55.0	60.9
	(16.7)	(21.2)	(11.3)	(11.3)
Germany	53.7	59.0	57.9	52.6
	(24.2)	(24.1)	(20.6)	(17.4)
Italy	36.7	36.4	39.2	41.4
	(14.7)	(9.4)	(7.2)	(6.6)
United Kingdom	35.7	26.1	21.5	46.5
	(21.1)	(16.4)	(6.0)	(4.4)
Japan	54.0	53.3	48.1	45.3
United States	10.1	7.0	9.2	10.4

[a]Number of exported passenger and commercial vehicles in per cent of total production volume. Figures in parentheses refer to extra-EU exports of France, Germany, Italy and the United Kingdom. Intra-EU exports of EU member countries include exports to Greece, Portugal and Spain throughout the period under consideration.

Source: VDA [a].

FDI data support the hypothesis of strategic peculiarities of TNCs located in the EU,[54] Japan and the United States.[55] The country-specific significance of FDI outflows in transport equipment is revealed by two ratios presented in Figure 8:

— The share of transport equipment in total FDI outflows is extremely low in the case of the United Kingdom. In sharp contrast, transport equipment was among the most important manufacturing industries in terms

discussion of the FDI-trade nexus beyond the sector-specific perspective of this section, see Chapter V.

54 As concerns the EU, the focus is on France, Germany and the United Kingdom in the following paragraphs. Data shortcomings rendered it impossible to include Italy, which ranked third within the EU in terms of automobile production in 1992 (not considering Spain the production of which is mainly by companies based outside the country) [VDA, b, 1993, pp. 414–415].

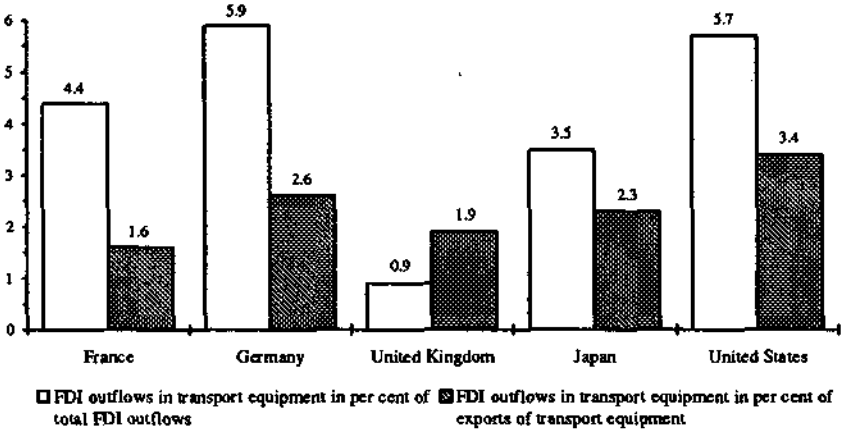
55 In most cases, FDI of the automobile industry is not available as a separate item. We thus refer to FDI flows reported by the OECD [e] for the transport equipment sector. As the OECD does not present sectoral FDI flows for Germany, we use unpublished data on FDI of the automobile industry provided by the Deutsche Bundesbank. US data suggest that the distortions that may result from not strictly comparable sector definitions remain marginal. US FDI of the automobile industry accounted for 97 per cent of FDI flows reported for the transport equipment sector in 1986–1991.

of the sectoral contribution to overall FDI in Germany and the United States.

— The globalisation of the transport equipment sector was most advanced in the United States when FDI outflows are related to exports.[56] A medium position is shown for Germany and Japan. The United Kingdom and France, where the FDI-to-exports ratio is only about half the US-ratio, rank at the bottom.

The development of FDI outflows by major producer countries reveals significant changes over time, however. The United States were clearly the most important foreign investor country in terms of FDI outflows of the transport equipment sector in 1986–1988 [OECD, e].[57] A major change occurred in the early 1990s. US FDI declined significantly to $284 and 980 million in 1990 and 1991 respectively. By contrast, Japanese FDI soared to about $2 billion per annum, which points to intensified efforts to globalise automobile production.

Figure 8 — The Significance of FDI Outflows in Transport Equipment for Major Investor Countries, 1986–1991[a] (per cent)



[a]Period average; for FDI outflows in per cent of exports: 1986–1990. German data refer to the automobile industry, rather than to transport equipment.

Source: OECD [e]; UN [a; b]; Deutsche Bundesbank, unpubl. data.

56 The ratio of FDI outflows to production may be a superior measure of globalisation. However, data on the value of production are not available.

57 Annual outflows averaged $1.7 billion as compared with $1.2 billion for Japan, $610 million for Germany and about $250 million for France and the United Kingdom.

Considerably higher FDI outflows were also reported by France and Germany in the early 1990s.[58] In contrast to Japan, it would be mistaken to equate this increase with considerably advanced globalisation of French and German automobile producers. In the case of France, the increase was mainly due to exceptionally high FDI outflows in 1991 ($2.1 billion). The 1991 figure must be attributed to cross-shareholding arrangements of Renault and Volvo. While an agreement on financial relations came into force on 1 January 1991 [EIU, 1992, p. 14], the envisaged strategic alliance was finally rejected by Volvo in late 1993. Moreover, the two companies decided in early 1994 to dissolve cross-ownership relations. Significant disinvestment of the French automobile industry is thus likely to be reported once updated FDI statistics will be available. In the case of Germany, increased FDI has mainly been directed to other EU countries. In the early 1990s, the automobile industry reported declining FDI stocks in industrialised and developing host countries outside Europe [Deutsche Bundesbank, 1993].[59] Higher FDI stocks held within the EU (DM 3.8 billion in 1989 and DM 6 billion in 1991) point to intensified production sharing at the regional level, rather than to worldwide globalisation.

More detailed insights on globalisation strategies may be gained from production statistics. The automobile industry can be isolated from other segments of the transport equipment sector. Furthermore, firm-specific information on production volumes and on the regional pattern of TNC production is easily available [VDA, a; b]. Consequently, strategic differences can be identified and integration effects at the regional level can be separated from worldwide globalisation.

The latter is, of course, most relevant for EU producers who had to decide on how to respond to the deepening and widening of integration in Europe.[60] Regional integration was expected to reduce the costs of production and distribution, and to improve the competitiveness of the EU's automobile industry. The Internal Market programme was considered to be a catalyst for technological

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58 Comparing period averages of 1990–1991 and 1986–1988, French FDI outflows increased by a factor of 6 and German FDI outflows by a factor of 2.7 [OECD, e].

59 We refer to FDI stock data here, as information on sector-specific FDI flows to particular host countries is not available.

60 According to Salvadori [1991, p. 62], "the automobile industry is one of the most delicate areas in the programme of European harmonisation"; see also Smith, Venables [1990]. The Internal Market programme involved: (i) the reduction of fiscal trade barriers stemming from large intra-regional disparities in taxes imposed on the purchase of vehicles (different VAT rates, country-specific sales and registration taxes); (ii) the removal of physical barriers impeding the free circulation of vehicles (custom controls, national import quotas, regulations concerning type approval); and (iii) the development of EU-wide technical standards replacing national specifications [for details, see Pemberton, 1988, pp. 60 ff.].

change. However, the expected unit cost reductions of about 5 per cent [Emerson et al., 1988, p. 73] are insufficient to overcome the seriously impaired cost and productivity situation of the EU's automobile industry. In 1989, the average productivity of assembly plants of European producers (35.5 hours of worker input per unit) was only half the productivity of their competitors in Japan (16.8 hours per unit) [Womack et al., 1990, Graph 4.3]. In other words, the challenges faced by EU automobile producers went far beyond redefining corporate strategies at the regional level [see also Smith and Venables, 1990, p. 144]. While regional integration may have created incentives to further concentrate activities within Europe, fiercer worldwide competition should have encouraged globalisation as well as relocation to newly emerging automobile markets.[61]

Table 7 points to strikingly different strategies of major EU producers prior to the Internal Market programme.[62] Rover, on the one hand, and Renault and Volkswagen (VW), on the other hand, represent the extremes. Rover produced in the United Kingdom exclusively, whereas nearly 30 per cent of Renault's and VW's production took place outside the respective home countries in 1985. This share was substantially above the corresponding shares for Japanese competitors, though significantly below the contribution of overseas production to overall production of Ford and General Motors (GM). US companies, especially Ford, were clearly the frontrunners with regard to globalisation, and Japanese producers followed suit only in the late 1980s and early 1990s.

Overseas production gained in importance until 1992 for all companies but Rover. Nevertheless, pronounced differences in the degree of globalisation persisted. About half the production of US companies stemmed from affiliates located outside North America. Except in Japan, Ford and GM were engaged in all locations considered in Table 7. They further strengthened their presence in the EU and in Latin America. Among the Japanese producers under considera-

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61 The subsequent evaluation of the globalisation strategies of major EU car manufacturers ignores commercial vehicles (buses and trucks) and automobile components; on the European components industry, see Sleigh [1991]. It is also beyond the scope of this section to consider the relations between car manufacturers and component suppliers; on the effect of the Internal Market programme on these relations, see Haraldsen [1993], who argues that regional integration has fostered the trend towards outsourcing (i.e., reducing the degree of vertical integration) and greater autonomy of component suppliers; on US and Japanese supplier relations, see Bensaou [1993].

62 The figures given in Table 7 differ from the degree of internationalisation of car manufacturers as calculated by Womack et al. [1990, Table 8.5]. Apart from differences in country coverage, this is because Womack et al. refer to assembly whereas the present analysis is principally based on production data. Furthermore, the coverage of operations by some producers is not strictly comparable; for details, see the notes to Table 7.

tion, globalisation is most advanced in the case of Honda. In the United States and the EU, the establishment of Japanese production facilities was stimulated by increasing opposition towards the growth of Japan's automobile exports [Dicken, 1992, pp. 294 ff.; Flam, 1994]. Typically, the globalisation of Japanese automobile companies started with relocating production to North America. Although production in the EU is of a more recent nature, it has gained

Table 7 — Car Production by Major Producers in Different Regions,[a] 1985–1992 (per cent of total production volume)

		Fiat, Italy	Peugeot, France	Renault, France	Rover, UK	VW, Germany
Domestic production	1985	84.9	83.0	71.2	100.0	71.7
	1988	85.2	84.0	69.0	100.0	71.2
	1991	78.3	82.8	66.7	100.0	68.5
	1992	71.4	81.8	67.2	100.0	68.9
Foreign production	1985	15.1	17.0	29.0	0	28.4
	1988	14.8	16.2	31.1	0	28.7
	1991	21.7	17.2	33.4	0	31.6
	1992[b]	28.5	18.2	32.8	0	31.2
EU	1985	0.8	15.6	21.8	0	7.0
	1988	0	14.6	23.8	0	11.5
	1991	0	15.6	24.2	0	14.4
	1992	0	15.7	25.1	0	14.8
Other Europe[c]	1985	2.6	0.2	3.9	0	0.6
	1988	3.7	0.3	5.2	0	0.7
	1991	7.1	0.3	7.7	0	1.2
	1992	9.2	0.1	4.9	0	0.1
North America[d]	1985	0	0	0	0	4.0
	1988	0	0	0	0	1.4
	1991	0	0	0	0	0
	1992	0	0	0	0	0
Latin America	1985	11.7	1.2	3.3	0	16.8
	1988	11.1	1.3	2.1	0	15.1
	1991	14.6	1.3	1.5	0	16.0
	1992	19.3	2.4	2.8	0	16.3
Australia	1985	0	0	0	0	0
	1988	0	0	0	0	0
	1991	0	0	0	0	0
	1992	na	na	na	na	na
Japan	1985	0	0	0	0	0
	1988	0	0	0	0	0
	1991	0	0	0	0	0
	1992	0	0	0	0	0

Table 7 continued

		Ford, US	GM, US	Honda, Japan	Nissan, Japan	Toyota, Japan
Domestic production	1985	43.1	65.2	86.8	92.9	98.1
	1988	42.3	58.0	71.8	86.1	96.4
	1991	33.4	47.5	67.5	83.4	88.4
	1992	36.6	46.6	64.2	77.7	87.3
Foreign production	1985	56.9	34.7	13.2	7.1	1.9
	1988	57.9	42.1	28.2	13.9	3.6
	1991	66.7	52.6	32.6	16.5	11.6
	1992[b]	na	na	35.9	na	na
EU	1985	34.8	22.6	0	0	0
	1988	37.4	29.8	0.3	2.8	0
	1991	46.0	37.8	2.0	5.3	0
	1992	41.3	39.9	2.0	8.0	0
Other Europe[c]	1985	0.2	0	0	0	0
	1988	0.4	0	0	0	0
	1991	0.2	0.1	0	0	0
	1992	0.3	0.3	0	0	0
North America[d]	1985	13.0	7.5	13.2	2.2	0
	1988	11.8	6.8	27.9	5.5	1.8
	1991	9.2	7.9	30.6	5.7	10.2
	1992	10.1	6.2	33.9	7.6	11.4
Latin America	1985	5.3	3.2	0	2.8	0
	1988	5.7	4.1	0	3.6	0
	1991	8.5	5.5	0	4.2	0
	1992	9.3	5.7	0	5.4	0
Australia	1985	3.6	1.4	0	2.1	1.9
	1988	2.6	1.4	0	2.0	1.8
	1991	2.8	1.3	0	1.3	1.4
	1992	na	na	na	na	na
Japan	1985	0	0	–	–	–
	1988	0	0	–	–	–
	1991	0	0	–	–	–
	1992	0	0	–	–	–

[a]Buses and trucks excluded. Total production refers to all countries listed in the VDA statistics as production/assembly locations. Assembly included in several countries so that double counting cannot be avoided. Fiat: excluding Alfa Romeo, Autobianchi, Ferrari and Lancia; Peugeot: including Citroen; VW: including Audi, but excluding SEAT and Skoda; GM: including Opel, Vauxhall and Lotus. — [b]Not available for companies that had produced in Australia in previous years. — [c]1992 without former Yugoslavia. Particularly for Renault and VW, 1992 figures are not comparable to previous years. — [d]Excluding the United States for Ford and GM.

Source: VDA [a].

considerable weight particularly in the case of Nissan (which has significant stakes in Latin America as well).

Compared with US and Japanese competitors, the decline in domestic production shares in the period 1985–1992 remained limited for most EU companies (Table 7). This suggests relatively weak efforts towards globalisation. As a matter of fact, none of the major EU companies was producing in the United States in the early 1990s (not to speak of production in Japan). In sharp contrast to TNCs based in Japan, Renault and more recently also VW pulled out of North America [Dicken, 1992, p. 304]. Earlier expectations of lower cost production for the US market were frustrated [Womack et al., 1990, pp. 225–226], and VW's production was relocated to Mexico.

Foreign production by the EU-based automobile companies considered in Table 7 is restricted to Europe and Latin America. The relevance of Latin America as a production location was subject to some fluctuation,[63] which has to be attributed to economic stagnation and policy failure in important host countries in this region in the first place. The relative decline of domestic production of EU companies was mainly attributable to relocation within Europe [see also Diekmann, 1992a]. Rising shares of intra-EU production are observed for Renault and, particularly, for VW. Production in Europe outside the EU was still marginal in most instances, but it increased considerably for Renault (until 1991) and Fiat.

Table 7 thus supports the notion that major EU companies "are far narrower in global terms than the United States and, increasingly, the Japanese firms" [Dicken, 1992, p. 304]. Less advanced globalisation cannot be attributed to the recent move towards the deepening and widening of integration in Europe, however. The Internal Market programme did not affect the EU car manufacturers' efforts in other regions, but, rather, induced a relocation of production within the region which was at the expense of domestic production. Longer-term evidence for German automobile producers underscores this reasoning (Table 8). The share of domestic plus intra-EU production increased from 80 per cent in 1980 to 89 per cent in 1985, i.e., prior to the announcement of the Internal Market programme. Frustrated expectations in specific overseas locations, particularly in the United States and Brazil, accounted for this rise.[64] Subsequently, the share of production in Germany and other EU countries remained at about 90 per cent. Since 1985, production has shifted from Germany

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63 This refers particularly to Renault and VW. Fiat's engagement in Latin America was significantly enlarged in the early 1990s.

64 Table 8 reveals that the (relative) decline of car production by German companies in Latin America (especially in Brazil) was particularly pronounced in the first half of the 1980s, i.e., during the climax of the debt crisis.

Table 8 — Car Production by German Producers in Different Locations,[a] 1980–1992

	1980	1985	1988	1991	1992
			1,000 units		
Total production thereof:	4,622	4,974	5,322	6,018	6,410
			per cent		
Domestic production[b]	76.2	83.8	81.7	77.4	75.9
Foreign production	23.8	16.2	18.3	22.6	24.1
EU countries	4.2	4.8	8.5	13.7	12.8
Belgium	4.2	4.8	6.5	4.9	4.2
Spain	–	–	2.0	8.8	8.6
Other industrialised countries	6.5	3.1	2.5	1.3	1.0
Austria	0.1	0.1	0.1	0.1	0.1
South Africa	1.5	1.0	1.7	1.2	0.9
United States	4.9	2.0	0.7	–	–
Eastern Europe	–	–	–	–	2.9
CSFR	–	–	–	–	2.9
Latin America	13.0	8.3	7.3	7.4	7.4
Argentina	–	0.2	0.1	0.1	0.3
Brazil	10.8	6.5	6.2	4.0	4.3
Mexico	2.2	1.6	1.0	3.3	2.7
Asia	–	–	0.1	0.0	0.0
Thailand	–	–	0.1	0.0	0.0

[a]Excluding buses and trucks; excluding foreign production by Opel. — [b]West Germany.

Source: VDA [b].

to Spain. The relevance of overseas production outside the EU, which continued to depend on country-specific market developments in the first place,[65] was low by US and Japanese standards.

Both FDI and production data may not fully reveal the fact that fiercer worldwide competition has led car manufacturers to consider new options for globalisation. The above picture on globalisation may be biased if the propen-

65 The clearest indication is the opposing trend in Brazil and Mexico. While market stagnation and reform deficits persisted in Brazil, Mexico embarked on comprehensive economic reforms and offered locational advantages as an export outlet for penetrating North American markets.

sity to engage in NEC differed significantly between EU, US and Japanese producers. The available information on the role of NEC in the automobile industry does indeed suggest some qualifications. However, there is no conclusive counterevidence to the proposition that EU companies were latecomers with respect to globalisation beyond regional boundaries.

A fairly comprehensive overview on the engagement of 21 automobile TNCs in 46 DCs is presented by Oman [1989, pp. 167 ff.]. More than 300 ventures with and without equity participation by TNCs were in operation at the end of 1987. The majority of these ventures (58 per cent) were of a non-equity type, and an additional 25 per cent were minority foreign-owned joint ventures. Measured by the number of automobiles produced and assembled, NEC-type arrangements were of considerably less importance. Ventures without any foreign equity participation accounted for 14 per cent of total TNC production and assembly in DCs.

The propensity to enter into NEC with DCs differed significantly between TNCs of different origin. US firms were most reluctant in this respect; only 3 per cent of their output in DCs was accounted for by ventures without any US equity participation. TNCs based in Japan ranked at the opposite end of the spectrum; the corresponding share amounted to 24 per cent. European companies held a medium position; ventures without European equity participation contributed 12 per cent to the output of European TNCs in DCs. Moreover, Oman [1989, p. 168] found "a remarkably strong inverse correlation between a firm's total vehicle output (market share) and the share of NFI (new forms of investment) in its total output in DCs". This supports the proposition that latecomers or market followers have a higher propensity to use NEC than market leaders.

However, the findings of the Oman study do not contradict our conclusion that the globalisation of automobile companies based in the EU is less advanced than that of their major competitors. The (relative) degree of globalisation achieved by US companies is only slightly overstated when ignoring NEC in DCs, while that of Japanese companies is even understated. In terms of worldwide production, NEC-related production in DCs was of marginal relevance.[66] Furthermore, NEC was mainly used in smaller assembly operations "that are essentially uncompetitive in international markets and unintegrated into the multinationals' global networks" [ibid., p. 168]. By contrast, TNCs typically held significant equity stakes in major production centres in the Third World. Such engagements, which were often part of the TNCs' globalisation strategies, did not escape the statistics on FDI and production presented above.

[66] The number of vehicles produced and assembled by non-equity ventures of US, Japanese and European TNCs amounted to about 0.5 million in 1986 [Oman, 1989, pp. 204–205], which was slightly more than 1 per cent of worldwide production.

The trend to improve the competitive position through various forms of NEC — including licensing, joint production of components and for serving niche markets, R&D partnerships and distribution agreements — is, of course, not restricted to the TNCs' engagement in DCs [Salvadori, 1991, pp. 82 ff.; Urban, Vendemini, 1992, p. 40]. Nearly all car manufacturers (and major part suppliers) are interrelated in one way or another [OECD, d, p. 71; Dicken, 1992, pp. 291 ff.]. EU-based producers contributed to this trend to a considerable extent (Table A4).[67] However, recent information on alliances and cooperation agreements involving major EU automobile companies reveals a pattern that is largely in line with production data, i.e., closer intra-regional links dominating over globalisation beyond European boundaries:

- Outstanding examples of closer intra-EU links are VW's acquisition of SEAT, the formation of Sevel by Fiat and Peugeot and, most recently, the takeover of Rover by BMW. Furthermore, several producers (particularly Renault and Peugeot) are involved in intra-EU research partnerships and cooperation concerning the production of major components (engines, transmissions).
- Not surprisingly, the cooperation network has been extended to companies based in countries which have applied for EU membership (for example, Austria, Sweden). The cross shareholding of Renault and Volvo represented the most prominent case in point, until the envisaged alliance failed in late 1993.
- Since the fall of the communist regime, major EU car producers have moved into Central and Eastern Europe and strengthened their links with local companies [see also Scholfield, Henry, 1992, p. 164; OECD, d, p. 74]. The motivation appears to be twofold: (i) to reduce production costs in the respective home country by means of outsourcing parts and components (the cooperation between VW and BAZ in Slovakia may provide an example), and (ii) to establish regional production outlets early in the transition of post-socialist economies in order to supply newly emerging automobile markets.

Closer links within Europe did not prevent cooperation of EU companies with non-European partners and in other regions. Traditional links were maintained (for example, in Latin America)[68] and new ones were formed, for example, to penetrate promising markets (as in China). Joint ventures of EU- and

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67 For an earlier overview on joint ventures and cooperation agreements in the European automobile industry, see Pearce [1987].

68 The joint venture of VW and Ford (Autolatina) is a prominent example.

US-based TNCs were established in Spain and Portugal. With few exceptions, however, the attempts to globalise through intensified cooperation are of a very recent nature. Most strikingly, few links had been established between European and Japanese car producers until the late 1980s, which was in contrast to the strategic behaviour of US companies [Pearce, 1987, p. 27]. Moreover, cooperative ventures between European and Japanese partners for joint production in niche segments of the automobile market and for exploiting technological complementarity are still relatively few (Table A4).[69]

All in all, it can be concluded that the EU's automobile industry has relocated production and intensified cooperation at the regional level in the first place, whereas it has been a latecomer in terms of worldwide globalisation. At the same time, the EU as the largest automobile market has become the principal battlefield of the world's main car manufacturers [see also Salvadori, 1991, p. 73]. The relocation of production by US and Japanese TNCs to the EU indicates that European integration benefits not only EU producers but also external competitors. The trend of non-European automobile producers moving into the EU is likely to continue. This refers to Japanese TNCs in the first place.[70] Honda, for example, announced to penetrate EU markets by relying more strongly on own production facilities after cross-shareholding arrangements with Rover were dissolved in early 1994 [Frankfurter Allgemeine Zeitung, 22 February 1994, p. 13]. Likewise, the trend towards cooperation between Japanese and European companies in niche segments of the automobile market is expected to continue [Scholfield, Henry, 1992, p. ii].

The Internal Market programme did not reduce, but, rather, amplified the pressure for the EU's automobile industry to improve productivity through internal restructuring, worldwide sourcing and technological innovation, and to globalise production and marketing.[71] Fiercer competition among TNCs threatens the survival of major EU car manufacturers as independent companies.[72] This raises two questions concerning the appropriateness of EU policies in helping European companies to withstand this competition. First, government involvement in the automobile industry and restrictive trade policies with re-

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69 Cases in point are the Mercedes-Benz/Mitsubishi agreement [see also Salvadori, 1991, pp. 84 ff.] and the joint production of the "Taro" by VW and Toyota.

70 Apart from further market penetration by Japanese car manufacturers, South Korean producers are refocusing their attention away from North America and targeting the European market [Scholfield, Henry, 1992, pp. 41 ff.].

71 Similar conclusions are presented by Diekmann [1992b], Salvadori [1991, pp. 55, 89], Smith and Venables [1990, pp. 146–147] and Urban and Vendemini [1992, p. 70].

72 Scholfield and Henry [1992, p. i] expect further alliances and mergers, for example, of Fiat and Peugeot.

gard to automobile imports may have contributed to the reluctance of EU producers to go global. Second, the effectiveness of recent policy initiatives to strengthen cooperation among EU producers is open to question.

It is probably not just by pure coincidence that strong government involvement in the EU's automobile industry went hand in hand with weak globalisation and impaired international competitiveness.[73] Major companies such as Renault and Rover were state owned until recently. Furthermore, European governments — especially in France, Italy and the United Kingdom — granted large-scale financial support to domestic car manufacturers which were under heavy competitive pressure [Dicken, 1992, pp. 286–287]. It is reasonable to argue that public ownership and the access to huge subsidies have reduced the incentives to adjust and restructure. Likewise, massive financial incentives to locate production facilities in backward regions of EU member countries provided disincentives to globalise.

As concerns trade policies, several EU countries have traditionally taken a restrictive stance against automobile exports shipped from Japan to Europe.[74] The Community concluded a "voluntary" export restraint arrangement with Japan in 1991.[75] Japan accepted to restrict its automobile exports to the EU until 1999. The originally agreed export figures largely resembled annual exports by Japan in the late 1980s [GATT, a, p. 218]. The EU pressed for further restraint in subsequent negotiations. Furthermore, some EU countries seem to insist on targeted market shares of Japanese car suppliers in their national markets. As a consequence, EU markets for automobiles would remain segmented although this is inconsistent with the Internal Market programme.

Arguably, persistent trade restrictions have added to the difficulties of EU automobile producers in meeting the Japanese challenge. On the one hand, import barriers impaired the incentives of EU companies for adjustment and restructuring and discouraged them to go global. On the other hand, direct investment in the EU by Japanese car producers was encouraged, as it provided a means to circumvent export restraints. Attempts by the EU to contain FDI by

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73 Government interference was fairly strong in Japan as well [Dicken, 1992, pp. 286–287]. Tight protective barriers were placed around the domestic automobile industry in the 1950s and 1960s. Direct involvement of foreign companies was prohibited for a long period. Overseas marketing and exports of Japanese car manufacturers were financially assisted by the government. However, most of these measures are no longer in force. Presently, the government's "guidance" is largely restricted to negotiating export restraint agreements with trading partners.

74 Italy accepted only 2500 direct car imports annually from Japan in the late 1980s. The respective number for Spain was 1000. In France, the market share of Japanese cars was limited to about 3 per cent.

75 For a detailed analysis of the welfare implications of the combination of an export restraint agreement and Japanese FDI in the EU, see Flam [1994].

Japan's automobile industry were twofold: (i) high local content requirements had to be met, reportedly up to 80 per cent in the case of investments in the United Kingdom [GATT, a, p. 219], and (ii) rumours continued that targeted market shares of Japanese producers were to include cars delivered from Japanese transplants in the EU or elsewhere. While such attempts may have retarded the establishment of production facilities in the EU, the production figures presented above suggest that policy interventions were rather ineffective in halting the move towards globalisation by Japanese car producers.

Recent policy initiatives by the Commission focused on assisting cooperation among EU producers. For example, the Commission announced to encourage and support coordinated efforts by car manufacturers (and input suppliers) to strengthen their innovative capacity through joint R&D projects, training programmes and the dissemination of new production techniques [Kommission, 1992]. Again, the effectiveness of EU policies is likely to remain limited.[76] If EU car manufacturers strengthen their cooperation with US and Japanese companies, in order to catch up with the globalisation achieved by their competitors, the targeting of policy incentives will become increasingly difficult. Once a close net of interlinkages among TNCs of different origin exists, it is no longer possible to decide which company will be the main beneficiary of subsidies, promotion schemes and similar policy incentives. The foreign partner may benefit to the same extent as the EU company that entered a cooperative venture.[77] If, however, closer intra-EU cooperation were considered by the Commission to be an alternative to worldwide globalisation, it would probably remain insufficient to meet the challenge of fiercer worldwide competition in general and greater cost efficiency of Japanese producers in particular.

2. The Chemical Industry

Similar to the automobile industry, worldwide production of chemicals is heavily concentrated on EU member countries, Japan and the United States.[78] In the

[76] For a discussion on how international strategic alliances impair the effectiveness of national R&D policies, see Krakowski [1993, pp. 61 ff.].

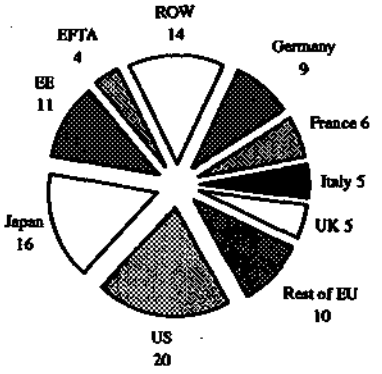
[77] Similarly, incentive schemes designed for automobile suppliers in the EU may benefit Japanese transplants that, because of high local content requirements, rely on the supplies of the promoted industries to a considerable extent.

[78] Another similarity to the automobile industry concerns the dominance of huge TNCs. It is beyond the scope of this section to analyse in detail the wide range of diverse activities within the chemical industry; a more comprehensive assessment of major segments of this industry is provided by de Ghellinck [1991].

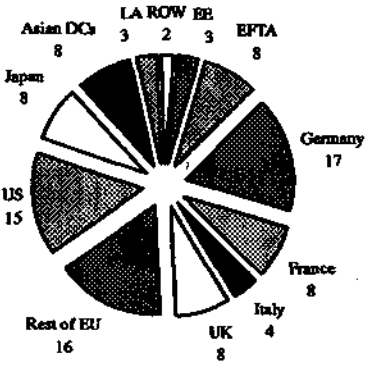
early 1990s, these countries accounted for 70 and 75 per cent of the chemical industry's turnover and exports (Figure 9). However, some DCs such as Brazil, India, and newly industrialising countries in Asia have already established substantial production capacities in selected branches of the chemical industry, for example, in fibres, fertilisers and petrochemicals [see also UNIDO, 1990]. Chemical exports of Asian DCs reached Japanese dimensions in 1991. Likewise, Central and East European countries have emerged as new competitors in chemical markets.

Figure 9 — Regional Distribution of Turnover and Exports of the Chemical Industry,[a] 1992 (per cent)

a) Turnover[b]



b) Exports[c]



[a]In per cent of worldwide turnover and exports in DM. The definition of the chemical industry is not strictly comparable across countries. ROW: rest of world; LA: Latin America; EE: Eastern Europe. — [b]Greece not included in EU; new *Länder* not included in Germany and EU; fibres not included in several EU and EFTA countries and Japan. — [c]1991; EU: intra-EU exports included.

Source: Verband der Chemischen Industrie [1993].

In terms of turnover, the US chemical industry is clearly the most important player, while Japan and Germany ranked second and third in 1992. However, Germany was the leading exporter of chemicals. Its share in world exports was nearly twice as high as its contribution to worldwide turnover of the chemical industry (Figure 9). This is in sharp contrast to Japan, whose export share was only half its share in turnover. Table 9 underscores the striking differences be-

Table 9 — Export Intensity of Major Chemical Producing Countries,[a] 1991–1992 (per cent)

	Total exports	Intra-EU exports	Extra-EU exports
EU[b]	47.4	28.7	18.8
France[c]	42.7	26.0	16.6
Germany[d]	50.4	26.8	23.6
Italy	25.8	14.3	11.5
United Kingdom[c]	49.3	27.0	22.3
Japan[c]	10.0	na	na
United States	14.8	na	na

[a]Exports of chemicals in per cent of turnover of the chemical industry (based on data in ecus); period average; 1992 data are frequently provisional. The definition of the chemical industry is not strictly comparable across countries. — [b]Greece not included. — [c]Fibres not included. — [d]New *Länder* not included.

Source: European Chemical Industry Council [1993].

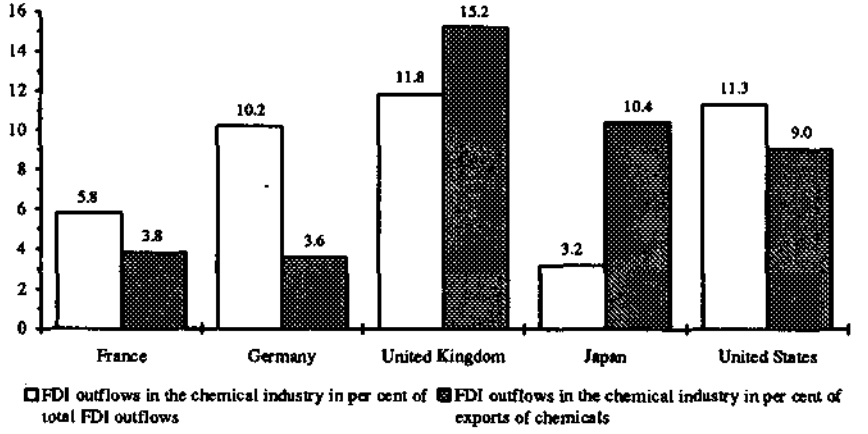
tween the chemical and automobile industries as concerns the world-market orientation of major producer countries. In the chemical industry, the export intensity of EU countries, particularly of Germany and the United Kingdom, was strongest even when intra-EU exports are excluded; Japan reveals an export intensity which was even lower than that of the United States, huge domestic US markets notwithstanding.

This suggests that the competitive position of EU countries in chemicals, which is an example of a physical-capital-intensive industry, is much better than in the human-capital-intensive production of automobiles.[79] Moreover, FDI data indicate that chemical producers in the EU have been among the frontrunners of globalisation, although world-market strategies continued to be dominated by exports (Figure 10). The chemical industry accounted for 10–12 per cent of total FDI outflows in Germany and the United Kingdom in 1986–1991, which was comparable with the United States. The corresponding share of France was still significantly higher than that of Japan.

Japan's approach towards penetrating world markets reveals an interesting difference between chemicals and automobiles (Figures 8 and 10). While the contribution of both industries to overall FDI outflows was modest (3.2 and 3.5 per cent), the FDI-to-exports ratio in chemicals amounted to nearly five times

79 See also Thomsen and Woolcock [1993, p. 28], who argue that European chemical firms are "the largest and most competitive in the world".

Figure 10 — The Significance of FDI Outflows in the Chemical Industry for Major Investor Countries, 1986–1991[a] (per cent)



[a]Period average.

Source: OECD [e]; UN [b]; Deutsche Bundesbank, unpubl. data.

the ratio for automobiles. The world-market strategy of the chemical industry did not rely as strongly on exports as did automobile producers, whose globalisation through FDI has gathered momentum only recently. Nevertheless, Japan was not among the frontrunners of globalisation in chemicals either, which is indicated by the following observations:

— The relatively high FDI-to-exports ratio was largely due to a significant rise that occurred only recently.[80] Moreover, the contribution of chemicals to overall FDI outflows remained virtually stagnant when comparing 1989–1991 and 1982–1984 [OECD, e].[81]
— Japanese FDI, relative to total (domestic and foreign) investment of the chemical industry, was fairly low by international standards (Table 10). Japan was not only surpassed by EU countries, among which Germany and the United Kingdom invested between one third and more than half of their total investment in foreign countries, but also by the extremely large US economy.

80 This ratio increased from 7.4 per cent in 1986–1988 to 12.5 per cent in 1989–1991 [OECD, e; UN, b].

81 After a decline to 2.6 per cent in the second half of the 1980s, this share recovered to 3.6 per cent in 1989–1991.

Table 10 — Share of FDI Outflows in Total (Domestic and Foreign) Investment in the Chemical Industry of Major Producer Countries, 1982–1991 (per cent)

	1982–1984[a]	1985–1989[a]	1990	1991
France	7.1	23.5	36.4	12.4
Germany[b]	33.9	36.1	38.1	39.5
Italy	14.4	8.4	6.6	1.7
United Kingdom	36.7[c]	54.7	41.7	39.5
Japan	6.1	8.3	12.5	8.2
United States	10.0	16.2	10.6	12.7

[a]Annual averages. — [b]Gross FDI outflows as given by Verband der Chemischen Industrie [var. issues]. — [c]1984.

Source: OECD [e]; Verband der Chemischen Industrie [var. issues]; European Chemical Industry Council [var. issues]; IMF [c, 1993].

For two reasons, the strategies of EU-based chemical companies deserve further scrutiny. First, it is striking that both indicators presented in Figure 10 declined over time in most EU countries and the United States (not shown).[82] This seems to suggest that the globalisation efforts of the frontrunners have slackened. Second, it has to be assessed to which extent the foreign engagement of EU companies is regional rather than global. These questions are addressed in the following by referring to regionally disaggregated FDI, firm-specific production patterns and NEC-type arrangements.

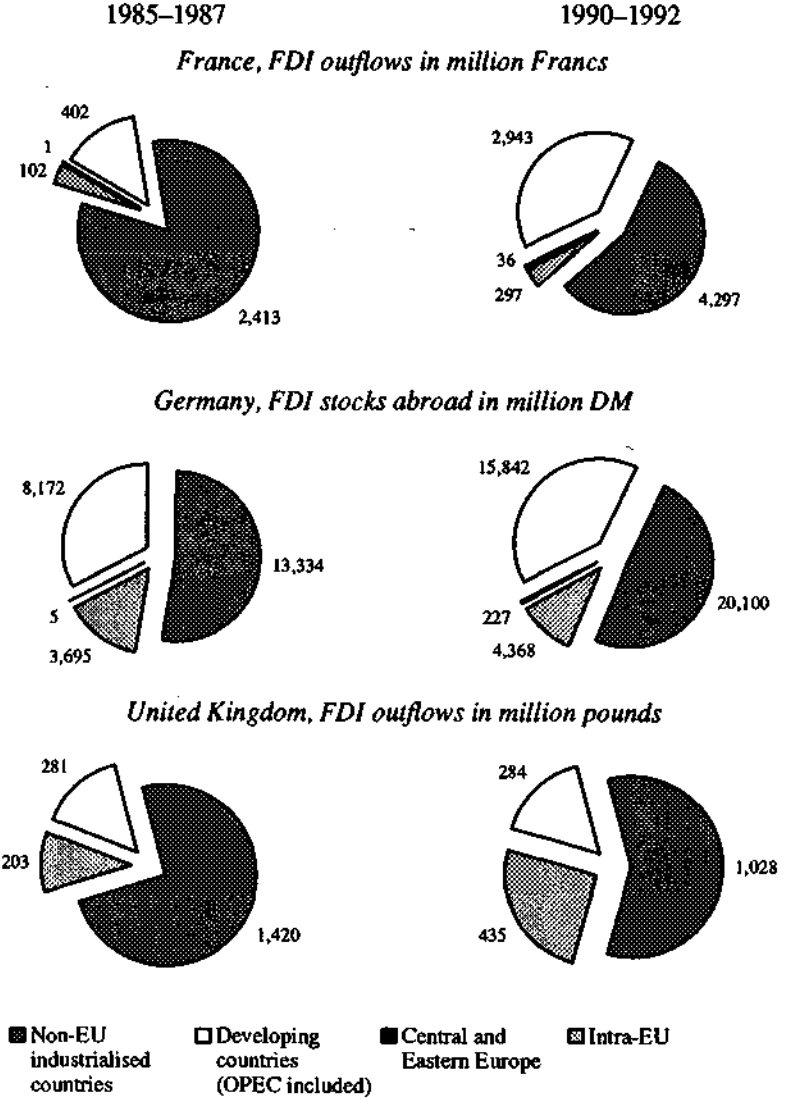
The regional distribution of FDI in chemicals by three major EU countries reveals an increasing share of intra-EU investment, which was most pronounced in France (Figure 11).[83] Nonetheless, the EU's chemical industry maintained its globalisation beyond regional boundaries. Its engagement in non-EU host countries continued to dominate clearly over intra-EU investment. In absolute amounts, FDI in both non-EU industrialised countries and DCs increased over time.[84] For example, German FDI stocks in the chemical industry

82 Comparing 1986–1988 and 1989–1991, the FDI-to-exports ratio declined in Germany, the United States and, most significantly, in the United Kingdom [OECD, 1993b; UN, b]. A declining trend was also observed for the contribution of FDI in chemicals to overall FDI outflows of a group of seven EU countries (Table A5).

83 Regionally disaggregated FDI outflows are not available for Germany. Hence, Figure 11 refers to FDI stocks in this case.

84 FDI by the United Kingdom in non-EU industrialised countries was the only exception. However, the diversion of FDI outflows was hardly in favour of EU countries, but rather in favour of DCs.

Figure 11 — The Regional Distribution of FDI in Chemicals by France, Germany and the United Kingdom, 1985–1987 and 1990–1992



Source: Banque de France [var. issues]; Deutsche Bundesbank [var. issues]; Central Statistical Office [var. issues].

of industrialised host countries outside the EU were enlarged by more than 50 per cent within six years. FDI in Central and Eastern Europe, though impressive in terms of growth rates, remained marginal until the early 1990s. Therefore, it did not significantly affect the pattern of globalisation. This is not surprising given that the regime change and the opening up of post-socialist countries towards FDI occurred only recently. The regional focus of the foreign engagement of EU chemical companies may become somewhat more pronounced once economic transformation is more advanced in Central and Eastern Europe.

The absence of significant FDI diversion at the expense of EU outsiders may be attributed to the fact that the chemical industry did not face considerable internal market barriers even before the Internal Market programme was launched. The benefits in terms of reduced transaction costs and greater economies of scale resulting from the deepening of integration were considered to be smaller in chemicals than in other manufacturing industries [de Ghellinck, 1991, p. 346; Bradley et al., 1989]. Consequently, EU chemical producers had rather weak incentives to focus their attention on the emerging Single European Market.[85] At the same time, the need for restructuring chemical production encouraged worldwide globalisation. Geographic expansion figured high on the strategic agenda of chemical TNCs based in Europe [de Ghellinck, 1991, p. 345]. Third World economies offered favourable opportunities to develop basic chemical products (frequently in collaboration with local partners), while products with higher value added could be developed in the United States and Japan.

EU chemical producers seem to have been eager to strengthen their presence particularly in the US market.[86] Firm-specific data confirm that EU firms have strongly raised their production in North America (Table 11).[87] BASF was the only exception among nine leading European TNCs in chemicals. On average,

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85 Firm-specific production data show that companies reporting a higher share of foreign operations within Europe typically reveal a steep (relative) decline of domestic production at the same time (Table 11). Hence, regional integration was at the expense of domestic production, rather than at the expense of globalisation beyond Europe. This result largely resembles earlier findings on relocation in the automobile industry.

86 Table A5 supports the view that the United States has become the principal target for foreign investors in the chemical industry. This sector's share in total FDI inflows into the United States increased tremendously in 1982–1992. By contrast, the share of chemicals in total EU inflows of FDI decreased by more than 40 per cent in the same period.

87 Data refer to the companies' net sales, which are reported according to final markets and production areas in annual company reports. Sales by production areas are presented in Table 11. They are assumed to represent the value of production, although problems regarding fluctuations in stocks may be involved.

North America accounted for 20 per cent of total production of EU-based TNCs in 1991. Foreign production in regions other than Europe and the United States was typically of minor relevance. No clear trend exists as concerns the relative importance of Latin America as a production location. This is probably due to firm-specific locational preferences and host country-specific economic developments. In the case of Rhone-Poulenc, for example, the significant fall in Latin America's share of production is not surprising in view of persistent policy failures and unfavourable investment conditions in Brazil. DCs in other regions have attracted a constant or increasing portion of TNC production of chemicals since the mid-1980s, though base levels were typically very low. A

Table 11 — Regional Distribution of Production[a] by Major European Chemical Multinationals, 1986–1992 (per cent)

		Akzo, Netherlands	BASF[b], Germany	Bayer, Germany	DSM, Netherlands
Domestic	1986	36.6	69.6	44.5	84.2
production	1988	36.3	68.0	42.7	69.8
	1991	33.9	76.9[c]	39.9	61.9
	1992	na	76.6[c]	38.8	62.2
Foreign	1986	63.4	30.4	55.5	15.8
production	1988	63.7	32.0	57.3	30.2
	1991	66.1	23.1[d]	60.1	38.7
	1992	na	23.4[d]	61.2	37.7
Europe	1986	46.8	na	24.9[e]	13.3
	1988	40.6	na	24.6	24.2
	1991	37.4	–[f]	25.3	25.1
	1992	na	–[f]	25.6	23.2
North	1986	12.3	21.0	19.3	2.5
America	1988	16.1	20.0	17.8	6.0
	1991	21.2	16.9	20.7	12.8
	1992	na	16.9	21.3	14.3
Latin	1986	na	3.8	5.3[e]	0.0
America	1988	na	3.8	6.5	0.0
	1991	na	3.6	4.5	0.0
	1992	na	3.8	4.5	0.0
Asia, Africa	1986	na	2.3 (1.6)	7.4[e](4.1)	0.0[g]
and Middle	1988	na	2.6 (1.8)	8.4 (3.1)	0.0[g]
East	1991	na	2.6 (1.8)	9.6 (3.8)	0.2[g]
	1992	na	2.7 (2.0)	9.8 (4.0)	0.2[g]

Table 11 continued

		Henkel, Germany	Höchst, Germany	ICI[b], UK	Mont-Edison[b], Italy	Rhone-Poulenc[b], France
Domestic	1986	43.4	62.5	44.0	na	69.2
production	1988	37.0	47.1	48.7	64.8	60.2
	1991	36.5	45.2	45.2	36.0	50.2
	1992	35.5	42.0	na	na	50.5
Foreign	1986	56.6	37.9	56.0	na	30.8
production	1988	63.0	53.3	51.3	35.2	39.8
	1991	63.5	44.8	54.8	64.0	49.8
	1992	64.5	58.0	na	na	49.5
Europe	1986	40.4[h]	18.9	22.1	na	33.5
	1988	43.8	22.2	23.2	18.3	34.5
	1991	44.9	22.6	25.6	43.9	33.9
	1992	47.3	23.1	na	na	33.2
North	1986	6.3	10.1	24.2	na	5.2
America	1988	8.3	21.8	27.3	16.5	13.0
	1991	11.1	20.5	30.8	19.1	24.7
	1992	10.2	21.1	na	na	25.3
Latin	1986	na	3.8	–[i]	na	9.9[j]
America	1988	na	4.1	–[i]	na	9.9[j]
	1991	3.3	6.5	–[i]	na	5.6[j]
	1992	2.8	6.3	–[i]	na	5.6[j]
Asia, Africa	1986	na	4.8 (1.5)	19.3	na	3.5
and Middle	1988	4.6 (3.1)	6.7 (3.6)	19.2	na	3.4
East	1991	4.2 (2.9)	7.0 (4,2)	19.2	na	5.2
	1992	4.2 (3.0)	7.4 (4.4)	na	na	5.7

[a]Net sales according to production areas as given in company reports. Data in parentheses exclude Australia and Japan. — [b]Totals may exceed 100 per cent because of the inclusion of intra-firm trade. — [c]Includes other European countries. — [d]Other than Europe. — [e]1987. — [f]Treated as domestic. — [g]Excluding Japanese subsidiaries. — [h]1985. — [i]Included in North America. — [j]Brazil only.

Source: Annual reports by the companies under consideration, various years.

similar picture emerges for production of German-based TNCs in Japan and Australia.[88]

[88] The production share of Japan and Australia was more or less constant in the case of BASF (about 0.8 per cent), Henkel (1.2–1.5 per cent) and Höchst (around 3 per cent), whereas their share increased from 3.3 per cent in 1987 to 5.8 per cent in 1992 in the case of Bayer (Table 11).

Oligopolistic competition among TNCs in the chemical industry has resulted in a large number of mergers and acquisitions. The overriding role of this form of FDI is evident from Table A6. Specifically, the establishment of EU companies in the United States has been achieved through acquisitions of existing local firms in the first place.[89] This trend is likely to continue under NAFTA conditions. Elsewhere, however, NEC appears to have gained weight in the globalisation strategies of EU chemical producers. The farther away from the United States and the EU the recent extension of international production, the greater the resort to NEC by investors seems to have been. Especially in DCs, NEC is the preferred form of investment (Table A6). This evidence is supported by studies that deal with specific host DCs:

— In a number of cases, TNCs have participated in establishing petrochemical plants in the Third World through technical cooperation agreements, turnkey projects, management and marketing contracts, and licensing. Examples are: Argentina, Brazil, India, Mexico, Saudi Arabia and South Korea [Oman, 1989].
— In Bangladesh, pharmaceuticals and other chemicals accounted for nearly one third of all non-equity investments during the 1980s [Reza, 1992].
— In Turkey, the government-owned petrochemical company Petkim has wide-ranging licensing and engineering agreements with foreign companies (Solvic, ICI, Mitsubishi) for the supply of technology [UNCTC, c, pp. 87 ff.].
— Non-equity investments accounted for 70 per cent of the total number of foreign engagements approved by the Indian government in 1985–1990 [IIPO, 1993].
— Franchising is considered to be a flexible instrument of globalisation, which TNCs increasingly referred to, for example, in Central and Eastern Europe, where business risks and bureaucratic hurdles are still high [UNECE, 1993].

All in all, the chemical industry has been a frontrunner with regard to globalisation, and it is likely to continue on this path. Regional integration did not significantly affect the trend towards global sourcing and marketing.[90] EU-

[89] Mergers and acquisitions were also a common feature in intra-EU relations among chemical TNCs. As a matter of fact, the chemical industry reported by far the largest number of cross-border mergers and acquisitions within the EU (1984–1991: 300); its share in total mergers and acquisitions in EU manufacturing industries amounted to 33 per cent [Thomsen, Woolcock, 1993, p. 23].

based chemical TNCs seem much more worried about the need to strengthen their presence in the United States, in Japan and in DCs than being concerned about the effects of the Single European Market. The large number of mergers and acquisitions and the intensive use of cooperation agreements, observed since the late 1970s, can hardly be attributed to the deepening of integration within Europe [see also de Ghellinck, 1991, pp. 369–370].

As concerns the instruments applied by TNCs in the chemical industry, FDI by means of mergers and acquisitions dominated in industrialised countries, particularly in entering US markets, whereas NEC figures prominently in DCs. Recent forecasts suggest that the Asian-Pacific region has the best chances to expand production and exports in the chemical industry [UNIDO, 1990, p. 187]. South Korea, Taiwan, China and leading ASEAN countries are building up major petrochemical bases with the participation of foreign capital and technology [Ward, 1992, p. 7]. Hence, the role of NEC in the globalisation strategies of TNCs in the chemical industry can be expected to gain further momentum.

3. Textiles and Clothing

In sharp contrast to automobile and chemical production, textiles and clothing are among the geographically most dispersed manufacturing industries. On the one hand, the production of textiles and clothing has undergone significant restructuring during the last decades. It represents an ideal candidate for globalisation. Different stages of the production process have their specific technological and organisational characteristics, which encourages a division of labour by means of international fragmentation of production. On the other hand, the sector has been subject to intense political interference since decades, notably under the Multi-Fibre Arrangement (MFA). Policy interventions may have alleviated the adjustment needs of the textile and clothing industries in developed countries for the time being, but they did not halt and sometimes even induced globalisation.

Compared with the automobile and chemical industries, the textile and clothing industry is labour-intensive. Furthermore, this sector is neither dominated by a few huge TNCs nor by a small number of major production loca-

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90 See also Thomsen and Woolcock [1993, p. 28], who conclude with regard to European companies: "To the extent that there is restructuring under way in the chemical industry, it is global, not regional".

tions. Many DCs have started their industrialisation in this sector, particularly in clothing. Their comparative advantage in doing so is evident from Figure 12. The world-market share of textile and clothing exports by DCs in 1991 exceeded their export share in chemicals (12.9 per cent) [UN, b] by a factor of 3.3 (textiles) and 4.5 (clothing).[91]

While DCs contributed the larger part to worldwide clothing exports in 1991 (58.6 per cent), industrialised economies still accounted for more than half of textile exports (56.3 per cent) [UN, b].[92] This points to structural differences between the two subsectors, though they appear rather similar compared with automobiles and chemicals. Among such differences, the following are most relevant with regard to globalisation strategies [Dicken, 1992, pp. 233 ff.; Oman, 1989, pp. 207 ff.]:

— The manufacture of clothing is highly labour-intensive and mainly relies on low-skilled labour. It is "footloose" in the sense that the production process can be fragmented and geographically separated. Sewing and garment assembly are typically located where labour costs are low, whereas design (and often cutting) is performed in more advanced economies. Textile production is capital-intensive, relative to clothing, and does not fit as easily into an international fragmentation of production processes. This explains why the dispersion of exporting countries is lower in textiles than in clothing [Dicken, 1992, p. 242].[93]
— The textile industry is much more sophisticated technologically than clothing. Traditional textile suppliers tried to overcome their comparative disadvantage with respect to labour costs by process innovations and have reduced production costs by applying state-of-the-art equipment such as CAD and CIM. Technology-related ownership advantages are thus comparatively strong, which is likely to affect globalisation strategies (Section III.1).

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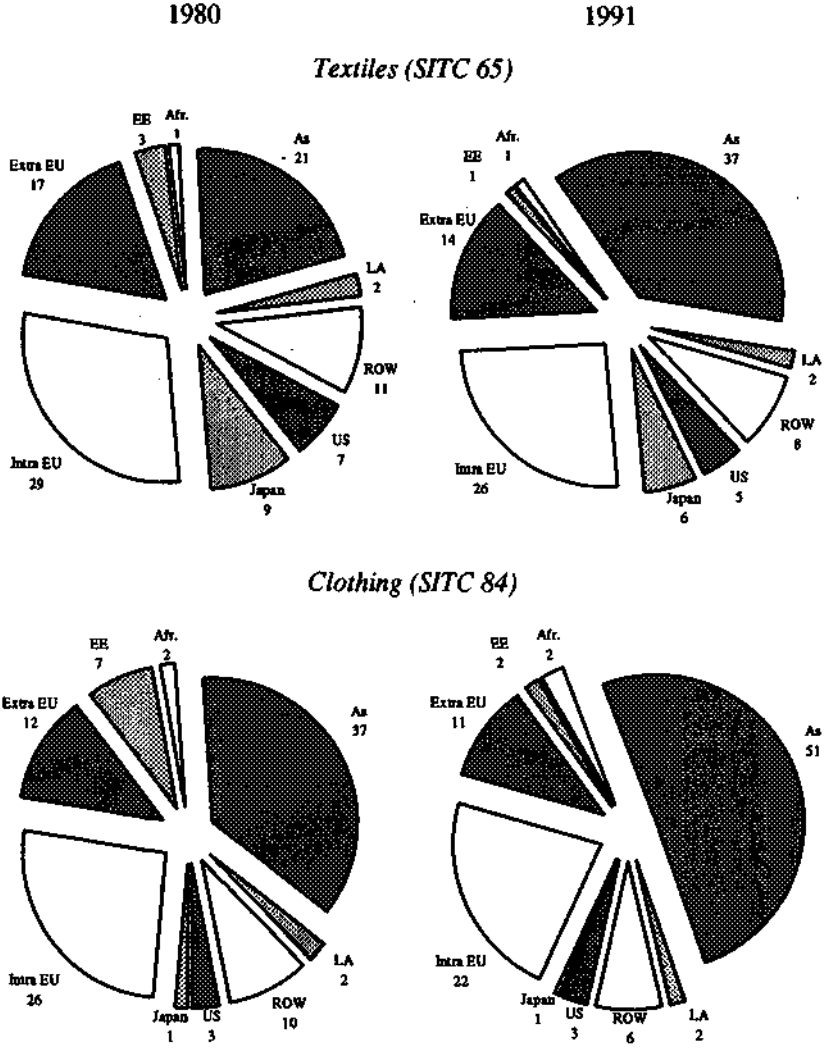
91 Not surprisingly, the export performance of DCs in textiles and clothing is even more impressive when compared with their export share in the human-capital-intensive automobile industry. While DCs contributed less than 5 per cent to worldwide exports of passenger road vehicles and automobile parts, their share in aggregated textile and clothing exports exceeded 50 per cent in 1991 [UN, b].

92 Germany was the leading exporter of textiles in 1991, and Italy ranked third (after Hong Kong).

93 The 1991 share of EU countries, Japan and the United States in worldwide exports was 51 per cent for textiles, but only 37 per cent for clothing (Figure 12).

Figure 12 — Regional Distribution of Exports of Textiles and Clothing,[a] 1980 and 1991 (per cent)



[a]EE: Eastern Europe; Afr.: DCs in Africa; LA: Latin America; As: DCs in Asia (excluding Middle East); ROW: rest of world.

Source: UN [b].

— As a consequence of different factor intensities and production technologies, the textile and the clothing industries reveal different competitive structures: oligopolistic competition among large firms prevails in textile production, while the manufacture of clothing is least dominated by large firms and comes close to a textbook case of a perfectly competitive industry with a large number of small sellers and buyers.[94]

Certain industry characteristics suggesting relatively favourable conditions for textile production in advanced economies did not prevent newcomers, especially Asian newcomers, from creating fierce competition for traditional suppliers during the 1980s and early 1990s. Starting from a 1980 level, which was low by clothing standards, Asian DCs succeeded to expand their world-market share in textile exports by 16 percentage points until 1991, which was slightly above the increase in clothing (Figure 12).

The challenge confronting producers of textiles and clothing in industrialised countries is also evident from regional trends in production (Figure 13). DCs in Asia have clearly outperformed all other regions. Their production of clothing more than doubled between 1978 and 1990, and textile production soared by nearly 60 per cent. During the same period, the production of clothing declined considerably in industrialised countries.[95] In view of the above reasoning, it is not surprising that production losses in textiles remained modest or were avoided. Textile production was on a clear downward trend only in Japan. EU production fluctuated moderately, experiencing a low mark of 93 index points in 1983 and a peak of 103 in 1989. Most remarkably, North America has recovered from significantly depressed textile production since 1982; the index value of 1990 was about 10 points above the 1978–1980 average.

Figure 13 provides support for the notion that productivity growth was of greater importance in textiles than in clothing, indicated by the typically larger divergence between production and employment trends. But the increase in labour productivity differed across regions. It was highest in Asia (in both textiles and clothing) and lowest in the EU. This suggests that European producers are facing the most serious adjustment needs. Their competitive situation is likely

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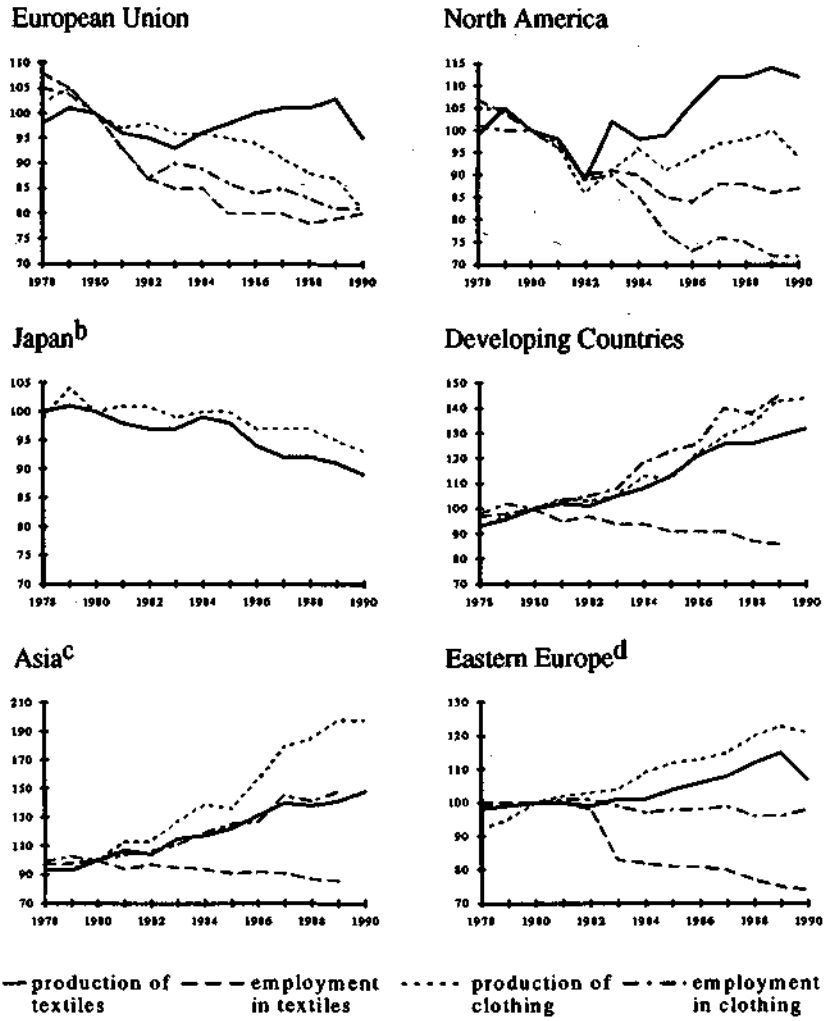
94 For the world's largest companies in textiles and clothing, see Table A7.

95 The decline was most pronounced in the EU (21 per cent in 1978–1990) and relatively modest in North America (10 per cent) and Japan (6 per cent). Clothing producers in the EU and the United States appear to have followed different adjustment strategies. In contrast to the EU, labour productivity in the North American clothing industry has improved considerably (Figure 13). In the EU, the focus was on moving to the high quality/fashion segment of the market, for example, by establishing brand names; for a detailed analysis of corporate strategies in Germany, see Piatti and Spinanger [1992].

Figure 13 — Production and Employment in Textiles and Clothing by Major Regions,[a] 1978–1990 (1980=100)



[a]Textiles: ISIC 321; clothing: ISIC 322–324, i.e., including leather and footwear. — [b]Footwear excluded; data on employment not available. — [c]Excluding Israel and Japan, as well as China, North Korea and Vietnam. — [d]Including former USSR.

Source: UN [c].

to deteriorate once trade in textiles and clothing is reintegrated into the GATT framework.[96] Furthermore, EU-based companies will receive another blow from new competitors emerging in Central and Eastern Europe. The rather modest increase of textile and clothing production in this region until 1990 (Figure 13) will, in all likelihood, gather momentum with economic transformation proceeding. Respective concerns on the part of the EU had as a consequence that textiles and clothing are considered "sensitive" in the Europe Agreements, which the EU concluded with several post-socialist countries in the early 1990s. Although the Central European partner countries were granted preferential treatment in this sector, too, quantitative trade restrictions remained essentially in place (for details, see Langhammer [1992a]).

The inroads made by new competitors into the world markets for textiles and clothing have rendered indispensable the adjustment and restructuring of traditional suppliers, especially those based in Europe.[97] Their reaction to fiercer competition was threefold; it comprised internal restructuring, demand for protection, and globalisation.[98] The demand for protection resulted in an extremely complex system of government interference. During successive phases of MFA, an intricate pattern of country-specific and product-specific import quotas governed trade in textiles and clothing [Spinanger, 1993].[99] In addition, anti-dumping procedures were launched against new competitors by the EU and the United States. Trade restrictions were supplemented by large-scale financial assistance granted to domestic textile and clothing industries, particularly by European governments.[100]

Yet persistent protection and government supported internal adjustment have been insufficient for traditional suppliers to remain competitive in textiles and

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96 Among the results of the Uruguay Round, concluded in late 1993, the agreement on phasing out the MFA figures prominently; for details, see Langhammer [1994].

97 According to Dicken [1992, p. 245], problems of competition are most severe for Belgium, France, Germany, the Netherlands and the United Kingdom, while being somewhat less severe for Italy, Japan and the United States.

98 Internal restructuring is largely ignored in the following. In the European textile and clothing industries, internal adjustment comprised quality improvements, product differentiation and process innovation. The clothing industry concentrated on high quality and fashionable products, established brand names and tightened the control of distribution channels. Textile companies intensified their cooperation with producers of textile machinery and chemicals, in order to develop new markets (industrial textiles); for details, see, for example, Piatti and Spinanger [1992].

99 In the case of the EU, each member country had traditionally applied its specific quota system on a bilateral basis. These quotas were aggregated to an EU-wide quota only recently. EU quotas were roughly equivalent to the sum of country quotas.

100 The exception was Germany; for details, see Dicken [1992, p. 254].

clothing. Consequently, the globalisation of these industries has been driven primarily by firms based in industrialised countries that aimed at bolstering their competitive position [Dicken, 1992, p. 257]. The strategies pursued differed considerably between textiles and clothing, on the one hand, and between major industrialised countries, on the other hand.

First moves towards globalisation in textiles were triggered by policy interference and date back to the 1960s [Oman, 1989]. Trade restrictions imposed by the United States on Japanese textile exports caused evasion by Japanese textile firms and trading companies (sogo shosha). In order to circumvent quotas, they established subcontracting links in East and Southeast Asian DCs.[101] By 1980, nine leading "sogo shosha" were engaged in 150 textile ventures outside Japan. Major textile companies such as Toray were involved in a vast array of international operations. Subcontracting arrangements were dominant, but FDI was also used as a means of globalisation. The early move towards globalisation by Japan in textiles may account for the fact that the FDI-to-exports ratio was significantly higher than in other industrialised countries (Figure 14).[102]

As in the case of textiles, Japan was the frontrunner with respect to globalising the manufacture of clothing [Dicken, 1992, pp. 259–260]. During the 1960s and 1970s, Japanese companies established a close net of subcontracting arrangements in Asia (especially in Hong Kong, Singapore, South Korea and Taiwan).[103] Dicken [1992] has estimated that about 90 per cent of overseas clothing operations by Japan are still located in East and Southeast Asia. This regional bias is at least partly attributable to the relative important role of transportation costs involved in subcontracting arrangements with respect to clothing.

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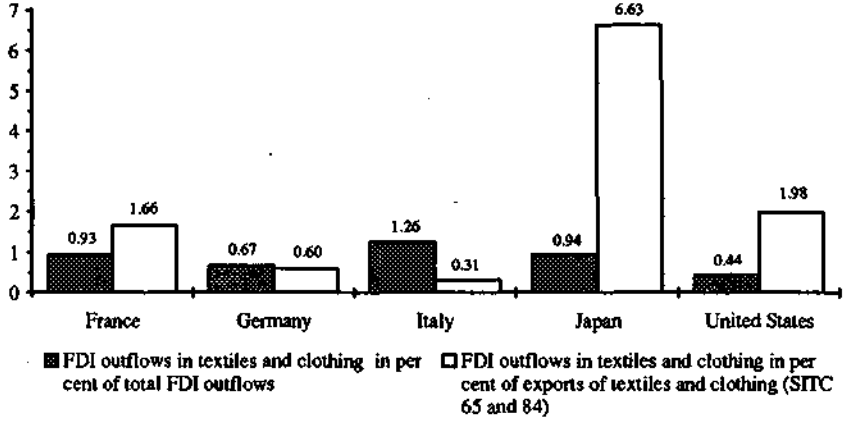
101 More recently, the increased restrictiveness of MFA regulations has induced evasion by newly industrialising countries, whose textile and clothing exports were most seriously affected (for example, Hong Kong and South Korea). Relocation by leading exporters, suffering from tight quota ceilings, to a number of "second-tier" producers, whose quotas were not exhausted by local producers or which were not signatories to the MFA, has enhanced the globalisation of textile and clothing industries, notably in Asia [Oman, 1989, p. 237]. Hong Kong, for example, set up plants in the Philippines, Thailand, Malaysia and Mauritius already in the 1970s and, subsequently, in China, Indonesia and Sri Lanka; for a detailed analysis of Hong Kong's reactions to MFA regulations, see Spinanger [1992].

102 Similar to other industrialised countries, Japanese FDI in textiles and clothing contributed only marginally to overall FDI outflows. Hence, the high FDI-to-exports ratio, which was nearly six times the average ratio for the remaining countries in Figure 15, has to be attributed to the replacement of Japanese textile and clothing exports triggered by subcontracting and licensing in the first place.

103 The first to make extensive use of this instrument were again Japan's "sogo shosha" [Oman, 1989, p. 227].

Figure 14 — The Significance of FDI Outflows in Textiles and Clothing for Major Industrialised Countries, 1986–1991[a] (per cent)



[a]Period average. Leather is included, except in the United States.

Source: OECD [e]; UN [b]; Deutsche Bundesbank, unpubl. data.

Although Japan was the first to move towards relocating production in both subsectors, its clothing industry is less internationalised than its textile industry [Oman, 1989, p. 231]. The opposite pattern prevails in other industrialised countries. The United States and major EU countries, notably Germany [Piatti and Spinanger, 1992], have focused strongly on offshore processing of clothing products.[104] The initial US emphasis on Mexico and the Philippines has shifted to subcontracting activity in the Caribbean region. This underlines the crucial importance of labour costs and transportation costs in deciding on the location of offshore processing in the clothing industry.

Offshore processing and contractual agreements were also the principal means by which EU producers of clothing went international. Offshore processing was made attractive by special quotas and tariff provisions in the MFA[105] and the possibility to tap labour markets of low-wage countries without losing control over design and distribution. Similar advantages are derived from contractual agreements on the production and delivery of finished products by in-

104 This contrasts sharply with Japanese firms, which have not turned to offshore processing for their home market as much as US and German clothing manufacturers.

105 This applies to the United States and Germany in the first place [Oman, 1989, p. 213].

dependent overseas suppliers. Industry sources [BBI, 1991] show that overseas processing and contractual agreements accounted for about 50 per cent of German clothing imports in 1990.[106]

The partner countries for the globalisation strategies of EU clothing producers reveal a distinct pattern. Contractual agreements with independent suppliers of finished products play an important role in imports from Turkey, Hong Kong and, increasingly, from China, which are the leading sources of extra-EU imports [EIU, 1993, p. 82]. The fragmentation of production by means of offshore processing has followed the pattern established by the preferential trade agreements signed by the EU with both DCs and neighbouring countries.[107] Because of relatively low transportation costs, North African and Mediterranean countries (and especially former Yugoslavia) became preferred partners particularly in offshore processing of the German clothing industry. Economic liberalisation in post-socialist countries and cooperation agreements with the EU made Central and Eastern Europe another attractive location for offshore processing.[108] In 1989–1992, processed clothing imports from Central and East European countries increased from ECU 0.6 billion to ECU 1.3 billion.[109] Poland was the most important supplier, accounting for a share of 44 per cent in 1992, followed by Hungary (20 per cent) and Romania (16 per cent).

FDI played a marginal role in the globalisation strategies of major EU (and US) producers.[110] The fragmentation of production patterns in clothing did not

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106 These options were used much less by other European suppliers, notably in France and Italy, which have focussed on quality improvements and the establishment of brand names. A major reason for these differences in globalisation strategies may be the higher degree of openness of the German clothing market to international competition, which is reflected in increasing and above average penetration ratios [Piatti, Spinanger, 1992, p. 26].

107 These agreements provide ACP countries with free access to EU clothing markets and allow for self-monitoring of clothing exports by North African countries and the former Yugoslavia [Stüven, 1993].

108 By 1992, this region provided almost 11 per cent of total EU clothing imports compared with 10 per cent from each North Africa and Turkey, while China and Hong Kong together accounted for 23 per cent [EIU, 1993, p. 46].

109 This information is based on EUROSTAT, EEC External Trade (Combined Nomenclature), CD–ROM. The authors appreciate the cooperation of Jens Oliver Lorz, who compiled the data, which will be published in a report by the Kiel Institute of World Economics to the German Ministry of Economics.

110 This is in sharp contrast to the automobile and chemical industries, where FDI was a major means of globalisation, as technology-related ownership advantages are relatively strong. The vastly different role of FDI in the globalisation strategies of EU suppliers of automobiles and chemicals on the one hand, and of textiles and clothing on the other hand is highlighted by comparing Figure 14 with Figures 8 and 10 above.

involve transaction-cost-intensive transfers of intangible assets, so that NEC-type arrangements were favoured. Firm-specific ownership advantages are more important in the textile industry, though definitely less relevant than in the automobile and chemical sectors. Consequently, more recent moves towards globalisation in the textile industry resulted in an increasing, though still low contribution of this sector to overall FDI outflows and in a rising FDI-to-exports ratio (Table A8).[111]

The degree to which globalisation has been pursued in the textile industry is difficult to establish on an EU-wide basis.[112] Tentative conclusions may be derived from Tables 12 and A9, which provide firm-specific information on some large European suppliers. The typical pattern was a relative decline of domestic production and a corresponding expansion of foreign activities in 1986–1992 (Table 12). The latter seems to have been driven primarily by an extended engagement in other industrialised countries, notably in North America. This result is confirmed by the recent major acquisitions and joint ventures of European companies listed in Table A9.

The focus on other industrialised countries in relocating textile production is strikingly different to the dominant role of DCs in globalising the manufacture of clothing. The three leading countries of origin for extra-EU imports of MFA textiles in 1992 included Austria, Switzerland and the United States.[113] In other words, EU producers of textiles still competed to a large extent with suppliers from industrialised countries, which explains why EU producers established production facilities in the markets of their major competitors and in geographical proximity to overseas customers.[114] However, there is no evidence on investment diversion at the expense of DCs. Another similarity to earlier findings on the automobile and chemical industries relates to the effect of European integration on corporate strategies: relocation at the regional level was at the expense of domestic production, rather than at the expense of globalisation.

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111 It has mainly been the synthetic fibre segment of the textile industry that has contributed to this increase recently. The transfer of intangible assets with regard to synthetic fibres involves higher transaction costs than in all other segments of the textile and clothing complex: "And it is precisely here that the bulk of foreign equity investment by US and European multinationals is concentrated" [Oman, 1989, p. 235].

112 German FDI stock data reveal that the textile industry accounted for more than two thirds of total assets held abroad by the textile and clothing sector in 1990 [Piatti, Spinanger, 1992, Table 9]. FDI stocks in textiles increased by a factor of 3.6 during 1978–1990, while FDI stocks in clothing increased by a factor of 2.4.

113 They accounted for roughly 30 per cent of total extra-EU imports in this category [EIU, 1993, Table 16].

114 Further support to this effect is provided by Piatti and Spinanger [1992, p. 11], who show that German FDI in textiles is largely located in industrialised countries.

Table 12 — Production of European Textile and Clothing Companies in Different Regions, 1986–1992 (per cent of total production)

		Coats Viyella, United Kingdom	Courtaulds Textiles[a], United Kingdom	Royal Niyverdal-Ten Cate, Netherlands	Boss, Germany	Dierig, Germany
Domestic production	1986	58	82[b]	44	100	96
	1988	58	84	43	100	95
	1990	49	77	38	84	96
	1991	49	73	35	84	95
	1992	na	na	35	88	94
Foreign production	1986	42	18[b]	56	0	4
	1988	42	16	57	0	5
	1990	51	23	62	16	4
	1991	51	27	65	16	5
	1992	na	na	66	12	6
Europe	1986	13	11[b]	36	0	4
	1988	13	10	40	0	5
	1990	19	16	46	0	4
	1991	21	16	46	0	5
	1992	na	na	43	0	6
North America	1986	12	5[b]	na	0	0
	1988	16	4	na	0	0
	1990	17	11	15	16	0
	1991	16	13	17	15	0
	1992	na	na	20	12	0
Rest of world	1986	16	2[b]	na	0	0
	1988	13	2	na	0	0
	1990	14	2	2	0	0
	1991	14	2	2	1	0
	1992	na	na	3	1	0
Latin America	1986	7	na	na	1	0
	1988	8	na	na	0	0
	1990	9	na	na	0.1[c]	0
	1991	7	na	na	0.1[c]	0
	1992	na	na	na	0.2[c]	0
Africa, Asia, Australia	1986	9	na	na	0	0
	1988	5	na	na	0	0
	1990	5	na	na	0.5[c]	0
	1991	7	na	na	0.5[c]	0
	1992	na	na	na	0.5[c]	0

[a]Totals may exceed 100 per cent because of the inclusion of intra-firm exports. — [b]1987. —[c]Production of overseas joint ventures are consolidated by using the equity method.

Source: Annual reports of the companies under consideration, various years; Stopford [1992].

To summarise, favourable conditions for fragmented production patterns with regard to textiles and, especially, clothing explain why globalisation has a fairly long history in this sector. NEC such as subcontracting and licensing has been the preferred instrument. FDI, though still of minor importance as compared with leading human and physical-capital-intensive sectors, appears to be on the rise, especially in the textile industry, which is more capital-intensive than the clothing industry. As concerns the prospects for globalised networking of EU textile and clothing industries, several factors have to be taken into account:

— Many DCs in Asia have emerged as successful suppliers not only in clothing but also in textiles [EIU, 1993, p. 80]. India, China, Pakistan and Indonesia had already been ranking among the top ten sources of extra-EU textile imports in 1992.
— Supply of clothing from Asia will continue to increase, due to unprecedented economic growth in China and the emergence of new competitive suppliers such as Indonesia and, possibly, Vietnam.[115]
— Production capacities in Central and Eastern Europe, where textiles and clothing have a long tradition, have not been fully used so far. The competitive position of this region will depend on progress in economic transformation and political consolidation.
— The MFA will continue to influence the worldwide distribution of production for the time being. However, the competitive position of EU firms will decline and imports expand once MFA trade is reintegrated into the GATT framework, as was agreed upon in the Uruguay Round.

The completion of the Internal Market is of marginal importance as concerns future developments in the EU textile and clothing industries. The major competitors threatening the viability of these industries are located in other industrialised countries, in Central and Eastern Europe and in Asia. The gradual opening of European textile and clothing markets is likely to further increase the importance of globalisation. Central and East European countries may become major partners of EU suppliers following the lead of German companies with respect to NEC, notably offshore processing. This may help EU firms to reduce production costs, but it is unlikely that closer cooperation within Europe could seriously dislodge imports from other regions.[116] Labour costs in Central

[115] Indonesia jumped from position 19 to 8 in the ranking of suppliers of EU clothing imports in 1988–1992 [EIU, 1993, p. 82].

[116] According to survey results [Piatti, Spinanger, 1992], German clothing companies operating in Central and Eastern Europe expect that further tapping the potential of

and Eastern Europe may be low compared with Western Europe, but not compared with India or China. Rather, world-market conditions will force EU producers to invest not only in Europe and North America, but also in Asian economies with rapidly growing textile and clothing industries.[117]

4. Summary

From the sector studies, we can conclude that globalisation is a common feature across various manufacturing industries. What differs across industries is the way in which globalisation proceeds. FDI continues to be of overriding importance in human-capital-intensive industries. By contrast, NEC-type arrangements play a prominent role in labour-intensive industries such as clothing, in which traditional producers are under heavy competitive pressure from DCs. NEC is often preferred as a means to integrate DCs into the globalisation strategies of TNCs. Notwithstanding the general rise in NEC, FDI seems still to be the dominant feature as concerns the TNCs' engagement in industrialised countries.

Producers based in the EU, Japan and the United States all went global, though to a different degree and by different means. EU-based companies are lagging behind their major competitors in important industries such as car manufacturing. This cannot be attributed to European integration, however; the relocation of production at the regional level was typically at the expense of domestic production, while it hardly affected globalisation. All in all, the sector studies support the hypothesis that policy interventions are ineffective in halting the trend towards globalisation, which is, therefore, likely to continue.

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this region will affect activities in other parts of the world. By contrast, textile companies do not perceive that activities outside Europe will be affected.

117 First indications for such an engagement are the many subsidiaries and joint ventures that the largest European textile producer, Coats Viyella PLC, has established in Asia (Table A9).

V. The Effects of Globalisation on the Pattern of International Trade

The globalisation of economic activities implies an international fragmentation of production and a closer integration of markets. One indicator of this process is the strong increase in FDI flows as compared with trade flows and production that can be observed for approximately the last ten years. Chapters II and III have shown that this relatively new trend does indeed reflect globalisation, and not merely regionalisation. While it is true that FDI flows generally have a strong regional component, recent regional economic integration schemes in Europe and North America have not diverted FDI flows away from DCs, especially not from DCs in Southeast Asia.[118] Although FDI is not the only instrument that can be used to achieve a globalised production structure, rising FDI flows can be interpreted as a leading indicator of globalisation strategies, mainly because of strong linkages with other forms of international investment cooperation (Chapter III).

On the basis of these empirical findings, it is tempting to speculate about the likely consequences of globalised production strategies on international trade flows between countries and within industries and firms. The traditional pattern of international trade dealt with in standard textbooks is of the arm's length inter-industry type, i.e., it is mainly considered as the exchange of raw materials and manufactured products between otherwise unrelated parties. The magnitude of this type of trade is declining in relative terms, however, while other forms such as intra-industry and intra-firm trade, which highlight the role of intermediate products, have become more important. This chapter attempts to identify whether the structural change in the pattern of international trade can be related to globalisation strategies of TNCs.

Three main hypotheses will be advanced. First, it is argued that the trend towards globalisation should imply a positive correlation between bilateral FDI flows and trade flows. Globalised production means that firms are subdividing the production process, including all the necessary complementary services, in order to make use of international differences in locational comparative advantages. FDI flows and other forms of investment cooperation are needed to implement this strategy, and the respective trade flows necessary to sell a final product on world markets are likely to follow suit. Second, the trend towards

[118] For the effects of European economic integration on FDI flows and DCs, see Agarwal et al. [1994].

globalisation can be expected to result in the increase of intra-industry trade flows — not only among developed countries, but also between developed and developing countries — the reason for this being that geographical dissolution of the production process within an industry and the increase in the volume of intra-industry trade are two sides of the same coin. Accordingly, a third hypothesis is that the fraction of intra-firm trade flows could grow as a consequence of globalisation strategies. Intra-firm trade, however, is not necessarily of the intra-industry type, but may occur at the inter-industry level, too.

1. Trade and FDI Flows

Globalisation strategies of TNCs imply a distinct relation between international trade and FDI flows. FDI and other forms of investment cooperation are the instruments to implement an international partition of the production process and its accompanying services. The aim of this strategy is to make use of international differences in production costs for certain product-specific components. If so, the marketing of a final product requires international trade, mainly in intermediate products. As seen from a country perspective, total bilateral FDI flows could, therefore, be positively correlated with bilateral trade flows.

Yet globalisation strategies do not call for a unidirectional pattern of trade flows. International investors seeking to minimise production costs need not necessarily be the assembler of the final product, especially if this stage of the production process exhibits a low value-added content. Hence, depending on the specific product considered, bilateral FDI flows may be positively correlated with both exports and imports as a result of globalisation strategies.

Identifying a simple correlation between trade and FDI flows is a purely statistical exercise, while its interpretation requires an economic theory. In the theoretical literature, trade or trade imperfections are frequently considered to be determinants of FDI, and FDI, in turn, is sometimes considered as promoting international specialisation, i.e., trade. The snag is that it is not clear from a theoretical point of view whether a positive or a negative correlation between trade and FDI flows should be expected a priori.[119] Yet, without a well-formulated theory, it is difficult to interpret a given statistical correlation with regard to the direction of causality. Notwithstanding the more or less eclectic theoretical background, simple statistical correlations of bilateral trade and FDI flows

[119] For recent reviews of the theoretical literature, see, for example, Agarwal et al. [1991] and Stehn [1992].

may be used to give some hints on the empirical relevance of alternative interpretations.

The theory of optimal timing of FDI states that once a company has developed a certain market share by exporting to a foreign market, it is likely to become a foreign direct investor. This hypothesis implies that exports are a precondition of FDI and that causality runs from exports to FDI. As a consequence, it predicts a substitution of exports by output from the affiliated company, and, therefore, a negative correlation between exports and FDI flows. However, such a negative correlation between firm-specific trade and FDI flows need not necessarily reappear on the level of aggregate data: The establishment of a new company abroad might as well cause an increase in domestic exports as investment goods are exported to the foreign subsidiary. In this case, FDI would act as an engine of trade because of imputed complementarities. An alternative hypothesis is that a large fraction of FDI is directed towards the service sector in the host country in order to provide the necessary "infrastructure" for imports *and* exports of the home country, i.e., for a globalisation of production and markets. According to this hypothesis both aggregated FDI and trade flows are driven by a common set of factors motivated by globalisation strategies and may at the same time reflect the circumvention of trade barriers, complementarities between the establishment of foreign production capacities and specific investment goods, and the international fragmentation of production resulting in trade in intermediate goods. In that case, the search for causality from trade to FDI and vice versa would be entirely misleading.

Disregarding the question of causality, a positive correlation of bilateral national FDI flows, on the one hand, and exports and imports, on the other hand, would support the globalisation hypothesis. By contrast, the pure substitution hypothesis would imply a negative correlation between exports and FDI, and the augmented substitution hypotheses would imply a positive correlation with exports only, but not with imports.

The following analysis is confined to a purely statistical investigation of the relation between trade and FDI flows, thereby ignoring the issue whether FDI actually drives trade or is driven by trade. The question of interest is whether trade and FDI flows are positively or negatively correlated and whether such a correlation can be considered to be robust. To clarify this issue, recent bilateral trade and FDI data for three major suppliers of FDI (Germany, Japan, the United States) are examined. In each sample, other industrialised countries (including the two other home countries) and DCs represent the host countries. If a common pattern for all three sending countries can be identified, some generalisations seem to be possible. Therefore, first, we compare the correlation between trade and FDI flows for the three sending countries. Second, again

in a purely statistical sense, we check the robustness of this correlation by introducing an additional explanatory variable.

Table 13 presents simple cross-section correlation coefficients for bilateral trade and FDI flows for Germany, Japan and the United States for recent years. German and Japanese FDI flows to host countries, including developing and industrialised countries, are positively correlated in a statistically significant way with exports *and* imports to and from these countries; and the same broad picture holds for lagged FDI flows (one and two years, respectively). Hence, the higher contemporary and past FDI flows to foreign countries in absolute value, the higher German and Japanese exports to the host countries and the higher imports from these countries. This finding provides evidence against the substitution hypothesis and supports the globalisation hypothesis.

For the United States the statistical correlation between FDI and trade flows is much weaker. Two reasons can be considered for the different pattern of trade and FDI flows of the United States, on the one hand, and Germany and Japan, on the other hand. First, FDI flows of the United States are not only more volatile, but also have a different sectoral distribution as compared with the other two home countries. A relatively large part of US FDI flows focuses on the primary sector. While FDI in resource-based industries, such as mining and quarrying, and oil, amounts to about 2 per cent of total FDI in the case of Japan, and even less in the case of Germany, this share averaged about 5 per cent for the United States between 1981 and 1991, even excluding extreme years when it reached 75 per cent (1984) and 35 per cent (1987) [OECD, e]. Obviously, globalisation strategies do not aim at the primary sector. The relatively strong role of US FDI flows in this segment is, therefore, likely to distort the expected positive correlation of trade and FDI flows. In the case of the United States, a more appropriate test of the globalisation hypothesis would be to correlate trade flows with bilateral FDI flows for manufacturing industries rather than with total FDI flows. Yet sectorally disaggregated data on FDI flows by host countries are not available from official statistical sources.[120]

The second reason for the different patterns of FDI and trade flows is that US FDI also displays a different regional composition as compared with the other two home countries. Although all three investors focus on the OECD area as their main target of FDI, this share is lowest for the United States with about 65 per cent of total FDI, while the respective shares for Germany and Japan range between 70–80 per cent and more than 90 per cent [OECD, e]. With regard to remaining FDI flows, Japanese investors prefer the Asian region to

[120] OECD statistics report FDI flows either by regional *or* sectoral disaggregation; US statistics report disaggregated FDI *stocks* but not FDI flows.

Table 13 — Recent Trade and FDI Flows: Pearson Correlation Coefficients, 1989–1992[a]

FDI	Exports			Imports		
	t	t+1	t+2	t	t+1	t+2
			Germany			
1989	0.67**	0.66**	0.62**	0.63**	0.61**	0.61**
	(34)	(34)	(34)	(34)	(34)	(34)
1990	0.70**	0.67**	0.68**	0.66**	0.65**	0.66**
	(34)	(34)	(34)	(34)	(34)	(34)
1991	0.59**	0.60**	–	0.58**	0.58**	–
	(34)	(34)		(34)	(34)	
1992	0.72**	–	–	0.69**	–	–
	(31)			(31)		
			Japan			
1989	0.96**	0.95**	0.94**	0.89**	0.90**	0.89**
	(40)	(40)	(40)	(40)	(39)	(40)
1990	0.94**	0.93**	0.93**	0.90**	0.89**	0.88**
	(42)	(42)	(42)	(41)	(42)	(42)
1991	0.93**	0.93**	–	0.90**	0.89**	–
	(44)	(44)		(44)	(44)	
1992	0.93**	–	–	0.92**	–	–
	(42)			(41)		
			United States			
1989	0.19	0.20	0.19	0.07	0.09	0.07
	(37)	(37)	(37)	(37)	(37)	(37)
1990	0.41**	0.43**	–	0.32*	0.31	–
	(39)	(39)		(39)	(39)	
1991	0.35*	–	–	0.24	–	–
	(38)			(38)		

[a]In parenthesis: number of countries; t refers to contemporary trade and FDI flows; t+1 (t+2) refers to lagged (one and two periods) FDI flows; *(**): indicates statistical significance at the 5 per cent (1 per cent) level.

Source: IMF [b]; MOF [var. issues]; OECD [e]; Deutsche Bundesbank, unpubl. data.

Latin America by a factor of 2, while US investors prefer Latin America to the Asian region by a factor of 5; German investors also prefer Latin America, but less than US investors. Yet, FDI in Latin America is more likely to have been

determined by substitution motives to secure market shares in the wake of entry barriers and extremely volatile exchange rates [Agarwal et al., 1991].

Hence, both the sectoral and the regional specialisation of US investors can be expected to weaken the positive correlation between trade and FDI flows expected from the globalisation hypothesis. A similar reasoning could be applied for the case of Germany. The resulting effects should be smaller, though, because the share of German FDI flows directed to DCs is smaller than the US share and because German investors do not prefer as strongly as US investors Latin America as a host among DCs.

To get some information on the empirical relevance of sectoral and regional specialisation of US investors weakening the positive correlation between trade and FDI flows, the robustness of the previous trade-FDI correlation is tested by introducing an additional explanatory variable. As is almost self-evident, market size can be regarded as an additional important factor explaining trade patterns. Therefore, this variable should prove to be correlated with bilateral trade flows. From a statistical point of view, the question arises whether market size, as measured by gross domestic product (GDP) in the host country, or FDI flows have a larger statistical effect on trade flows. If globalisation strategies are the main driving force behind the trade-FDI correlation, market size should not have a dominating effect on trade flows. This hypothesis can be checked by regression analysis. Specifically, it can be checked whether FDI flows or the host country's GDP have a statistically larger effect on bilateral trade flows.

If globalisation strategies explain the positive link between FDI and trade flows, it follows that for Japan, with a sectoral and regional structure of FDI flows most compatible with globalisation, market size should not dominate the effect of FDI on trade flows. By contrast, if a larger fraction of FDI flows is devoted to resource-based industries and FDI flows show a regional pattern that is unlikely to be motivated by globalisation strategies in the first place, the effect of market size should dominate the effect of FDI. Such an outcome can be expected for the United States. For the case of Germany, something in between these two extremes should result.

Table 14 presents beta coefficients that were derived from a cross-country regression of bilateral exports (imports) on bilateral FDI flows and GDP in the host country.[121] The beta coefficients measure the change in exports (imports) in standard deviation units for a unit change in each explanatory variable in standard deviation units, holding constant the other variable. Since beta coefficients are independent of the units of measurement, they can be used to com-

[121] The detailed statistical results are presented in Table A10.

Table 14 — The Statistical Effect of FDI and GDP on Trade (Beta Coefficients), 1989–1992[a]

	Exports		Imports	
	GDP	FDI	GDP	FDI
		Germany		
1989	0.50*	0.44*	0.55*	0.37*
1990	0.50*	0.48*	0.54*	0.40*
1991	0.40*	0.55*	0.40*	0.53*
1992	0.31*	0.72*	0.30*	0.70**
		Japan		
1989	0.25*	0.68*	0.34*	0.49*
1990	0.22*	0.64*	0.31*	0.55*
1991	0.30*	0.59*	0.37*	0.48*
1992	0.31	0.59*	0.17	0.67*
		United States		
1989	0.56*	0.36*	0.68*	0.15
1990	0.39*	0.53*	0.45*	0.43*
1991	0.54*	0.29	0.55*	0.30

[a]Beta coefficients computed from a regression of exports (imports) on GDP and FDI flows; all variables in logs; annual data; *: indicates statistical significance at the 5 per cent level.

Source: IMF [b;c]; MOF [var. issues]; OECD [e]; Deutsche Bundesbank, unpubl. data.

pare the relative effect of the explanatory variables. The results are largely in line with a priori expectations. For a statistical explanation of bilateral Japanese trade data, FDI flows seem to be more important than market size. This finding strongly confirms the globalisation hypothesis. Not surprisingly, market size seems to be more important than FDI flows in most calculations for the United States. This finding means that given the data at hand, the globalisation hypothesis can neither be confirmed nor falsified for the United States. However, it cannot be concluded that globalisation is irrelevant for US investors, as the results for the United States, too, point to a positive correlation of FDI and trade flows. For Germany market size and FDI flows seem to be important determinants of trade, but the weight of FDI has increased in recent years.

The regression results can be taken as further evidence confirming the positive link between trade and investment flows. But they also demonstrate that there is no clear-cut pattern regarding trade and investment flows that can be

identified by a simple cross-section analysis. The different results for the three major investor countries indicate that the positive correlation between FDI and trade flows should be carefully interpreted. Obviously, other variables such as different productivity levels, different sectoral and regional preferences of investors, and the sometimes volatile character of FDI flows should be taken into account for a more comprehensive description of cross-country trade flows.

With these qualifications in mind, our findings support the consensus result of most empirical research in this field: FDI and trade flows are positively correlated.[122] Hence, the empirical evidence is in line with the globalisation hypothesis according to which both FDI and trade flows are driven by a common set of determinants. Rather than FDI causing trade or trade causing FDI in a unidirectional way, globalisation strategies determine the direction and extent of trade and FDI flows simultaneously. As a consequence, FDI is positively correlated not only with exports of home countries but also with exports of host countries. The emerging question is in which way globalisation strategies will change the pattern of international trade.

2. The Changing Pattern of World Trade

Between 1980 and 1991, the volume of international trade increased by 72 per cent. This increase was accompanied by a significant change in the structure of world trade: the share of manufactures in world trade increased from 50 to 70 per cent because of a growth rate of 140 per cent [UN, b].

The changing structure of international trade reflects the effects of globalisation strategies, which mainly focus on the manufacturing sector. It also underlines the potential adjustment problems that may result in industrialised countries. Growth and structural change necessarily go hand in hand. An increase in the number of competitive suppliers, which is suggested by the findings of the case studies in Chapter IV, means that established suppliers will have to increase their productivity to remain in business. This may happen either by an upgrading of production structures towards more technology-intensive and human-capital-intensive goods, or by cuts in labour costs which may have to be substantial in order to restore competitiveness. Yet, the competitive pressure prompted by the globalisation of production and markets will not only be felt in labour-intensive and physical-capital-intensive industries with fairly ubiquitous

[122] This result is also confirmed by a recent empirical analysis that focuses on extra-EU trade and investment flows [Greenaway, 1993].

technologies, but also in industries that were once thought to be relatively immobile internationally because of their high human capital requirements.

Since trade and FDI flows have grown considerably in recent years and are positively correlated for the three major suppliers of FDI, the world economy has become more integrated. Given that globalisation is a major reason for the positive correlation and is targeted on manufactures, there should be two distinct changes in the structure of world trade: one with respect to the regional pattern and the other with respect to the pattern of specialisation within manufacturing.

a. Changes in the Regional Pattern

An increasing interdependence of markets and production in different countries through trade in goods and services, cross-border flows of FDI and exchanges of technology should result in a catching-up of DCs in terms of per capita income, and, therefore, in a simultaneous increase in their share in world trade of manufactures. Those countries, however, that do not participate in globalisation because of protectionist policies, an unstable macroeconomic environment or an export supply focusing mainly on natural resources, can be expected to lose in terms of worldwide trade shares. This implies that the picture for DCs as a whole may be blurred, as the suggested trade gains for world-market-oriented DCs could be offset by those DCs experiencing severe adjustment problems during the last decade.

But globalisation strategies not only offer opportunities for closer economic cooperation between countries with different factor endowments and different per capita incomes. Increasingly fragmented production processes also offer the opportunity of closer economic cooperation between countries with similar factor endowments as large FDI flows within the Triad indicate. As we have shown before (Figure 3), there are substantial in- *and* outflows of FDI in the case of the United States and the EU, and there is a large amount of Japanese FDI flowing to these hosts. It can be argued that the Triad's share of world trade is unlikely to fall as long as globalisation strategies are largely confined to a relatively small number of competitive suppliers, and other potential hosts of international production have to cope with internal and external adjustment problems.

These considerations are confirmed by a comparison of the regional structure of world trade in manufactures in 1980 and 1991 (Table 15). The stylised facts are as follows. Intra-EU trade accounts for more than 25 per cent of world trade in manufactures. Trade within the Triad, i.e., trade between the EU, the United States and Japan contributes about 15 per cent to world trade. Trade of

the Triad with other industrialised countries such as Canada (in the case of the United States) or EFTA members (in the case of the EU) accounts for about 20 per cent. Taken together, more than 60 per cent of world trade in manufactures occurred between relatively rich countries in 1991. This fact is at odds with a simple factor proportion explanation of international trade.

Table 15 — The Regional Structure of World Trade in Manufactures, 1980 and 1991[a] (per cent of total world trade in manufactures)

	1980	1991
Intra EU	24.3	26.1
Intra Triad	12.3	14.5
Extra Triad		
with other developed countries[b]	21.6	20.5
with DCs[c]	25.8	25.6
Asian DCs[d]	10.3	16.3
Intra DCs	4.2	7.9
Intra Asian DCs[d]	1.7	5.8

[a]Trade among non-members of the triad and trade between these countries and DCs not reported. — [b]Including OPEC, Eastern Europe and USSR. — [c]Developing market economies, excluding OPEC. — [d]Excluding Middle East.

Source: UN [b].

In 1991, DCs' trade in manufactures with the Triad accounted for no more than 26 per cent of world trade; for DCs taken as a whole, this share has not increased since 1980. As was expected, this relative stagnation hides that DCs have followed very different economic developments during the last decade. Asian DCs have strongly increased their share in trade of manufactures with the Triad by 6 percentage points. Additionally, trade among Asian DCs has grown stronger than total intra-DC trade in manufactures. These relative gains by rapidly advancing Asian DCs has not occurred at the expense of the Triad's trade share, despite its high degree of integration already reached in 1980. To the contrary, the Triad's trade share increased by about 2 percentage points in 1980–1991, and the same applies to intra-EU trade.

In summary, the pattern of international trade has changed in a profound way over approximately the last 10 years. First, trade in manufactures between the most important industrialised countries further increased despite their relatively similar factor endowments and per capita incomes; therefore, this kind of trade is likely to be of an intra-industry type. Second, DCs from Asia have emerged as competitive suppliers on world markets. This trend may spread to

DCs in other regions, especially in Latin America, as many of them have embarked on economic reforms towards macroeconomic stability and trade liberalisation. As a result, a larger number of DCs may become integrated into globalisation strategies of TNCs. It is open to question, however, whether the resulting increase in trade will be of the more traditional inter-industry type alone, or also of the intra-industry type.

b. Changes in the Pattern of International Specialisation

According to standard economic textbook reasoning, an exchange of goods between countries with different factor endowments is most likely to be of the inter-industry type. By contrast, an increase in trade between countries with similar factor endowments is likely to be an exchange of differentiated goods that fall into the same product category (intra-industry trade). In the literature, various hypotheses are discussed that try to explain intra-industry trade.[123] Basically, preference diversity (product differentiation) and economies of scale are taken to be necessary and sufficient conditions for the generation of intra-industry trade. In contrast to standardised products, trade in differentiated products requires accompanying information on the very characteristics of the products. This seems to point to countries with high per capita incomes as the main players in intra-industry trade. Yet, as new technologies reduce the costs of information, globalisation strategies may cloud this clear-cut distinction. With technology and financial capital increasingly becoming mobile, DCs will not only be able to penetrate markets for standardised goods, but also for differentiated goods including intermediate goods where industrialised countries should possess a comparative advantage.

If so, the need for adjusting the production structure in industrialised countries is twofold: first towards upgrading the production structure in the case of inter-industry competition, and second, towards more product differentiation in the case of intra-industry competition. These adjustment pressures require a high degree of flexibility to avoid welfare losses and unemployment (Chapter VI). They will be felt most severely where trade expansion is mainly due to an increase in inter-industry specialisation. An example is the increased competition from low-cost suppliers in standardised goods. Such competition will raise the demand for protection of declining industries. Arguably, a move towards protectionism in these sectors will shift part of the adjustment burden towards sectors in which developed countries have comparative advantages. To circumvent existing or anticipated protectionistic practices of industrialised countries

123 For overviews, see, for example, Greenaway and Milner [1986] and Gray [1988].

for certain "sensitive" goods, DCs are more or less forced to compete on markets for more differentiated goods, which in turn is made possible by easier access to financial capital and technology.

Especially Asian DCs may increase their engagement in intra-industry trade, rather than exclusively relying on inter-industry specialisation. Globalisation strategies of TNCs can reasonably be expected to foster this development. As a result, competition in relatively technology-intensive and human-capital-intensive industries will increasingly occur in terms of the production costs of the least mobile factor. Correspondingly, competitive parameters related to the generation of differentiated products and the exploitation of scale economies will lose in importance as they will become fairly ubiquitous.

Together with the increase in trade in manufactures between industrialised countries, the growing role of Asian DCs should result in an overall increase of intra-industry trade. An empirical identification of such a trend is fraught with conceptual and statistical difficulties, though. The most popular concept to measure intra-industry trade is the Grubel–Lloyd index [Grubel, Lloyd, 1975]. If exports of a certain product category equal imports of that category, the Grubel–Lloyd index indicates 100 per cent intra-industry trade; and if either exports or imports equal zero, intra-industry trade does not exist, i.e., all trade is net trade.

The problem with this index is that if the total trade of a country is not balanced, the amount of intra-industry trade is underestimated. To adjust for the trade imbalance effect, Aquino [1978] has suggested a modified index by assuming that the balancing effect is equiproportional to all categories considered. Although this assumption can be questioned in the context of highly disaggregated analyses, for the present purpose of comparing rather broad product categories the Aquino index seems to be better suited than the Grubel–Lloyd index, and is, therefore, used in the following.

The identifying characteristic of intra-industry trade is two-way trade of products that are produced with equal factor intensities. Practically, the actual amount of intra-industry trade identified empirically depends on the chosen level of aggregation. The higher the level of aggregation, the higher the risk that intra-industry trade is overestimated, because within rather broadly defined categories not all goods will be produced with equal factor intensities. For example, inter-industry specialisation according to different factor intensities is likely to occur within the 2-digit standard international trade classification (SITC).

Even if the "true" amount of intra-industry trade is overestimated, there is evidence that the *ranking* of countries and industries according to the intensity of intra-industry trade is not very sensitive to the degree of industry disaggrega-

tion [Greenaway, Hine, 1991].[124] Hence, at the 2-digit SITC level, the level of intra-industry trade shown probably is too high, but changes in the share of intra-industry trade may be adequately captured. The focus of this analysis is on the changes of the share of intra-industry trade. Therefore, Aquino indices for selected SITC categories have been computed[125] at this level of disaggregation and compared with the results of previous estimates of intra-industry trade given in the literature.

Greenaway and Hine [1991] have found that there was a general and sustained increase in intra-industry trade among developed countries from 1970 to 1985. They measure intra-industry trade by the unweighted Grubel–Lloyd index for 28 manufacturing industries (SIC) of 22 OECD countries. The unweighted average index rose from 0.55 in 1970 to 0.59 in 1978 and 0.65 in 1985. This trend was broadly shared: 18 of the 22 countries increased intra-industry trade in 1970–78 and 19 in 1978–85. Taken as a whole, these findings provide evidence against the proposition favoured by Globerman and Dean [1990] that the expansion of intra-industry trade may have ended in the 1980s, which would contradict the hypothesis of increasing effects of globalisation on the pattern of international trade. The detailed results reported by Greenaway and Hine [1991] show, however, that the increase in intra-industry trade was much weaker in 1980–1985 than in the 1970s. Moreover, intra-industry trade for Japan and the United States seems to have declined in the first half of the 1980s, at least when measured by the Grubel–Lloyd index.

The latter qualifications notwithstanding, the globalisation hypothesis can be maintained. First, the first half of the 1980s was a period of exceptionally slow growth of world trade. Since intra-industry trade results from a simultaneous increase in exports and imports, a general slowdown of trade growth might be expected to retard the expansion of intra-industry trade, too. Therefore, the

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[124] For the case of Korea, Kim [1992] shows that the 3-digit level is a fairly appropriate level to measure the amount of intra-industry trade and that disaggregation below the 5-digit level does not reduce the measured volume of intra-industry trade.

[125] The formula used to compute the Aquino index is given by $Q_i = 1 - \frac{\left(X_i^e - M_i^e\right)}{\left(X_i^e + M_i^e\right)}$, where x_i and M_i are exports and imports of a given country in a specific product category i. As the correcting device, $X_i^e = X_i \cdot 1/2\left[\sum_i \left(X_i + M_i\right) / \sum_i X_i\right]$ and $M_i^e = M_i \cdot 1/2\left[\sum_i \left(X_i + M_i\right) / \sum_i M_i\right]$, i.e., the total multilateral trade imbalance, are used.

early 1980s were probably a very special period, which does not provide a reasonable basis for comparison. Second, the Grubel–Lloyd index tends to give downward biased results in case of trade imbalances. The early 1980s, which witnessed increasing trade imbalances among the Triad, provide a case in point. Applying the unadjusted Grubel–Lloyd index in such a situation results in an underestimated amount of intra-industry trade as compared with a period of balanced trade.

These considerations are largely confirmed by the results presented in Table 16. The share of intra-industry trade[126] for each member of the Triad is measured by Aquino indices. The index values should be interpreted in terms of changes over time in the first place. Additional insights may gained from the ranking between countries and between product categories within countries, whereas the absolute values are distorted because of the high level of aggregation. Although no clear-cut picture emerges from the computation, some features are worth mentioning.

Table 16 — The Triad's Share of Intra-Industry Trade in Manufactures, Selected Products, 1980–1992[a] (per cent of total trade of manufactures)

	EU			Japan			United States		
Product category	1980	1986	1991	1980	1986	1992	1980	1986	1992
Human-capital-intensive:									
Office machines	81.0	80.3	80.8	78.8	75.1	77.7	56.1	67.9	97.1
Road vehicles	91.7	93.9	96.4	19.1	23.7	42.0	64.2	67.4	76.2
Physical-capital-intensive:									
Chemicals and related products	97.5	97.6	94.7	37.2	32.8	52.5	61.8	53.5	67.3
Iron and Steel	95.5	95.6	94.7	44.1	82.8	94.2	50.9	33.8	65.5
Textiles	69.4	73.3	80.2	51.6	47.5	73.5	80.9	85.1	98.8
Labour-intensive:									
Clothing	76.0	83.5	78.5	12.2	9.3	3.5	27.1	16.5	27.4
Footwear	95.2	98.0	94.5	8.8	4.0	3.2	7.5	13.0	13.7
Unweighted average[b]	89.4	90.8	91.3	49.6	51.7	55.7	64.4	62.1	71.5
Standard deviation	7.5	7.8	6.9	29.3	30.4	29.9	23.1	24.5	23.5

[a]Aquino indices based on multilateral trade flows. — [b]Based on 35 product categories at the 2-digit SITC level.

Source: OECD [a].

The EU displays the highest level of intra-industry trade, followed by the United States and Japan. Japan has witnessed the strongest increase in intra-in-

126 SITC 5–8, excluding 68.

dustry specialisation in percentage terms and reveals the highest standard deviation, i.e., the largest difference in the amount of intra-industry trade between different product categories. The strong increase in intra-industry specialisation points to an extremely successful integration of Japan into the international division of labour. Hence, Japan's strong per capita income growth comes as no surprise. The increase of the Aquino index at a comparatively high level of standard deviation indicates that the trend towards intra-industry specialisation has not occurred across the board. More intra-industry specialisation seems to be concentrated on a specific set of products, while inter-industry specialisation apparently has continued in other product categories. There is a similar but less accentuated picture for the United States. Surprisingly, however, the EU displays a comparatively high and almost constant level of intra-industry trade, which is accompanied by a relatively low standard deviation.

Within manufactures, some distinct aspects with respect to globalisation of markets and production can be identified, at least for Japan and the United States. Globalisation strategies will affect intra-industry trade in different ways, depending on the factor intensity of the industries or product categories considered. In physical-capital-intensive industries such as the chemical industry, globalisation is likely to result in a considerable increase of intra-industry trade, because production processes can be relatively easily relocated on an international scale, which should result in an increase in trade intermediate products. For instance, basic production processes can be transferred to low-cost locations, whereas research and development activities may remain at locations that provide the necessary amount of human capital.[127] These properties explain why such industries are increasingly engaged in intra-industry trade. Especially in the chemical industry, they also explain the large sectoral FDI flows among members of the Triad, which are seemingly directed at capturing R&D capacities.

Production and R&D activities are more closely interrelated in human-capital-intensive industries. Therefore, globalisation strategies in these industries may have a tendency to substitute trade by overseas production, as seems to be the case for Japanese FDI in car manufacturing (Section IV.1). Such a strategy would possibly amount to a decrease of intra-industry trade if measured at a highly disaggregated level. However, no declining trend in intra-industry trade can be observed for relatively human-capital-intensive product categories when they are broadly defined as in Table 16:[128] for the United States, the share of

[127] If these industries are also resource-intensive, there are some natural limits for a further increase of intra-industry specialisation.

[128] It should be noted that the 2-digit SITC category *road vehicles* as given in Table 16 includes, for example, motor vehicles for the transport of passengers, motor vehicles for the transport of goods or materials, motor busses, tractors, motor cycles

intra-industry trade has substantially increased for both office machines and road vehicles; for Japan, the share of intra-industry trade in road vehicles has more than doubled.

FDI has been the dominating instrument of globalisation in both human-capital-intensive and physical-capital-intensive industries, though increasingly complemented by non-equity forms of investment (Chapter IV). Intra-industry trade is then likely to gain in prominence as long as FDI flows are not purely motivated by protectionist trade measures of host countries. The positive correlation between FDI and trade flows also supports this interpretation. By contrast, NEC figures prominently in the globalisation of labour-intensive industries such as clothing (Section IV.3). The effect on intra-industry trade remains highly ambiguous under such conditions.

Globalisation will result in inter-industry specialisation, rather than in intra-industry trade, if foreign subcontractors supply finished labour-intensive goods in the first place. Japan's extremely low and declining shares of intra-industry trade in labour-intensive industries are a case in point (Table 16). Subcontracting was extensively used by trading companies (sogo shosha), which procure finished goods rather than being engaged in intra-industry trade. Moreover, subcontracting contributed to the replacement of Japanese clothing exports at an early stage of globalisation, after such exports raised the resistance especially of US producers (Figure 12). EU countries represent the opposite extreme. Countries such as Germany and Italy remain leading exporters of clothing.[129] Intra-industry trade was high for two reasons. Production and exports of Italy and France moved into the higher quality/fashion segment of the industry, while more standardised clothing products were imported. In Germany, offshore processing was of an overriding importance, which results in considerable intra-industry trade by its very nature.

The results for the EU suggest that, measured by Aquino indices, there was not much change in the pattern of intra-industry trade in manufactures between 1980 and 1991. Hence, it may be tempting to argue that globalisation is less relevant, and what matters for the EU is regionalisation and the pattern of intra-EU trade. This impression is misleading, however. The example of clothing provided a first indication to the contrary, and further insights may be gained from a more disaggregated analysis of trade flows.

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and the respective parts and components. By contrast, Section IV.1 was confined to passenger car manufacturing.

129 In 1991, Germany and Italy together accounted for about half of the EU exports of clothing, which roughly equals one sixth of world exports (16 per cent). This is a little bit higher than Hong Kong's share of world exports of clothing and more than twice the share of South Korea. The United States accounted for about 2.5 per cent of world exports of textiles [UN, b; d].

Table 17 highlights intra- and extra-EU trade in manufactures. The structure of EU trade with the rest of the world apparently does not fully match factor endowments, but can at least partly be explained by the interplay of EU trade policies and globalisation strategies. Relatively human-capital-intensive products increasingly dominate extra-EU imports, and trade in standardised "sensitive" products is larger in absolute value in intra-EU trade than in extra-EU imports. Intra-EU trade and extra-EU imports of manufactures have grown faster than the volume of extra-EU exports, thereby providing opportunities for competitive suppliers from third countries on the one hand and increasing competitive pressures on EU markets for more differentiated goods on the other.

Table 17 — EU Trade of Manufactures, 1980, 1986 and 1992[a]

	Total	Machinery, transport equipment	Chemicals	Iron and steel	Clothing and textiles
			Intra-EU trade[b]		
1980	166,187	67,809	25,569	12,228	17,227
1986	195.8	211.3	195.2	153.8	194.3
1992	323.4	381.9	311.0	194.8	271.3
			Extra-EU exports		
1980	170,211	84,154	23,228	11,924	10,000
1986	160.4	158.8	161.2	125.8	189.9
1992	211.4	214.5	233.4	110.1	245.8
			Extra-EU imports		
1980	99,313	37,853	11,374	5,263	14,091
1986	178.6	208.3	186.1	126.3	145.3
1992	316.9	386.3	298.0	164.2	270.6

[a]1980 in million ecus; 1986 and 1992 in per cent. — [b]Intra-EU exports (fob).

Source: EUROSTAT [var. issues].

By and large, the share of extra-EU imports of manufactures in total EU trade in manufactures remained constant between 1980 and 1992 (Table 18). Most notably, there is no decline in the share of extra-EU imports of manufactures despite the EU enlargement in 1986. Similar to the findings based on Table 15, however, the relative stability of extra-EU import shares hides recent changes in international competitiveness among external suppliers.

Among extra-EU suppliers of manufactures, DCs as a whole have increased their share since 1986. Correspondingly, the United States have lost their leading position as the largest extra-EU supplier of manufactures. Thus, not only Japan but also DCs have established themselves as serious competitors on EU markets during the last decade. Within manufactures, their largest relative gain can be observed in the fastest growing segment: for relatively human-capital-intensive products such as machinery and transport equipment. This development may have been indirectly supported by EU trade policies in "sensitive" products, where market access for low-cost suppliers was restricted or de facto prohibited. Differential factor endowments were denied their role as an engine of trade, and as a consequence, DCs have been forced to focus on product categories with less restrictive market access. It is just in these relatively human-capital-intensive product categories, where industrial countries were once thought to possess a comparative advantage, that DCs, not least thanks to globalisation strategies, are increasingly gaining market shares.

A further regional disaggregation of EU imports from DCs makes clear that the most successful competitors in human-capital-intensive goods are located in East Asia, with the Asian NIEs as frontrunners and China and Southeast Asia as followers (Table 18). By contrast, suppliers from ACP-countries, South Asia and Latin America have not been able to increase their import shares on EU markets in this product category. Their exports to the EU mainly consist of physical-capital-intensive and labour-intensive products, as well as agricultural products. The recent return of Latin America as a major host of FDI flows may change this picture in the future, when macroeconomic stabilisation and structural adjustment will have made the region internationally competitive. The same reasoning may apply for South Asian countries and especially for India if reforms are sustained.

Turning to the export side, the share of extra-EU exports in total EU exports of manufactures declined between 1980 and 1992. At present, roughly 60 per cent[130] of EU exports of manufactures remain within the EU (Table 19), up from 50 per cent a decade ago. This indicates that the scope for further intensification of intra-EU trade is limited. This aspect should be borne in mind when assessing future redirections of worldwide FDI flows towards the manufacturing sector of the EU, for example, as a consequence of regional integration. The fact that the bulk of EU exports is already directed to member countries may constrain the Single Market effects to be realised through further intensification of intra-EU trade, which might require additional FDI. This is another

[130] This share is similar to the figure for the share of world trade in manufactures between all industrial countries (see Table 15).

Table 18 — The Regional Structure of Extra-EU Imports of Manufactures, 1980, 1986 and 1992 (per cent)

		Total	Machinery, transport equipment	Chemicals	Iron and steel	Clothing and textiles
Extra-EU imports[a]	1980	37.2	35.8	28.8	29.3	45.0
	1986	34.8	35.4	27.2	25.6	38.1
	1992	36.3	35.6	28.1	26.4	44.4
thereof:[b]						
United States						
	1980	24.9	35.6	33.2	6.5	8.1
	1986	22.4	29.7	28.8	2.9	3.7
	1992	21.2	27.1	28.3	3.3	4.0
Japan	1980	11.7	20.5	4.5	7.7	2.5
	1986	18.3	30.8	6.5	5.7	3.9
	1992	16.1	26.2	7.7	3.4	2.1
DCs[c]	1980	16.5	7.7	10.5	10.6	45.2
	1986	17.2	10.1	12.2	12.7	48.0
	1992	21.4	17.0	11.7	12.4	48.6
thereof:[d]						
ACP	1980	5.8	3.1	39.3	0.1	2.0
	1986	5.8	1.9	17.2	10.1	3.3
	1992	5.4	3.5	7.9	10.5	3.9
Asia						
Asian NIEs[e]	1980	47.9	59.1	4.5	15.6	46.3
	1986	48.5	66.7	8.1	9.9	45.0
	1992	42.6	59.3	19.4	17.7	26.7
China	1980	5.6	0.5	14.7	0.1	6.8
	1986	8.0	1.3	14.6	1.0	12.1
	1992	22.1	11.1	18.9	3.2	23.2
South Asia[f]	1980	10.2	1.5	2.4	0.4	15.6
	1986	9.1	1.4	2.7	0.9	15.6
	1992	9.6	1.4	6.7	5.2	22.7
Southeast Asia[g]	1980	6.7	8.8	2.0	1.9	6.4
	1986	8.1	9.1	2.5	2.3	8.3
	1992	16.5	14.6	4.5	2.8	18.0
Latin America	1980	11.4	14.3	22.9	34.8	7.6
	1986	11.3	11.1	25.7	61.5	5.5
	1992	9.2	9.2	25.2	48.4	3.8

[a]Per cent of total EU imports. — [b]Per cent of extra-EU imports. — [c]Class 2 according to EU definition. — [d]Per cent of extra-EU imports from DCs. — [e]Hong Kong, Singapore, South Korea, Taiwan. — [f]Bangladesh, India, Nepal, Pakistan, Sri Lanka. — [g]Indonesia, Malaysia, Philippines, Thailand.

Source: EUROSTAT [var. issues].

Table 19 — The Regional Structure of Extra-EU Exports of Manufactures, 1980, 1986 and 1992 (per cent)

		Total	Machinery, transport equipment	Chemicals	Iron and steel	Clothing and textiles
Extra-EU exports[a]	1980	50.6	55.4	47.6	49.4	36.7
	1986	45.6	48.2	42.9	44.4	36.2
	1992	40.1	41.1	40.5	35.5	34.5
thereof:[b]						
USA	1980	12.0	13.0	8.7	10.4	7.4
	1986	22.2	24.6	14.2	17.5	17.5
	1992	17.1	18.3	15.5	14.5	10.8
Japan	1980	2.0	1.5	3.7	0.2	4.4
	1986	3.2	2.2	6.2	0.5	4.9
	1992	4.6	3.7	7.1	0.7	7.0
DCs[c]	1980	38.3	42.3	36.3	35.2	26.9
	1986	30.9	31.8	35.4	28.1	20.4
	1992	34.9	36.9	34.0	40.6	27.2
thereof:[d]						
ACP	1980	17.7	17.6	20.5	14.9	18.0
	1986	14.4	15.3	14.6	12.0	14.1
	1992	10.7	11.5	10.8	11.2	8.6
Asia						
Asian NIEs[e]	1980	7.4	7.0	8.5	2.7	7.7
	1986	12.2	11.4	14.6	7.7	14.3
	1992	18.3	17.1	20.3	13.0	22.0
China	1980	2.3	2.2	4.2	5.3	1.0
	1986	6.8	8.8	3.8	21.6	0.7
	1992	4.8	6.8	3.5	7.0	0.9
South Asia[f]	1980	4.5	4.2	5.6	7.4	1.0
	1986	7.9	8.1	6.2	14.2	1.6
	1992	5.3	4.3	5.6	7.9	1.3
Southeast Asia[g]	1980	4.6	5.6	5.7	2.2	1.1
	1986	5.1	6.1	6.3	2.2	1.8
	1992	8.7	10.5	8.5	6.3	2.8
Latin America	1980	17.5	18.7	20.6	20.3	9.1
	1986	16.9	18.3	20.6	17.8	8.2
	1992	17.2	19.3	19.7	15.0	9.3

[a]Per cent of total EU exports. — [b]Per cent of extra-EU exports. — [c]Class 2 according to EU definition. — [d]Per cent of extra-EU exports to DCs. — [e]Hong Kong, Singapore, South Korea, Taiwan. — [f]Bangladesh, India, Nepal, Pakistan, Sri Lanka. — [g]Indonesia, Malaysia, Philippines, Thailand.

Source: EUROSTAT [var. issues].

reason why globalisation strategies are unlikely to be given up by EU companies in favour of regionalisation strategies.

A further regional disaggregation of EU exports to DCs reveals striking differences between subgroups of DCs (Table 19). EU exports of manufactures to the ACP countries continuously declined in relative terms in 1980–1992, reflecting the deep economic crisis of most of these countries. By contrast, EU exports to Asian NIEs and to Southeast Asia (and to Japan) continuously increased during the same period, highlighting strong economic growth in this region. Relative exports to South Asia and China increased in the first half of the 1980s and fell moderately afterwards. The experience of Latin America with respect to EU exports can be best described by relative stagnation.

Taken together, there is little empirical support for the hypothesis that an increase in intra-EU trade will generally worsen the competitive position of DC suppliers on EU (and home) markets. Although FDI growth and an increase in intra-EU trade flows seem to go hand in hand, as is suggested by the empirical results in Section V.1, this does not necessarily mean that firms within the EU have gained a competitive edge. Both aspects may reflect protectionist threats rather than improved productivity, thereby having no negative effect on extra-EU suppliers on third markets and their attractiveness for equity capital. Even if the productivity of European firms increases as a result of the Single Market programme, suppliers from outside the EU who will be able to respond in a flexible way do not have to fear an erosion of market shares or a loss of FDI inflows. Especially East Asian DCs have emerged as successful competitors in recent years even in relatively human-capital-intensive product categories despite an increase of FDI inflows to the EU and a substantial increase of intra-EU trade. Hence, they are likely to play an important role in the globalisation strategies of TNCs in the future as well.

c. Japan's Trade with Its Asian Neighbours

The increasing competitiveness of Asian DCs is also reflected in the development of their trade in manufactures with Japan (Table 20). Almost all Aquino indices computed for Japan's trade with its Asian neighbours are higher than for Japan's total trade in manufactures (Table 16). The two exceptions are road vehicles and clothing. Yet even for road vehicles, the increase in intra-industry trade with Asian DCs during the last decade has been similar to the increase in Japan's total intra-industry trade in this product category. Almost no intra-industry trade between Japan and Asian DCs exists in clothing. Contrary to its overall trade surplus, Japan is running a large trade deficit in clothing with the Asian DCs. Hence, Japan's trade structure with rapidly growing DCs is heading

towards intra-industry specialisation in relatively physical and human-capital-intensive goods, while inter-industry specialisation prevails in labour-intensive product categories. While the former trend was also observed in the EU, the latter observation contrasts sharply with the evidence for the EU.

Table 20 — Japan's Intra-Industry Trade in Manufactures with Asian DCs[a], Selected Products, 1983 and 1991[b]

Product category	1983	1991
Human-capital-intensive:		
Office machines	0.55	0.81
Road vehicles	0.13	0.31
Physical-capital-intensive:		
Chemicals and related products[c]	0.67	0.71
Iron and steel	0.94	0.96
Textiles	0.74	0.98
Labour-intensive:		
Clothing	0.03	0.02
Footwear	0.08	0.05

[a]Hong Kong, Indonesia, Malaysia, Philippines, Singapore, South Korea, Thailand. — [b]Aquino indices based on multilateral trade flows and a 2-digit level of disaggregation. — [c]Unweighted average for 2-digit product categories.

Source: UN [e].

An obvious reason for Japan's above average share of intra-industry trade in manufactures with Asian DCs is lower transportation costs compared with other locations. Still, there must be more to it because Asian DCs have very different factor endowments and demand structures than Japan, as can be concluded from the relatively large differences in per capita incomes. The globalisation hypothesis helps to fill this gap. The international fragmentation of production processes of differentiated goods requires foreign investors to maintain a certain degree of control (see also Section III.1). Therefore, FDI is the preferred mode of globalisation in human and physical-capital-intensive industries. A simultaneous increase of intra-industry trade is then likely to occur. By contrast, NEC dominates in industries with highly standardised production processes. Transaction and information costs are relatively low, and control by foreign investors is required less urgently. The emerging trade patterns may then be of the intra-industry type or of the more traditional inter-industry type, depending on the specific globalisation strategies pursued. For instance, in the EU, production processes were internationally fragmented in labour-intensive indus-

tries as well. Japan followed a different development. Production in labour-intensive industries was relocated as a whole. As a result, an intra-industry specialisation in labour-intensive industries emerged in the case of the EU, while Japan reveals an inter-industry specialisation.

3. From Intra-Industry to Intra-Firm Trade?[131]

Besides FDI and intra-industry trade, *intra-firm* trade is an integral part of the process of globalisation of economic activities. Intra-firm trade can best be understood as basically reflecting integration of vertically linked activities within a firm across national borders [Sleuwaegen, Yamawaki, 1991]. When upstream and downstream activities are optimally located in different countries, vertical integration can be expected to lead to the development of TNCs. Following this line of reasoning, five basic motives for vertical integration are described in the literature:[132] optimal appropriation of quasi rents from the exploitation of firm-specific assets, avoiding incomplete contracts, eliminating abuse of sequential and discriminatory market power, obtaining implicit insurance and minimising transaction costs. Typically, these motives occur in technology-intensive and human-capital-intensive industries, where transactions are related to the handling of intangible assets or complex differentiated goods and services.

Apart from possible market imperfections that give rise to the development of TNCs especially in technology-intensive and human-capital-intensive industries, there also exist a number of government created imperfections that encourage vertical integration, such as international differences in tax rates and tariffs, licensing or investment regulations and local content rules, or international differences in the macroeconomic environment created by diverging national economic policies. TNCs can exploit or circumvent these international differences by intra-firm trade with transfer prices differing from arm's length trade prices. As a consequence, intra-firm trade strategies by TNCs may lead to trade behaviour different from market transactions between independent firms.

Market imperfections, government interventions and high transaction costs provide incentives for the replacement of market transactions by internal transactions within TNCs. Intra-firm trade opens up the possibility to derive benefits from savings in transaction costs and a freer flow of information within an organisation than across markets. These potential benefits have generated the

131 This section heavily draws on Bonturi, Fukasaku [1993a; 1993b].

132 See, for example, Blair, Kaserman [1983].

practise of production sharing, i.e., letting parent and subsidiaries in each country contribute to the final product according to the different cost structures in the countries in which they are located. As a result, such a combinatory method of manufacturing could be expected to increase the amount of intra-firm trade.

However, the recent increase in globalisation highlighted by soaring FDI flows is not a sufficient condition for an increase in intra-firm trade. Declining transaction and information costs and a more stable macroeconomic environment, which drive globalisation in the first place, may actually reduce the incentives for intra-firm trade, as natural and government created market imperfections lose in importance. Put differently, an increase in intra-firm trade is more likely under the conditions of macroeconomic instability,[133] or as a response to government interventions attempting to regulate TNC investment and trade operations. The rising importance of NEC as compared with FDI (Chapter III) is also a reason for globalisation proceeding without an increase in intra-firm trade, since trade resulting from non-equity forms of investment cooperation will be identified as arm's length trade. Hence, it is not self-evident that the trend towards globalisation necessarily implies a trend towards intra-firm trade. Notwithstanding, various aspects of globalisation strategies discussed so far should show up in the structure of trade between parent companies and their affiliates.

Up to now, relatively little is known about the empirical relevance of intra-firm trade, however. The simple reason is that most international trade statistics do not distinguish between intra-firm trade and arm's length trade. The available empirical evidence on intra-firm trade is confined to firm survey data for the United States and Japan. These data have been summarised and interpreted by Bonturi and Fukasaku [1993a; 1993b]. Major results are presented in the following.[134]

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133 As an example, intra-firm trade seems to be less responsive to exchange rate movements than arm's length trade, as can be seen from the experience of US-based TNCs during the last decade. Despite the strong changes in the real exchange rate of the dollar, the share of US-based TNCs' transactions with their foreign affiliates in total US merchandise trade was relative stabile over the whole period. By contrast, their trade with non-affiliated foreigners showed a relative decline during a strong dollar period (1982–1985) and a moderate recovering as the dollar weakened [Bonturi, Fukasaku, 1993a].

134 In these studies, in both Japan and the United States, a company is defined as an affiliate if the "parent" company owns 10 per cent or more of its voting stock. If the parent company owns more than 50 per cent of the voting stock, the affiliate company is considered a subsidiary of the parent company, and called a majority-owned affiliate (MOFA). Notwithstanding, in the following text the terms affiliate and subsidiary are used interchangeably.

Exports and imports of TNCs have a large weight in international trade. US data indicate that some 80 per cent of the country's external trade (exports to imports) was undertaken by TNCs in 1989, including parent TNCs based in the United States, their affiliates located in foreign countries, and affiliates of foreign TNCs located in the United States [UNCTC, e]. Not all of the trade associated with TNCs is intra-firm trade, however. For TNCs based in the United States, the United Kingdom and Japan, intra-firm trade is less important than trade with non-affiliated companies. For example, intra-firm exports associated with all TNCs, i.e., exports of parents and foreign owned affiliates together, accounted for about one-third of total trade in these countries in 1985 [Sleuwaegen, Yamawaki, 1991].

Table 21 shows that in the case of the United States, the share of intra-firm exports and the share of intra-firm imports in total trade were roughly stable between 1977 and 1989. Hence, the overall share of intra-firm trade did not increase between 1977 and 1989, despite the undeniable trend towards globalisation. The fairly stable intra-firm import share disguises two diverging developments, though. Imports by affiliates located in the United States from their foreign parents increased by almost 6 percentage points between 1977 and 1989, while the imports of US parents from their foreign affiliates declined.

Table 21 — US Intra-Firm Trade, 1977, 1982 and 1989[a] (per cent)

	Intra-firm exports[b]			Intra-firm imports[c]		
	Total	By US parents to their foreign affiliates	By affiliates located in the US to their foreign parents	Total	By US parents from their foreign affiliates	By affiliates located in the US from their foreign parents
1977	35.8	26.3	9.5	39.5	20.3	19.2
1982	33.1	21.5	11.6	36.7	16.3	20.4
1989	33.5	24.5	9.0	41.4	15.4	26.0

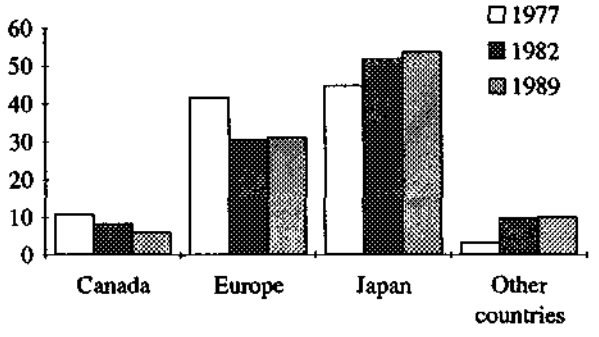
[a]The data refer to non-bank US parents and affiliates and their foreign non-bank trading partners. — [b]In per cent of total US merchandise exports. — [c]In per cent of total US merchandise imports.

Source: Based on Bonturi, Fukasaku [1993a; 1993b].

Most of the increase in purchases of affiliates located in the United States from their foreign parents was attributable to increased economic activity by firms from Japan and "other countries" (Figure 15), where the latter mainly re-

flects purchases from South Korean parents. Figure 15 shows how the structure of intra-firm imports of affiliates in the US changed over time: the share of Canadian and European parents declined, and the share of Japanese and "other" (Korean) parents rose. This change in the regional structure of intra-firm imports by foreign-owned affiliates in the United States mirrors the increased competitiveness of Asian suppliers in a number of industries that are especially relevant for intra-firm trade, as can be highlighted by a comparison of US and Japanese intra-firm trade data.

Figure 15 — Intra-Firm Imports of TNC Affiliates in the United States, by Major Parent Countries, 1977, 1982 and 1989 (per cent)[a]



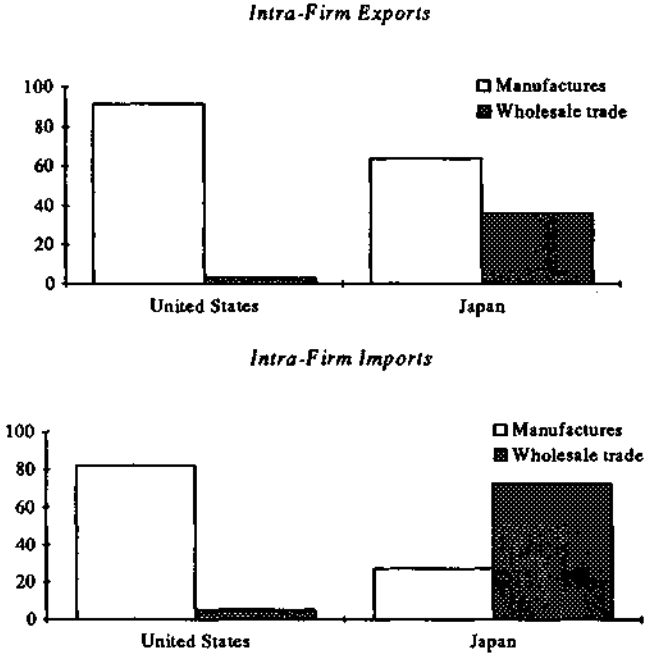
[a]Total intra-firm imports by foreign affiliates located in the United States equal 100 per cent.

Source: Based on Bonturi, Fukasaku [1993a].

In the case of Japan, the coverage of the firm survey data is limited, both across firms and over time. Therefore, the Japanese data are not fully comparable with the US data. Notwithstanding, some discrepancies are worth mentioning. Figure 16 shows the sectoral structure of intra-firm exports and imports of parent firms based in the United States and in Japan. US-based TNCs (parents) almost exclusively focus on intra-firm exports and imports of manufactures, while wholesale trade activities account for no more than 10 per cent of their exports and imports to and from affiliates in foreign countries. By contrast, Japanese parents exhibit a more balanced structure of their intra-firm exports and a reverse structure of their intra-firm imports: wholesale trade activities account for more than two thirds of the intra-firm imports of Japanese parents. Bonturi and Fukasaku [1993b] argue that the large percentage share of whole-

sale trade of Japanese TNCs reflects the significance of corporate networks established by Japanese trading firms, which are both an intermediary and an organiser of global chains of production and marketing operations (see Section IV.3 on textiles). Their major task is to handle various primary commodities and manufactured goods usually produced by small and medium-sized firms in various industries at home and abroad.

Figure 16 — The Sectoral Structure of Intra-Firm Trade[a], 1989 (per cent)



[a]Sectoral exports and imports of parents based in the United States and Japan to and from their foreign affiliates; in per cent of total trade between parents and affiliates.

Source: Based on Bonturi, Fukasaku [1993a; 1993b].

Taking a somewhat broader look at the sectoral structure of TNC trade, Table 22 reveals that intra-firm trade as compared with arm's length trade in both the United States and Japan focuses on relatively technology-intensive and human-capital-intensive industries such as electrical and non-electrical machinery and transport equipment. In these industries, the intra-firm trade ratios, i.e., the

trade between parents and affiliates as a share of total trade of parents, are generally much higher than in physical- and labour-intensive industries, with exports of US-based TNCs in the chemical industry being an exception.

Table 22 — Intra-Firm Trade by Industry, 1989[a]

	Exports shipped to foreign affiliates		Imports shipped from foreign affiliates	
	By US parents	By Japanese parents	By US parents	By Japanese parents
Manufactures	44.5	41.1	58.9	30.9
Chemicals	48.0	21.9	34.1	9.8
Food and beverages	16.2	19.0	28.0	14.7
Electric and electronic equipment	36.9	50.9[b]	41.2	35.8[b]
Machinery, excluding electrical machinery	61.3	43.8[c]	75.1	33.7[c]
Transportation equipment	48.3	41.1	70.3	36.0
Wholesale and retail trade	9.2	24.4	9.8	28.3

[a]Intra-firm trade ratio, defined as the share of exports (imports) shipped to (from) affiliates in total exports (imports) of parents. — [b]Electrical machinery. — [c]General machinery.

Source: Based on Bonturi, Fukasaku [1993a].

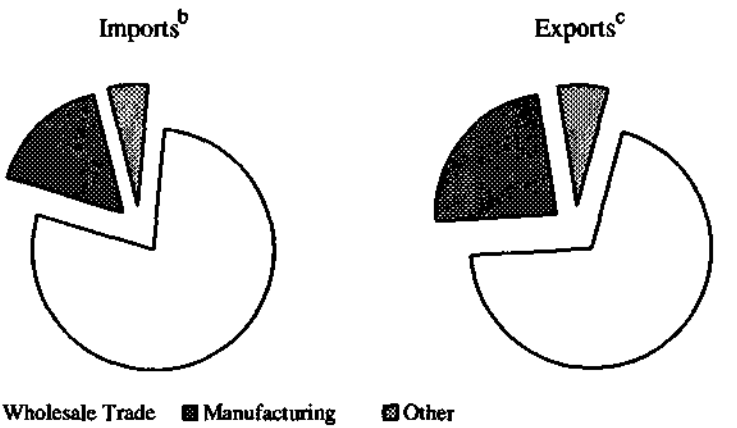
This finding supports the earlier hypothesis that globalisation strategies may follow alternative approaches: FDI and the ensuing intra-firm trade dominate in relatively human-capital-intensive industries, where the international fragmentation of the production process very often requires the handling of firm-specific assets such as basic R&D. The coordination of such transactions may be achieved more easily within an organisation than across markets. All other things being equal, FDI flows and intra-firm trade flows seem to be less useful in the case of less complex activities, which are typical for relatively labour-intensive industries, where non-equity forms of international investment cooperation prevail.

The major difference between TNCs based in the United States and in Japan is that for US parents the intra-firm import ratio is higher than the export ratio, whereas for Japanese parents, the intra-firm export ratio is higher than the import ratio. While US parent firms seem to rely more heavily on global sourcing *from* their affiliates, Japanese parent firms apparently tend to export parts,

components and services *to* their affiliates for final assembly and marketing. Whether this finding can be interpreted as reflecting a somewhat more advanced stage of globalisation of US-based TNCs or the reaction of Japanese TNCs to protectionistic measures in host countries, is an open question.

Changing the perspective from the trade pattern of parent firms to the trade pattern of affiliates of foreign-owned parents located in the United States[135] reveals that most of their intra-firm imports and exports are related to wholesale trade activities (Figure 17). A large fraction of these wholesale trade activities is attributable to the distribution of motor vehicles and equipment by Japanese and Korean TNCs. Manufacturing activities account for no more than about one-sixth of total intra-firm sales from foreign parents to US affiliates. This trade pattern reflects that intra-firm trade in the United States tends to concentrate on industries that produce complex manufactures requiring after-sales services. As a consequence, these products are mainly marketed through wholesale subsidiaries of foreign TNCs.

Figure 17 — Intra-Firm Trade by Affiliates in the United States with Their Foreign Parents, 1987[a]



[a]Merchandise trade associated with non-bank affiliates located in the United States. — [b]Imports shipped to affiliates located in the United States by their foreign parents. — [c]Exports shipped by affiliates located in the United States to their foreign parents.

Source: Based on Bonturi, Fukasaku [1993a].

135 Comparable data for the trade pattern of affiliates of TNCs in other countries than the United States are currently not available.

Summarising, the case of the United States reveals that intra-firm trade amounts to a substantial fraction of total merchandise trade and is highly concentrated in relatively human-capital intensive industries like machinery and transport equipment. FDI in wholesale trade and distributional services seems to be an important precondition for the promotion of intra-firm trade, as is shown by the trade pattern of affiliates of foreign parents, notably affiliates of Japanese and Korean TNCs located in the United States. The positive correlation between bilateral trade and FDI flows discussed in Section V.1 also fits into this picture. Generally increasing FDI flows do not necessarily imply generally increasing intra-firm trade, however. In many industries, the internationalisation of markets and production can be expected to proceed through arm's length trade as well, as long as the macroeconomic environment remains fairly stable, information and transaction costs decline due to technology improvements, and economic policies, especially in DCs, are changed in favour of openness and become more reliable.

As a rough guideline, three distinct cases can be considered. For highly complex manufactures, globalisation strategies are likely to require substantial FDI and intra-firm trade flows. For less complex manufactures, globalisation strategies seem to result in an intra-industry specialisation, leaving open the actual form of international investment cooperation. Depending on the form of investment cooperation actually chosen, the resulting trade flows are likely to be identified as intra-firm trade in the case of FDI and inter-firm trade in the case of NEC. For fairly standardised products, globalisation strategies are apparently based on non-equity forms of international investment cooperation. Therefore, the resulting trade flows are most likely to be of the inter-firm type, leaving open the specific kind of industry specialisation in the pattern of trade. Still, there is a common theme for all different globalisation strategies. In a world economy heading towards integration of factor and goods markets, the relative wage of the least mobile and least qualified factor of production, i.e., low-skilled labour, will tend to decline. At least this is what standard trade theory would predict: an increase in the international division of labour between countries with different per capita incomes tends to reduce the wage of the relatively scarce factor in the rich countries, because globalisation increases its worldwide supply.

VI. Globalisation and Relative Wages in Advanced Countries

Globalisation of production and markets implies an increase in the international division of labour, which is welfare-improving through a more efficient allocation of resources. This means that in many countries, new opportunities for production and employment emerge, enabling incomes to rise and standards of living to increase. Yet, a more efficient allocation of resources requires structural change. Producers in the United States and the EU increasingly face international competition from two sources: from low-cost labour areas and from Japan, which has taken the technological lead in many product categories in recent years. Hence, competition within the Triad has intensified in a direct way because of technological catching-up and overtaking by Japan, and in an indirect way because of emerging highly flexible and productive suppliers in East and Southeast Asia.

Differences in the speed of adjustment to changing world market conditions and in the capability to generate and apply new technologies have produced competitive pressures especially for the laggards within the Triad. At the same time, more competition has opened up new possibilities to expand international market shares and to exploit market niches. As a consequence, firms have been forced to implement globalisation strategies. Booming international investment cooperation has been the result.

As was shown in the preceding chapters, the Triad continues to account for the bulk of trade and FDI flows. However, the relatively small amount of international trade and capital flows that is accounted for by transactions between the Triad and DCs should not falsely be taken as indicating that their effect on the need for structural adjustment in advanced countries is small. As will be shown below, what matters most with respect to adjustment needs is whether relative prices for internationally traded goods have changed because of changing factor supplies on world markets. Even relatively small trade and capital flows between high- and low-cost areas may have a large effect since they force established suppliers to reduce production costs or to increase productivity in order to remain competitive. In the age of globalisation, this not only holds for standardised products, but for intermediate and differentiated products as well.

Despite the overall positive welfare effects of globalisation, it is possible that the gains from a more integrated world economy will not be distributed to all factors of production at equal amounts; some parties may actually lose. This

issue is important, not only from an economic point of view, because many people fear that an increase in competition through globalisation will erode the quality of social security systems, public education and health care, as well as the quality of their working conditions [van Liemt, 1992]. Therefore, people in countries with a high standard of living are concerned about how the larger competitive forces of the world economy will affect them, and how they can best react to the emerging challenges.

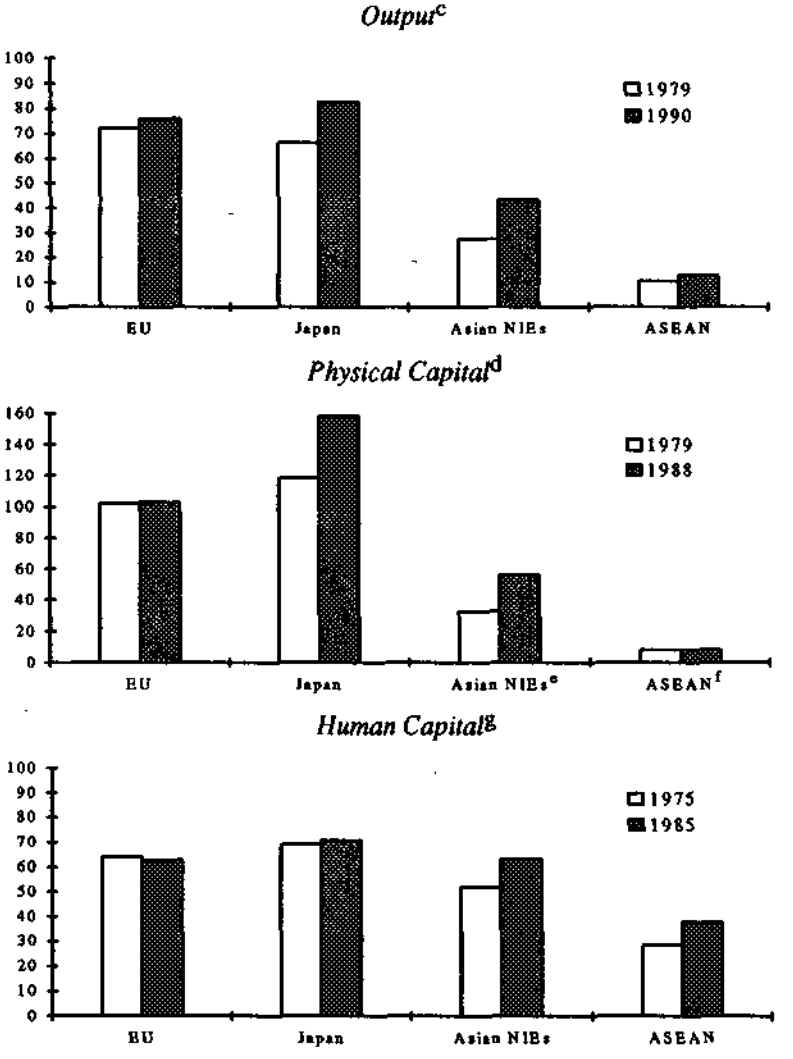
During approximately the last decade, European economies increasingly have noticed the need to reform their labour markets towards more flexibility, whereas a high degree of flexibility in the United States seems to have resulted in stagnant or even declining standards of living. At present, it is an open question whether these outcomes are a consequence of the advancing globalisation of production and markets, or would have occurred in any case due to slow productivity growth and labour-saving technological change.[136] To come to grips with this issue, we first look at the empirical record of labour markets, which substantially differs among the members of the Triad. Second, the globalisation hypothesis is scrutinised with respect to its conceptional backbone. It turns out that the globalisation hypothesis would provide at least a partial explanation of the labour market problems that most advanced countries are confronted with if there is empirical support for a declining relative price of low-skilled labour-intensive goods.

1. Globalisation, Convergence and Labour Markets

The surge in international investment (Chapters II and III) and increasing international trade flows (Chapter V) during the last decade have resulted in a tendency towards convergence of output, physical capital and human capital among major players in the world economy (Figure 18). Especially Japan displays a remarkable record in terms of output per capita and physical capital per worker, where it has even surpassed the US level by more than 50 per cent. Still, per capita incomes in the world economy are far away from being equalised. The differences between leading industrialised countries and even the most advanced Asian DCs remain considerable, not to speak of countries such

136 So far, the current debate almost exclusively focuses on the US experience. See, for example, Leamer [1992] and Murphy and Welch [1991] vs. Lawrence and Slaughter [1993] and Krugman and Lawrence [1994] for opposing views on the role of globalisation for actual labour market outcomes in the United States.

Figure 18 — Indicators of Convergence, 1975–1990[a] (per cent)[b]



[a]Population weigthed averages for EU, Asian NIEs and ASEAN; EU: France, Germany, Italy, United Kingdom; Asian NIEs: Hong Kong, Singapore, South Korea, Taiwan; ASEAN: Indonesia, Malaysia, Philippines, Thailand. — [b]United States=100. — [c]Real GDP per capita. — [d]Real capital stock per worker. — [e]South Korea. — [f]Philippines, Thailand. — [g]Average years of schooling.

Source: Barro, Lee [1993]; Summers, Heston [1991]; own calculations.

as China and India, which roughly represent two-fifth of the world's population.[137]

This is why Figure 18 can also be interpreted as presenting glimpses of the challenges especially for the EU and the United States that lie ahead. Differences in capital intensities between advanced countries and large international differences in per capita incomes provide strong incentives for further globalisation. This process is likely to gain momentum as more and more DCs emerge as attractive locations for production and as competitive suppliers on world markets. Particularly the improved educational attainment of the labour force in many Asian DCs seems to be responsible for the increasing international competitiveness of these countries in many product categories (Table 18). As many DCs currently embark on economic reforms, these competitive pressures can be expected to increase in the future.

Increasing trade flows and international competition for risk capital were already a stylised feature of the 1980s. What is remarkable in this respect is that major players in the world economy experienced very different labour market outcomes. Figure 19 shows changes in employment and unemployment for selected advanced countries between 1979 and 1990.[138] The contrast between France and Germany,[139] on the one hand, and Japan and the United States, on the other hand, is striking. In Europe, *unemployment* rose sharply, while employment remained unchanged or fell. In Japan and the United States, *employment* rose, and unemployment remained unchanged or even slightly declined. At first sight, these diverging trends seem to be incompatible with a general tendency towards globalisation, since all major players should have been confronted with comparable adjustment pressure.

It has to be noted, however, that although Japan has caught up with Europe and the United States only very recently,[140] capital per worker is much higher than in most other advanced countries. As a result, Japanese firms achieved technological leadership in certain areas. Moreover, Japan's pattern of specialisation in the international division of labour seems to better suit factor endowments than the patterns of its major rivals (Table 16). Hence, Japan can be

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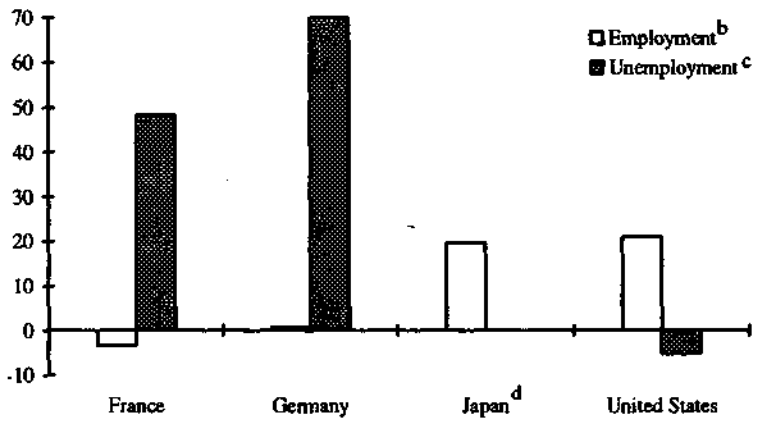
137 According to recent World Bank estimates, GDP per capita in China reached 7.6 per cent and in India 5.2 per cent of the US level in 1991 [World Bank, 1993].

138 This period has been chosen in order to compare two years that represent similar stages of the international business cycle.

139 Comparable data for other European economies are not available from OECD sources.

140 For example, output per capita in Japan only reached half of the level of France and Germany in 1960. Until 1980, Japan's output per capita improved to about 85 per cent of the level of France and Germany [Summers, Heston, 1991].

Figure 19 — Changes in Employment and Unemployment in the Triad, 1979–1990[a] (per cent)



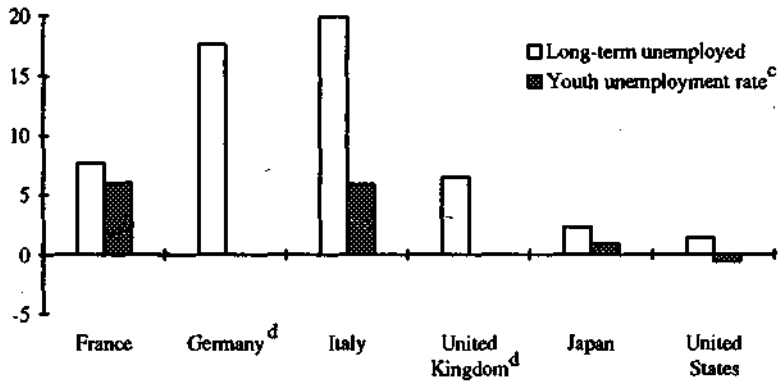
[a]1979=100. — [b]Average hours actually worked per person per year times dependent employment. — [c]Percentage of the labour force. —[d]No change in the rate of unemployment.

Source: OECD [b].

expected to cope more successfully than Europe and the United States with the challenges raised by globalisation. Notwithstanding, some European economies and the United States provide examples for the most pronounced differences in labour market outcomes.

Figure 20 further adds to this puzzling picture by depicting at changes in the structure of unemployment with respect to skill levels. Since internationally comparable statistics on unemployment by skill levels are not readily available, one is confined to use proxies in order to identify shifts in the share of skilled and unskilled workers in total unemployment. As a general rule, it can be maintained that the bulk of low-skilled workers in advanced countries is relatively young and runs a higher probability to remain unemployed than skilled workers. Hence, changes in youth unemployment and long-term unemployment can be used as a rough indicator of changes in the unemployment of low-skilled workers. Differences among the members of the Triad are striking again. Long-term unemployment and youth unemployment have increased much faster in Europe than in Japan, where it started from extremely low levels, and in the United States, where the youth unemployment rate actually fell. So the question arises why increasing unemployment of low-skilled workers has been avoided in Japan and the United States.

Figure 20 — Changes in the Structure of Unemployment,[a] 1979–1990[b] (per cent)

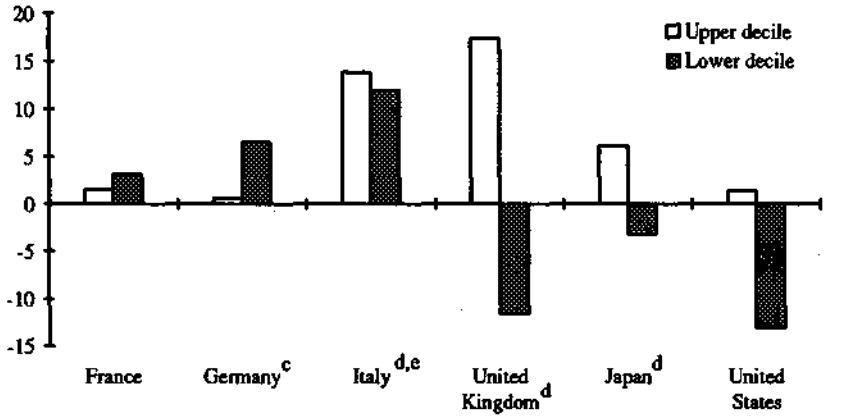


[a]As a percentage of total unemployment; unemployed for at least 12 months. — [b]1979=100. —[c]France, Germany, Japan: age 15–24; Italy: age 14–24; United Kingdom, United States: age 16–24. — [d]Changes in the youth unemployment rate are not available because of a break in the series.

Source: OECD [b].

A recent OECD study [OECD, b, 1993] provides internationally comparable empirical evidence, which can be read as providing just the complementary story to the unemployment puzzle. Consider that the higher end of the earnings distribution within an economy represents the wages of high-skilled workers and the lower end the wages of low-skilled workers. If so, changes in the overall distribution of earnings relative to the mean can be approximately translated into changes of the wages of high-skilled workers relative to the wages of low-skilled workers. Hence, Figure 21 suggests that in European economies, except in the United Kingdom, the wage of low-skilled workers did not decline relative to the wage of high-skilled workers during the 1980s; in Germany and in France, it actually improved. By contrast, in Japan and particularly in the United States, the wage gap increased. By and large, unemployment of low-skilled workers rose more slowly or even declined in countries where the dispersion of wages for different skill groups has substantially widened. In this respect, the experience of the United Kingdom is more similar to that of the United States than to other European countries. Therefore, rising unemployment, especially rising unemployment of low-skilled workers, seems to be the price that has to be paid for insufficient relative wage flexibility.

Figure 21 — Trends in Earnings Dispersion[a], 1979–1990[b] (per cent)



[a]Ratios of the upper and lower deciles of the earnings distribution relative to the mean. — [b]1979=100. — [c]1981=100. — [d]Males only. — [e]1979 compared with 1987.

Source: OECD [b, 1993].

The finding that there was a large increase in earnings differentials in the United States is not a result of the specific measurement applied in Figure 21, namely the change in the overall earnings distribution relative to the mean.[141] For example, Bound and Johnson [1992] found that the ratio of the average wage of a college graduate to the average wage of a high school graduate rose by 15 per cent between 1979 and 1988. Lawrence and Slaughter [1993] calculated that in US manufacturing, the ratio of mean annual wages of non-production workers to production workers rose by nearly 10 per cent between 1979 and 1989. Using micro-data, Davis [1992] estimated that between 1979 and 1987, the ratio of weakly earnings of males in their forties to weakly earnings of males in their twenties rose by 25 per cent. For France, however, he found that the earnings distribution remained remakable stable in the 1980s.

Taken together, advanced countries seem to have faced fairly similar labour market problems, but have reacted differently. Low-skilled labour has obviously lost in terms of competitiveness. In Europe, the result was rising unemployment and a basically unchanged wage dispersion (except for the United Kingdom). In Japan and especially in the United States, the wages for low-skilled workers have substantially declined relative to wages for skilled work-

[141] For a brief discussion of the distinction between skilled and unskilled workers and their empirical identification, see Lawrence, Slaughter [1993].

ers but the rate of unemployment has remained unchanged by and large. While these empirical facts are largely undisputed, there is no consensus as to how to explain them. Obviously, at least part of the widening of wage differentials in Japan and the United States and of the rising unemployment in the EU can be attributed to a slowdown of the growth of skilled labour relative to increasing demand. Yet, such a reasoning fails to account for the sources of the relative growth in this demand. The most plausible explanations are increasing international competition as a result of globalisation or unskilled labour-saving technological change, which would have occurred even in the absence of globalisation.

2. Globalisation and Structural Change

The hypothesis favoured throughout this study is that globalisation implies a trend towards factor price equalisation. The two direct avenues to achieve factor price equalisation are labour migration from poor to rich countries, which influences labour supply, and capital flows from rich to poor countries, which influence labour demand. Quantitatively, the latter seems to be more relevant, as is indicated by soaring international FDI flows and sharp restrictions on immigration in most advanced countries.

Notwithstanding, physical capital mobility between countries with different per capita incomes is surprisingly low, as can be seen from their respective trade balances, which mirror net physical capital flows [Lucas, 1990]. Moreover, more than 60 per cent of world trade and capital flows occur between countries with fairly similar factor endowments (Table 15). Hence, the observed pressure on relative wages in advanced countries that can be explained directly by capital mobility does not seem to be overwhelmingly large at first sight.

A more complex explanation for changes in the demand for labour rests on shifts in the composition of the production structure, namely a shift towards labour-intensive industries in low-wage countries and towards physical and human-capital-intensive industries in high-wage countries. The famous factor price equalisation theorem of the standard trade theory is solely based on this indirect avenue. It establishes the conditions under which changes in the production structure would suffice to result in an international equalisation of wages. Hence in theory, factor price equalisation can occur through balanced trade, i.e., without making necessary net physical capital flows from rich to poor countries.

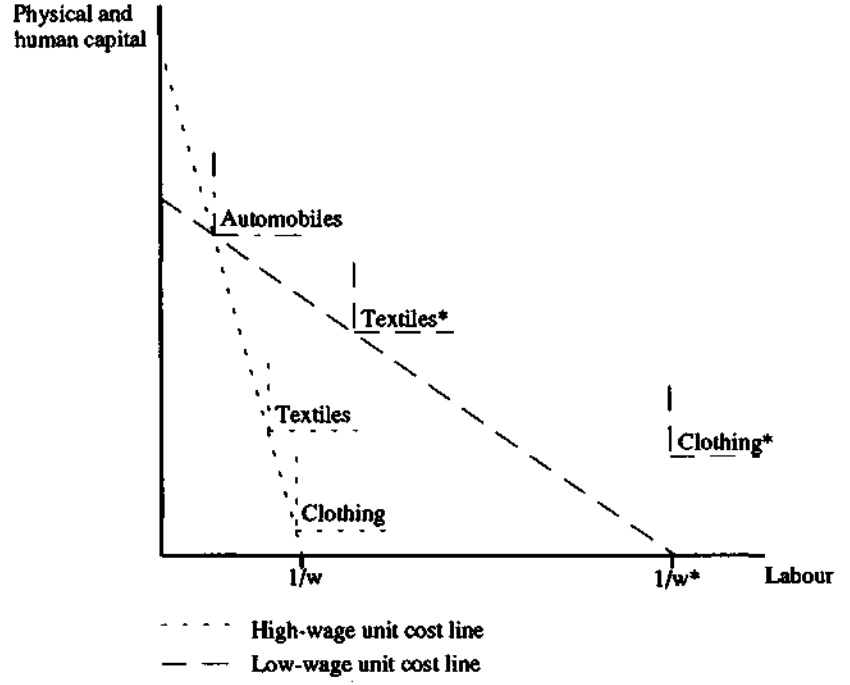
Under the conditions of globalisation such tendencies will be fortified. Lower transaction and information costs allow for an international fragmentation of production. New technologies, the general availability of complementary financial services and booming international investment cooperation contribute to the mobility of specific parts or of the complete production process itself. This increased mobility is likely to destroy the natural protection for the least mobile factors of production that may have existed because of possible technological complementarities between skilled and unskilled workers in advanced countries. High-skilled workers in advanced countries benefit from the integration of the world's labour market under globalisation, since they face relatively fewer foreign competitors. But low-skilled workers face an almost perfectly elastic supply of low-paid competitors around the world. Hence, a possible consequence of globalisation is that low skilled workers are confronted with a higher risk of being unemployed, or a relative decline in their wage.

Obviously, the real world is different from a model world where full factor price equalisation is the predicted outcome. Trade barriers and restrictions on international investment cooperation exist along threatened governmental measures that tend to reduce the potential volume of international transactions, too, not to mention country-specific factors like language barriers that hinder globalisation, or high transaction costs and exchange rate volatility. However, the 1980s were a decade where many of these factors lost in prominence. Full factor price equalisation should of course not be taken as an accurate prediction of the consequences of globalisation. But it can and should be applied as a guiding principle for the analysis of the relation between relative wages and globalisation in advanced countries.

This kind of reasoning is supported by the empirical evidence for the labour market (Figures 19 to 21), and by the Stolper–Samuelson Theorem [Stolper, Samuelson, 1941], which can be applied in the context of globalisation as well. The Stolper–Samuelson Theorem says that international trade between countries with different factor endowments will tend to reduce, in each country, the real income of the *relatively* scarce factor of production. In industrial countries, low-skilled labour is relatively scarce compared with capital and skilled labour. If production can be fragmented and relocated piece by piece to the most attractive locations because of high financial capital mobility and declining transaction and information costs, the competitive pressures towards factor price equalisation will work, i.e., wages for similar qualifications in different locations will tend to converge. For such an outcome to be welfare-improving, a substantial structural change and flexible labour markets are required in industrial countries to avoid unemployment. In this respect, the effects of trade and globalisation are indistinguishable. Globalisation, however, tends to amplify the adjustment pressures that would result from international trade alone.

We have outlined the theoretical framework underlying this interpretation in a simple diagram (Figure 22).[142] The axes denote quantities of capital (physical and human) and labour (unskilled). The right angles represent the so-called unit value isoquants, i.e., combinations of capital and labour that are required to produce, say, one dollar's worth of output.[143] The unit value isoquants are drawn for three different sectors: automobiles, which uses human and physical capital relatively intensively; textiles, with an intermediate degree of capital intensity; and clothing, which clearly is the most labour-intensive industry in this illustrative example.

Figure 22 — Hypothetical Effects of Globalisation on the Structure of Production and Wages in Advanced Countries



Source: Based on Leamer [1992].

142 The following paragraphs heavily draw on Leamer [1992].

143 The isoquants are drawn with right angles to indicate that the ratio of capital to labour is assumed to be technologically fixed. This assumption is immaterial for the qualitative results derived below.

The figure also displays two unit isocost lines, which represent combinations of capital and labour that cost just one dollar to employ. It turns out that the wage for (unskilled) labour is given by the inverse of the intersection of the isocost line with the labour axis.[144]

In the initial situation, the isocost line is drawn tangential to the unit value isoquants of all three sectors. If this line falls below of one of the unit value isoquants, the costs of production in this industry exceed the value of the output and hence, no output would be produced. By contrast, if the isocost line crosses a unit isoquant, production costs are lower than the value of output in this industry and hence, excess profits attract a resource inflow thereby either raising the factor prices or reducing the product prices so that finally the tangency condition is restored.

The effect of globalisation for advanced countries can be demonstrated by an outward shift of the unit value isoquants for textiles and clothing. Globalisation means first of all an increase in the worldwide supply of a relatively low-skilled workforce and second, the general availability of relatively ubiquitous technologies. According to the Rybczynsky Theorem [Rybczynsky, 1955], this should lead to an increase in the supply of low-skilled labour-intensive goods and of goods that can be produced with standardised technologies. In turn, this increase in supply should reduce the relative price of such goods. A declining product price implies an increase in quantities of inputs to keep the unit value constant, and, therefore, the outward shift of the unit value isoquants. From the point of view of advanced countries, this shift will be strongest where the underlying supply effects can be expected to have the strongest effect on the relative product prices.

In the diagram, we have assumed the strongest shift in relative prices for clothing, which is the most low-skilled labour-intensive industry. The new theoretical equilibrium is given by a new isocost curve, which is only tangential to automobiles and textiles. Hence, according to the diagram, the advanced countries would not produce clothing any longer and instead specialise on the more human and physical-capital-intensive production of automobiles and textiles. However, the new equilibrium implies a reduced wage for unskilled labour, relative to the factor reward for human and physical capital. This is indicated by the new intersection of the isocost line with the labour axis at $1/w^*$.

The upshot of all this is that the wage for unskilled labour will tend to fall if globalisation reduces product prices in the labour-intensive industries relative

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144 The equation for the isocost line reads $1 = wL + rK$, where w is the wage for unskilled labour L and r is the factor reward for physical and human capital K. At the intersection of the isocost line with the labour axis, K equals zero. Therefore, $L = 1/w$ at this point.

to the prices in the capital-intensive industries. Hence, low-skilled workers in advanced countries would be worse off under globalisation than under nationally segmented production and markets.

Some of the assumptions underlying this purely theoretical argumentation are that (i) international prices of the products are given, (ii) the advanced countries' factor supplies actually are in the high-wage cone and (iii) DCs, which are labour-rich, are in the low-wage cone. In the absence of any barriers that hinder international transactions, there would be no output of low-skilled labour-intensive goods in advanced countries, and, correspondingly, no output of human-capital-intensive goods in DCs. Yet, the theoretical framework is only meant to establish a tendency. In reality transport costs, temporary economies of scale and immobile inputs contribute to maintaining an industry structure that would be obsolete otherwise. The message from the theory we want to stress is that, in the presence of globalisation, there are economic forces that push for moving the production of low-skilled labour-intensive final and intermediate goods to DCs, with the consequence of widening the wage gap between skilled and unskilled workers in advanced countries. The question is whether the empirical evidence confirms such a prediction beyond the presented labour market data, and if so, how strong these forces actually are. Put differently, we are looking for evidence on changes in relative prices that are associated with a loss of comparative advantage in low-skilled labour-intensive industries in advanced countries.

3. Empirical Evidence on Stolper–Samuelson

So far, surprisingly few recent empirical studies have taken explicit recourse to the outlined theoretical framework to analyse the relation between globalisation and relative wages. Instead, some studies that take into account international aspects focus on trade volumes and trade deficits, but not on relative price changes.[145] The Stolper–Samuelson Theorem suggests that even if trade flows are small, changes in the prices of traded goods could have large effects on the prices of domestic substitutes, and thus on wages [Lawrence, Slaughter, 1993]. Domestic suppliers may indeed be able to defend their market shares against foreign competitors even after a fall in their product prices *if domestic wages are flexible enough*. But such an outcome should not obscure that international competition has brought about the change in relative wages despite apparently

[145] See, for example, Borjas et al. [1991].

small trade flows. Therefore, it is not trade volumes nor trade deficits, but relative price changes that are the critical intervening variable in the chain of causation from globalisation to relative wages.

Two studies that explicitly consider Stolper–Samuelson effects differ with respect to the empirical facts about changes in relative prices of low-skilled labour-intensive goods. Leamer [1992] argues that the data for the United States offer substantial support for the simple model of wage equalisation suggested by the Stolper–Samuelson Theorem. He found that compared with the average price increase between 1972 and 1985, the relative price of clothing fell by about 44 per cent, and the relative price of textiles fell by about 22 per cent. This is in line with the assumed shift of the unit value isoquants for clothing and textiles in Figure 22, and therefore, supports the hypothesis that international competition is at least partly responsible for the observed changes in relative wages in the United States.

Lawrence and Slaughter [1993] disagree.[146] According to their empirical results, there is no evidence that the relative price of goods that use low-skilled labour relatively intensively has declined. However, they do not present direct empirical evidence on relative price changes during the 1980s. Instead, their findings are based on a presumed cross-industry correlation between relative price changes and the relation of skilled to unskilled workers. The outcome of this exercise is that they do not detect a statistically robust positive correlation between relative price changes and factor intensities at various levels of industry disaggregation. Moreover, they argue that the Stolper–Samuelson Theorem would predict a *decline* in the ratio of skilled to unskilled workers as a consequence of the hypothesised price and wage effects of globalisation. Actually, an upgrading of the manufacturing labour force can be observed in the United States during the 1980s despite a rising relative wage for skilled workers. Therefore, Lawrence and Slaughter concluded that US price, wage and employment data suggest that the Stolper–Samuelson process "did not have much influence on America's relative wages in the 1980's" [ibid., p. 28], i.e., globalisation does not seem to matter that much for observed labour market outcomes in the United States.

Yet this reasoning is open to debate, with respect to the theoretical background and the empirics. While it is true that, all other things being equal, the Stolper–Samuelson Theorem predicts a fall in factor intensities due to declining relative wages for low-skilled workers, it is not clear whether this result carries over to reality where technology constantly improves. For example, a recent study for the United States by Berman et al. [1993] suggested that unskilled labour-saving technological change is the most likely explanation for the ob-

[146] See also Krugman, Lawrence [1994].

served shift in demand towards high-skilled workers in manufacturing industries. A change in labour demand within industries rather than a reallocation of employment towards industries with higher shares of skilled labour seems to have been responsible for the upgrading of the manufacturing workforce. At first sight, this result would imply that globalisation cannot have caused the declining relative wages of low-skilled workers through changes in the sectoral composition of US manufacturing employment. It should be noted, however, that to some extent the adoption of new technology in itself may represent a response to increased international competition. Berman et al. [1993] did not try to test such an explanation.

Both the globalisation and the skill-biased technological change hypothesis predict that the relative wage of low-skilled workers will tend to fall, but they differ with respect to the predicted change of factor intensities and with respect to the predicted changes of relative prices. To reject globalisation as a cause of the relative decline of wages just because the Stolper–Samuelson Theorem predicts a *declining* factor intensity, which is not supported by the empirical facts, is not very convincing. The reason is that it takes static trade theory too seriously, i.e., rising factor intensities may occur because of technological change, which does not preclude that globalisation affects relative wages at the same time.[147]

What matters for a test of the globalisation hypothesis is whether the relative price of low-skilled labour-intensive goods has declined or not. Hence, a hierarchy of industries according to factor intensities has to be established. Still, there is a problem endemic in any attempt to identify a distinctive pattern of factor intensities at the level of 2- or 3-digit industries. Most of these aggregates display a large variance of factor intensities measured at their respective subcategories [Leamer, 1992]. Put differently, it is extremely difficult to identify uniformly human or physical-capital-intensive sectors. Therefore, we employ a much less ambitious approach to test the empirical relevance of Stolper–Samuelson effects than implicitly assuming a clear-cut pattern of factor intensities across the whole spectrum of industries. We only look at the relative price of clothing, which clearly is a low-skilled labour-intensive sector. Then, a comparison with the relative prices for other sectors may provide hints on the relevance of globalisation for labour market outcomes, despite a certain degree of ambiguity that might arise as to their classification as physical or human-capital-intensive.

The following tables present alternative attempts to identify relative price changes for sectors that can be labelled as relatively human-capital-intensive,

[147] See Leamer [1993] for a discussion of the balance between issues, theory and data in the context of international trade theory.

physical-capital-intensive and low-skilled labour-intensive. While single classifications may be disputed, what is important for the present analysis is whether the relative price of clothing has declined on world markets during the last decade. Such a finding would support our hypothesis that increasing globalisation affects the labour market outcomes in advanced countries.

Table 23 presents changes in US producer price indexes between 1982 and 1992. Since the United States constitute a relatively large and open market, the price data can be interpreted as rough indicators of relative world market prices. The entries show that the relative price of clothing fell compared with the prices of more human-capital-intensive goods. The evidence with respect to physical-capital-intensive goods is mixed. Yet, if iron and steel as well as textiles are taken to be more standardised goods than chemicals which require relatively more human capital for their production,[148] the US data tend to support the relative price changes predicted by the Stolper–Samuelson Theorem. This tendency is not a special feature of the time period chosen, as is shown by a comparison with data taken from Lücke [1993] for 1978–1987.

Table 23 — US Producer Price Indexes for Selected Commodities, 1992[a] (1982=100)

Product category	1992	1978–1987[b]
Human-capital-intensive:		
Industry machinery and equipment	139.5	5.08
Transport equipment	130.4	5.50
Motor vehicles	129.9	–
Physical-capital-intensive:		
Chemicals	125.9	4.31
Iron and steel	115.5	3.88
Textiles	117.0[c]	3.11
Labour-intensive:		
Clothing	122.2	3.67

[a]US commodity code. — [b]Average annual growth rate. — [c]Average of code numbers 032–034.

Source: Lücke [1993]; US Department of Labor [1993].

Table 24 presents an alternative view of the empirical evidence by looking at changes in producer prices on the basis of industries. By and large, the previous results for US producer prices on a commodity basis are confirmed for

[148] See Sections IV.2 and IV.3 for comparisons of chemicals and textiles and clothing with respect to globalisation strategies.

members of the Triad between 1985 and 1992. In most cases, the price of clothing fell relative to the prices of skill-intensive sectors such as machinery or motor vehicles. Japan provides a noteworthy exception. The clothing industry displays the strongest price increase of all sectors considered, and the physical and human-capital-intensive sectors chemicals and motor vehicles show relatively declining prices. While the latter points to the strong international competitive position of Japanese producers in these sectors as compared with the other members of the Triad, the rise in the relative price of clothing in Japan should not be taken as evidence against Stolper–Samuelson effects, because the clothing industry in Japan has experienced a dramatic structural change in recent years. For example, the value of Japan's exports of clothing (SITC 843) more than doubled between 1980 and 1985, but fell to a paltry 5 per cent of its 1985 level in 1990 [OECD, a].[149] Hence, the measured improvement of the relative price could reflect changes in the product mix, rather than actually improved sectoral terms of trade.

Table 24 — Producer Prices by Industries in the Triad, 1985–1992[a] (1985=100)

Product category	EU				Japan	United States
	France	Germany	Italy	United Kingdom		
Human-capital-intensive:						
Machinery, excluding electrical machinery	na	121	141	144	103	na
Transport equipment	na	122	na	154	94	121
Motor vehicles	na	122	139	154	93	117
Physical-capital-intensive:						
Chemicals	88	92	115	107	90	na
Iron and steel	98	98	112	113	99	106
Textiles	104	105	118	135	95[b]	114[b]
Labour-intensive:						
Clothing	122	115	129	132	106	116

[a]ISIC categories. — [b]Including clothing, footwear, leather.

Source: OECD [c].

Obviously, unmeasured quality improvements would bias relative price changes upward. Such tendencies also play a role in the clothing industries of other members of the Triad (see Section IV.3). However, comparable changes

[149] See also Table 20 on changes in Japan's trade structure.

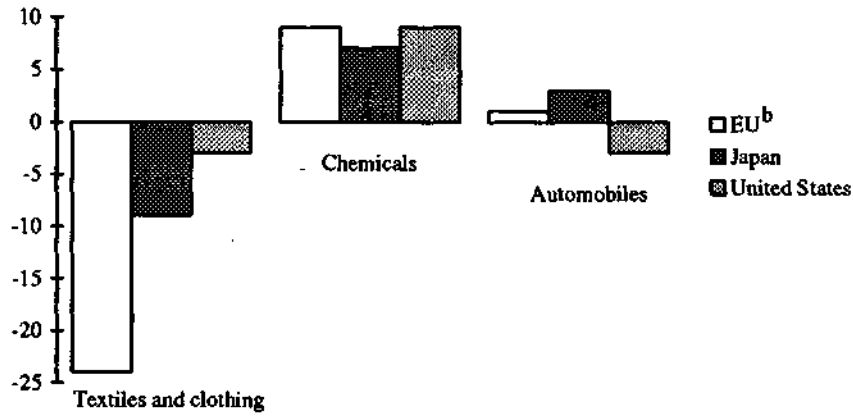
in the value of exports cannot be observed. Therefore, we speculate that the upward bias in the relative price change of clothing is strongest in the case of Japan. Furthermore, it should be noted that the production of clothing in advanced countries benefits from the protection granted under the MFA. This artificial barrier to international trade prevents the relative price of clothing from falling as strongly as it would fall under a free trade regime. Taking these qualifications into account, the empirical evidence seems to be in line with the relative price changes predicted by the Stolper–Samuelson Theorem.

Hence, one may ask whether the data also support the Stolper–Samuelson prediction that globalisation tends to move low-skilled labour-intensive production out of advanced countries, which, in turn, can be expected to specialise in the production of human-capital-intensive goods. Figure 23 presents glimpses on the international empirical evidence for the three sectors considered in detail in Chapter IV. Generally speaking, the a priori expectations are confirmed. Textiles and clothing can be considered to employ comparatively more low-skilled labour than the chemical industry, which is probably less human-capital-intensive but more physical-capital-intensive than the automobile industry. If so, the structural change in advanced countries apparently favours capital-intensive sectors at the expense of low-skilled labour-intensive ones. However, the picture for the members of the Triad is not uniform, which is no surprise given their very different labour market experiences and international competitiveness during the last decade (Figures 19 to 21). Especially different developments at the lower end of the skill distribution point to the central role of wage flexibility as an instrument to handle the structural change imposed by increasing international competition.

The strongest structural change in manufacturing employment towards relatively human-capital-intensive industries has occurred in Japan. Flexible wages for different skill groups and a competitive level of real wages have ensured that this structural change was handled without an increase in unemployment. Such a flexible response to the price signals of world markets will help Japan to meet the competitive challenges of the future, and puts it ahead of its competitors in the Triad. The United States and the EU will have to cope with this new competition from the top.

Extremely high wage flexibility has moderated the structural change within manufacturing employment in the United States. To keep production profitable, the US labour markets have responded to increasing globalisation by strongly declining relative wages for low-skilled workers. Whether this strategy will prove to be successful in the long run when still more competitive low-cost suppliers will appear on world markets remains to be seen. Especially relative employment losses in skill-intensive sectors such as automobiles should be a matter of concern.

Figure 23 — Changing Patterns of Manufacturing Employment in the Triad, 1985–1992[a] (per cent)



[a]Percentage change relative to total employment in manufacturing industries; ISIC categories. — [b]France and Germany only.

Source: OECD [c].

The picture for European countries is even less promising. In contrast to the finding for Japan, there is a much stronger trend away from textiles and clothing, but the relative employment increase in skill-intensive automobiles is weaker. Hence, the European employment pattern seems to have shifted to a medium-skilled spectrum. Most importantly, this partial adjustment to international competition has occurred at rising levels of unemployment, especially of low-skilled workers. In terms of a successful handling of competitive challenges, Europe only ranks third in the Triad, because the structural change enforced by globalisation towards human-capital-intensive sectors is largely missing not least attributable to a comparatively low degree of relative wage flexibility (Figure 21).

Taken together, we find empirical support for the predictions of the Stolper–Samuelson Theorem. Relative prices of low-skilled labour-intensive sectors tend to decline, and advanced countries tend to lose low-skilled labour-intensive production as highlighted by shifts in the employment structure of selected manufacturing industries. As a consequence, low-skilled workers in advanced countries have had and will have to face a relative, possibly even absolute decline in their earnings, or an increase in unemployment. A continuing trend towards globalisation will confront advanced countries with further adjustment

pressures in the future. Given the experience of the past decade, Japan and the United States seem better prepared than Europe to meet the challenges ahead. Hence, the question of appropriate policy responses is most pressing for the EU.

VII. Economic Policy in the Era of Globalisation

1. The Policy Dilemma

As a consequence of the processes described in the preceding chapters, economic policymakers in industrialised countries, notably in the EU, are facing a major dilemma. On the one hand, consumers benefit from intensified trade and investment relations, as fiercer competition creates positive welfare effects in terms of lower product prices, higher quality and a larger variety of supply. On the other hand, some domestic producers and workers will lose in terms of competitiveness and, therefore, resist the increase in the international division of labour. Political economy arguments and practical experience suggest that governments are tempted to sacrifice consumer benefits in order to protect non-competitive production factors. Since producer interests are generally much better organised than consumer interests, globalisation provokes government interventions requested by producers and workers for easing their adjustment burden.

In the following, we discuss the effectiveness of such interventions. The risk that traditional measures such as trade barriers will fail to achieve their stated objectives increases under the conditions of globalised production and investment. The more companies operate on a worldwide scale, the smaller the potential for effective national trade measures is, because evasion becomes easier. Trade barriers can be circumvented by FDI and may induce more trade in non-regulated areas (Chapter V). The effectiveness of restrictions imposed on foreign direct investors may be eroded by non-equity forms of international cooperation (Chapter III). As a consequence, governments may resort to innovative protective instruments such as stricter common standards concerning social and ecological production conditions and harmonised competition rules. While such innovations may be effective in the short run and alleviate the adjustment pressure for specific sectors, adverse second-round effects on other sectors and longer-term costs have to be taken into account in assessing their overall welfare implications.

This leads to the proposition that, if governments continue to react defensively to globalised corporate strategies, economic welfare will be reduced at a worldwide scale. The protected economy will be among the first to suffer from policy-induced inflexibility, retarded adjustment and, ultimately, from impaired attractiveness for (foreign and domestic) investment. Therefore, we consider alternative policy responses to globalised production and investment patterns,

which may tackle the causes rather than the symptoms of declining competitiveness.

2. Trade Policy Responses to the Globalisation of Production and Markets

Recent trends in trade policies provide a startling picture. While the long-lasting stalemate in multilateral trade negotiations has been overcome only recently with the conclusion of the Uruguay Round in late 1993, dozens of DCs throughout the world have removed trade barriers unilaterally since the mid-1980s [GATT, d]. Moreover, many DCs have liberalised FDI regulations at the same time [UNCTC, a; ERT, 1993]. Apparently, DCs realised that they had no choice but to open their markets for imports and FDI in order to participate successfully in the global competition for risk capital. The steep decline in their share in worldwide FDI flows during the 1980s[150] was a clear indication that traditionally applied concepts were seriously flawed:

— Many DCs, especially in Latin America and Africa, had maintained substantial trade barriers until recently and granted foreign investors access on a highly selective basis. According to survey results, FDI was sometimes undertaken to circumvent import barriers of host DCs offering large domestic markets.[151] However, the strategy to attract FDI in this way was bound to fail if applied by smaller DCs. An empirical investigation of German FDI in DCs revealed that, on average, import restrictions negatively affected FDI flows [Agarwal et al., 1991].
— Trade policy interventions that aimed at encouraging domestic production resulted in weak competition and a suboptimal structure of production [Krueger, 1990, Part II]. Import substitution hindered the exploitation of comparative advantages because export-oriented industries had to rely on domestic inputs at prices above world-market levels. With inter-

[150] The DC share dwindled from 29 per cent in 1979–1982 to 14 per cent in 1987–1990 and recovered only in the early 1990s [Nunnenkamp, Agarwal, 1993, Table 1]; see also Section II.1.

[151] For details, see Agarwal et al. [1991] and the literature given there.

national competitiveness being sacrificed, the incentives for FDI were reduced and economic development was hindered.[152]

The economic costs of not being integrated into the world economy rise under the conditions of intensified globalisation at the corporate level. Hence, widespread trade and FDI liberalisation in DCs has been the appropriate response to changing corporate strategies. The removal of import barriers provided better opportunities to combine local factors of production with inputs imported at internationally competitive prices. At the same time, FDI liberalisation offered TNCs more options to integrate DCs into their globalisation strategies.

While it is still too early to fully assess the pay-off of economic reforms in terms of improved locational attractiveness, first indications are that many DCs have correctly perceived the signs of the times. The declining trend in their share in worldwide FDI flows has been stopped. FDI flows to Latin America, where the recent policy reversal has been most impressive, soared from $3.6 billion in 1986 to $17.5 billion in 1993 [World Bank, a, Vol. I, p. 186]. Mexico, which was among the frontrunners of economic reform in Latin America, attracted FDI inflows of $5.4 billion in 1992, i.e., 11 times the amount of 1985 [ibid., Vol. II, p. 298].

In contrast to the forward-looking approach applied by many DCs in recent years, major industrialised countries have tended to react defensively to the globalisation of production and markets. Defensive attitudes may have hindered globalisation in some areas. However, the general trend continued. Furthermore, defensive reaction patterns may involve considerable costs under the conditions of fierce international competition for risk capital. Before presenting a forward-looking alternative, we discuss the strategies of industrialised countries and their effectiveness by referring to three major policy trends. First, bilateralism and regionalism seem to have gained prominence in EU and US trade policies. Second, multilateral trade negotiations in the GATT framework continued to be a protracted struggle on balancing limited concessions in specific areas, while important policy challenges tended to be ignored. Third, new initiatives launched with respect to common production standards and industrial policy suggest that defensive attitudes will continue into the future.

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152 For a detailed discussion and empirical verification, see Hiemenz, Nunnenkamp et al. [1991, pp. 31 ff.]. For example, FDI was shown to be significantly lower when import penetration in the host country was low and trade taxes were relatively high.

a. The European Union

As concerns the EU, multilateral trade issues have taken second place behind the deepening and widening of integration within Europe [Hiemenz et al., 1994; Nunnenkamp, 1993a]. At times of increasing globalisation, the EU apparently had no clear strategy for the GATT negotiations in the Uruguay Round; for years, the EU mainly reacted defensively to US attacks, notably with respect to the Common Agricultural Policy. The EU's focus on regional integration and the reluctance to actively engage in multilateral trade liberalisation fuelled concerns about a fortress Europe. Yet, fears that the EU would turn inward-looking at considerable costs for outsiders have not materialised so far. In 1991, the GATT concluded from its Trade Policy Review Mechanism: "There is little evidence of any recent major intensification of protective measures on the part of the EU" [GATT, a, p. 20]. In the subsequent evaluation of 1993 [GATT, c], the EU was given credit for having stimulated economic growth through the Internal Market programme and for having removed national trade barriers.[153]

Nevertheless, the EU seems to be badly prepared to meet the challenges arising from globalised production and investment patterns.[154] First, the positive GATT assessment mainly relates to the economic boom period in the late 1980s and early 1990s. The GATT review adds an important qualification by calling into question whether a liberal policy stance will be maintained under the less favourable conditions of economic stagnation and high unemployment.

Second, disputes within the EU about which body shall have the major say in shaping trade policy have added to uncertainties concerning the future policy stance. More restrictive attitudes can be expected, as the Commission may be authorised by a single majority vote of the Council of Ministers to operate anti-dumping procedures and countervailing duties. In the past, such decisions required a qualified majority vote in the Council of Ministers, in which the minority of relatively liberal member states could veto the implementation of such measures.

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153 An even more favourable conclusion has been reached by Baneth [1993], who considers allegations of a fortress Europe to be a myth. This judgement is primarily based on the observed steep increase of manufactured EU imports from its trading partners. The EU's trade policy measures, on which the subsequent paragraphs are focused, are not explicitly considered by Baneth. Hence, it remains open to question whether import growth has to be attributed to a liberalised policy stance of the EU, or rather to deteriorating competitiveness of EU suppliers under the conditions of more or less unchanged import restrictions.

154 The subsequent paragraphs draw on Langhammer [1993].

Third, EU trade policy has traditionally been characterised by discrimination.[155] MFN (most-favoured nation) treatment (i.e., non-preferential market access), which would provide a level playing field for global actors based in different locations, has lost further ground in the context of the widening of integration in Europe. EFTA countries have been granted free mobility of capital and labour under the agreement on the European Economic Area, and most of them are going to join the EU. The Europe Agreements, which the EU concluded with Central and East European countries, have promoted them from the bottom almost to the top of the pyramid of EU trade preferences. MFN treatment by the EU is confined to six trading partners comprising Australia, Canada, Japan, New Zealand, the United States and Taiwan.[156]

Fourth, selectivity and discretion are typical features of EU trade policy. This is evident from the instruments of contingent protection preferred in the past (for details, see Hiemenz et al. [1994]), which include "voluntary" export restraints and anti-dumping procedures. Japan and Asian NIEs were the principal targets. Recent indications suggest an increasing propensity of the EU to tackle trade conflicts on a bilateral basis.[157] Bilateral consultations characterised the final phase of the Uruguay Round and are favoured by the EU in dealing with prospective member countries in Central Europe. Furthermore, discretion appears to be on the rise:

— Interest groups demand "orderly marketing arrangements" in a growing number of products considered to be "sensitive". The tendency towards surveillance of imports over time and from various origins represents the first step on the road to managed trade. The stipulation of tolerable import volumes and the request for export monitoring by selected trading partners may follow. The downward revision of quota restricted car exports from Japan to the EU in 1993 is a first indication to this effect.
— Since the so-called screwdriver-plant legislation of 1987, anti-dumping measures may be imposed on products assembled in the EU, if imports of those products are already subject to such measures and if the share of

[155] Besides EFTA countries, ACP and Mediterranean countries have been the principal beneficiaries of preferential treatment since recently.

[156] These countries accounted for 36 per cent of extra-EU imports in 1992. As a comparison, almost 90 per cent of US trade was conducted on a MFN basis.

[157] The EU has not practised an outspoken bilateralism, as laid down in the US trade law, so far, however. The so-called New Commercial Policy Instrument of 1984, which provides for retaliation against "unfair" trade practices of trading partners, was applied in a few cases only until 1993. These cases mainly concerned conflicts on intellectual property rights and were settled after consultation.

parts supplied by the country concerned accounts for at least 60 per cent of the total component value [Koopmann, Scharrer, 1989, pp. 211–212].

— The reduced effectiveness of trade restrictions, because of evasion through FDI, has prompted the next turn in the interventionist spiral. Trade measures have been supplemented by investment-related measures. For instance, Japanese investors in car manufacturing had to meet strict local content requirements. Moreover, EU countries such as Italy have suggested to consider not only imported cars but also Japanese transplant production in the EU when assessing whether targeted market shares are exceeded. In other words, the concept of managed trade would be extended to include ad hoc interventions related to FDI.

The principal features of EU trade policy create problems for foreign trading partners and investors in the first place. They suffer from increased uncertainty, which is the logical consequence of selective and discretionary interventions. It is increasingly the EU that defines the rules of the game. Its leverage in trade negotiations has been enhanced due to the fact that the Single European Market represents a critically important sales outlet for most trading partners, whereas non-European markets are generally far less important for EU suppliers. Nonetheless, it would be wrong to conclude that the EU's policy stance is in its own best economic interest. What is seemingly a paradox may be explained in political economy terms. Policymakers have a preference for short-term "solutions" in order to get reelected, and their decisions are influenced by well-organised interest groups. Typically, lobbying has been dominated by industries under heavy competitive pressure, at least partly because they were lagging behind in terms of globalisation. Their request for selective and tailor-made protection, of which the export restraint on Japanese cars is a prominent example, has not met with effective opposition from the business sector so far. As a result, the policy response to globalised production and marketing may largely ignore longer-term interests and second-round effects on less influential groups and competitive industries.

Although the ensuing welfare losses cannot be exactly quantified, the costs of restrictive trade and FDI regulations are likely to rise in the era of globalisation. EU economies have to strengthen their adjustment flexibility and innovative capacity in order to remain attractive locations. Trade and investment-related restrictions have exactly the opposite effect. They impair employment creation in sectors depending on competitive inputs for their expansion. The policy-induced preservation of obsolete production structures weakens the incentives of investors to search for product and process innovations. New market opportunities are foregone if structural adjustment is delayed and DCs are denied better chances to catch up economically, thereby constraining their import

demand. FDI-related restrictions, if effective, create further impediments to flexible adjustment and innovation in the EU. If foreign investors are deterred from productive activities, chances for technological and organisational imitation may be foregone and adaptation to superior management systems is rendered more difficult.

The recent attractiveness of the EU for international investors (Section II.2) suggests that the costs of its defensive policy stance towards globalisation have been limited so far. This can reasonably be attributed to the progress made in the deepening of integration and the anticipated widening of European integration. Regionalism may grant respite in dealing with global challenges. However, it is no lasting alternative to improved competitiveness by world-market standards, since the mobility of production factors is too high to be effectively constrained over time. A liberal trade policy stance still appears to be the best recipe for creating sufficiently strong incentives for adjustment, which, in turn, helps sustaining competitiveness and attractiveness for foreign and domestic investment.

b. The United States

In contrast to the EU, multilateralism had rested on rather solid foundations in the United States. Recently, though, the United States have moved towards regionalism and bilateralism [Stehn, 1993]. Partly as a reaction to European integration, NAFTA was concluded with Canada and Mexico and the "Enterprise of the Americas" initiative was launched. This policy move of one of the major players has aggravated the conflict between multilateralism and regionalism as guiding principles of the international trading system [Bhagwati, 1991].

The United States have, furthermore, intensified the use of anti-dumping procedures as a response to mounting pressure by interest groups to protect US industries facing adjustment problems. Under the Clinton administration, the tendency to focus on domestic economic concerns and to tackle trade disputes bilaterally has gained considerable momentum. The revival of the GATT inconsistent "Super 301" legislation is the clearest indication to this effect. According to Section 301 of US trade law, the administration may impose sanctions unilaterally against countries that impede the access of US companies to their markets. Bilateral trade deficits are considered to be a criterion for unfair trade practices, which sharply conflicts with the multilateral GATT framework and does not make any economic sense.

Japan is affected in the first place, but other competitive trading partners such as South Korea may become the next targets. "Super 301" provides the leverage to enforce quantitative targets for US exports to the country accused

of unfair trade policies. This result-oriented approach (in contrast to a rule-oriented approach) has been subject to fine-tuning recently. Broadly defined trade targets[158] have been specified in order to promote the exports of particular industries. For the time being, the heyday in this development was reached in March 1994, when Japan gave in to US demands for quantitative targets concerning one particular US company.[159]

The aggressive bilateralism of US trade policy primarily aims at short-term job security. It opens substantial leeway for economic interest groups to exert influence on both the choice of result-oriented measures and the identification of countries to be accused of practising "unfair" trade policies [Stehn, 1993, p. 14]. The conflict with Japan is telling in this respect. Given the unsettled debate on the degree of openness of the Japanese economy, it is mainly interest groups that determine what is "unfair." The argument that measurable trade barriers are low[160] is discounted by allegations of highly restrictive informal barriers such as buy-Japanese attitudes and effectively closed distribution channels. However, it is still open to question to which extent low import penetration ratios are due to government and business practices that discriminate against foreign firms, or whether they are due to insufficient competitiveness of foreign firms and specific consumer preferences in Japan.[161]

Similar to the EU, the longer-term vision of revitalising the domestic economy through competitive pressure resulting from an open trading environment does not figure high on the actual economic agenda of the US administration. Hence, the innovative capacity of the US economy is also likely to suffer in the

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158 For example, Dornbusch [1990] advocated an administered increase of Japan's manufactured imports from the United States at an annual average of 15 per cent in real terms during the 1990s. In February 1993, a bill was initiated that required Japan to reduce its trade surplus with the United States by 20 per cent per annum [Frankfurter Allgemeine Zeitung, 5 February 1993].

159 US government officials pressed for the resolution of a dispute over cellular telephones. As a result, Japan's cellular carrier (IDO Corp.) agreed to build 159 additional base stations in the Tokyo-Nagoya corridor by the end of 1995, providing the US company Motorola with 9900 more voice channels [The Wall Street Journal Europe, 14 March 1994, p. 2].

160 Japan's tariff barriers are the lowest among all OECD countries [Langhammer, 1994].

161 If it is accepted that Japanese markets are closed because of informal entry barriers, the policy of aggressive bilateralism involves a striking paradox [Stehn, 1993, p. 15]. In order to enforce specified import targets, more government interference is needed to organise and monitor import cartels in all major industries. In other words, aggressive bilateralism requires Japan to adopt precisely that kind of economic policy that it is alleged for by the advocates of a result-oriented trade strategy.

long run, which, as was argued before, involves increasing welfare losses with globalisation proceeding at the corporate level.

c. The Uruguay Round

Given the recent policy stance of the EU and the United States, probably the greatest success of the Uruguay Round was that a complete breakdown of multilateral trade negotiations was avoided. Moreover, the protracted negotiations finally resulted in agreements on liberalisation measures in specific areas. Major examples are: tariff reductions, improved market access and reduced export subsidies in agriculture, the reintegration of MFA trade into the GATT framework and institutional reforms to prevent breaches of GATT rules.[162]

The keys to the conclusion of the Uruguay Round were held in a very few hands, among which those of the US and European governments were of overriding influence.[163] Hence, it could not reasonably be expected that the challenges of globalisation were dealt with more effectively in GATT negotiations than in the national realm of the major players. As a matter of fact, the Uruguay Round results are rather disappointing exactly where the trade policy response to globalisation was at stake. This may be exemplified by contrasting some of the results with what would have been required if a forward-looking approach had been followed.

Progress in trade liberalisation was relatively easy to achieve where barriers had already been low before the Uruguay Round. Tariffs on manufactured imports are a case in point. The agreed reduction by about 40 per cent will result in an (unweighted) average tariff rate of 4 per cent in OECD countries. It is interesting to note, however, that relatively high tariffs remain levied on textiles and clothing and standardised electronic products, i.e., sectors in which producers in industrialised countries are under heavy competitive pressure from DCs. By insisting on tariff escalation, resulting in higher effective protection of "sensitive" products, industrialised countries revealed their reluctance to let

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[162] For a comprehensive assessment of the Uruguay Round results, see Langhammer [1994]. The subsequent discussion, which draws substantially on Langhammer's paper, is focused on those issues that are of major relevance in the context of globalisation.

[163] The so-called principal-supplier rule increasingly determines the results of GATT negotiations. Major players offering improved access to large domestic markets negotiate with other major players in order to get a maximum of counter-concessions for their own offers. As a result, multilateral trade negotiations are effectively confined to the balancing of concessions among the Triad members, with smaller trading partners typically playing only a minor role.

globalisation play its role in advancing structural change and promoting the catching-up of DCs.

The agreements concluded in the Uruguay Round are also ambiguous with respect to the broad issue of enforcing adherence of member states to GATT rules, defining waivers more precisely and monitoring escape clauses effectively. While GATT discipline figured high on the agenda of the Uruguay Round, it is unlikely that the achievements made are sufficient to stop the trend towards regionalism and bilateralism. For example, GATT monitoring of regional trade arrangements continues to be deficient. Art. XXIV GATT authorises deviations from MFN treatment if free trade areas and custom unions cover "substantially all" the trade among partner countries and do not raise trade barriers against outsiders. These requirements suffer from serious enforcement problems, however. None of the about 80 regional trade arrangements that had been notified to the GATT until 1993 was rejected as inconsistent with GATT obligations [Hufbauer, Schott, 1993].

A stricter monitoring would be required in order to prevent regionalism from further undermining multilateralism [Nunnenkamp, 1993a]. Two conditions have to be met to reconcile regional trade arrangements with multilateralism. First, integration schemes must be open to new members who are ready to comply with the obligations of the regional trade accord. Second, transparent mechanisms have to be implemented providing for compensation for those non-member countries whose trade is negatively affected.[164] These suggestions have not been taken up in the Uruguay Round.[165] This appears to be short-sighted given that it is not only in the interest of outsiders but also in the long-term self-interest of member countries to prevent regional integration from resulting in protectionist trading blocs and to preserve external competition, in order to encourage economic adjustment and restructuring.

The major players in the Uruguay Round were also reluctant to effectively control contingent protection. As concerns anti-dumping measures, discretion was indeed reduced by specifying the conditions under which such measures are tolerated.[166] However, consumer interests and the degree of domestic competition continue to be ignored in deciding on the GATT conformity of anti-

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164 For a similar reasoning, see, for example, Bhagwati [1991]. Hufbauer and Schott [1993] have developed a pragmatic scheme for calculating the compensation required to offset trade diversion effects of regional integration schemes. For an empirical application to the case of the EU, see Nunnenkamp [1993b].

165 Art. XXVIII GATT postulates for compensation, however, if external tariffs are raised after the formation of a custom union.

166 Stricter criteria relate to the tolerable duration of anti-dumping measures and the verification of injury of the domestic industry caused by dumped imports, for example.

dumping measures. Moreover, there still is the risk that such measures will display cascading effects by extending them to down- and upstream stages in the production process [Hoekman, Leidy, 1992]. Likewise, contingent protection in the form of safeguard clauses remains problematic, although it was principally agreed in the Uruguay Round to apply Art. XIX GATT on a non-discriminatory basis.[167] Especially the EU insisted on selectivity. As a result, safeguard measures may still be directed at specific trading partners if imports from individual countries have risen "disproportionally".

The trade policy response to globalisation was at stake especially in those areas in which the agenda of the Uruguay Round went beyond earlier GATT negotiations. Among these new issues, trade in services and trade-related investment measures (TRIMs) were of particular importance.[168] Trade in services provided an important stimulus to the international fragmentation of production. The extension of GATT rules to services would put corporate globalisation strategies on a reliable basis and reduce remaining uncertainties. Yet, expectations were largely frustrated that the Uruguay Round would be a milestone in this respect. An agreement on trade in services (GATS) proved impossible without taking into account the numerous reservations of contracting parties. As a result, GATS mainly consists of annexes in which country- and sector-specific concessions and exceptions are laid down. Each country could submit a list of services for which MFN treatment was not to apply. For the remaining service sectors, country-specific annexes contain national commitments to liberalisation measures. Binding and universally applied conditions for market access and equal treatment of domestic and foreign suppliers of services were not formulated. Hence, progress was mainly made in terms of better transparency of country-specific regulations. Whether greater discipline in regulating trade in services will finally result from future negotiations remains to be seen.

More discipline with regard to TRIMs, including local content requirements and export obligations, would have provided better chances to globalise production and marketing through FDI. The progress achieved in the Uruguay Round remained marginal. The results went hardly beyond the existing Art. III and XI GATT, which postulate for equal treatment of foreign and domestic products and the removal of quantitative restrictions. It was agreed to notify TRIMs that are incompatible with Art. III and XI, and industrialised countries are requested to remove such measures within two years. However, the illustra-

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[167] It was also agreed to notify "voluntary" export restraint agreements and to phase them out within four years, or to transform them into GATT consistent measures.

[168] We will address the issue of intellectual property rights (TRIPs) in Section VII.3.a.

tive list of incompatible measures in the respective annex remains fragmentary. Therefore, monitoring and enforcement problems are likely to continue.

The review of major results of the Uruguay Round reveals that enforcement is still the critical issue in many areas. This relates to the systemic weaknesses of the GATT framework, among which the serious lack of effective sanction mechanisms figures most prominently [see also Hauser, 1991]. Hence, much depends on whether such weaknesses can be overcome in the future. Institutional reforms agreed upon in the Uruguay Round may provide a first step in this direction:

— In the past, trade agreements on specific issues (for example, technical trade barriers, subsidies and countervailing duties, and anti-dumping measures) were legally separated from the GATT Treaty. GATT members had the choice to opt out of specific agreements, while participating in others. This "à la carte" approach according to one's own liking will no longer be possible, as all agreements will become part and parcel of the newly established World Trade Organisation (WTO). By joining the WTO, contracting parties are obliged to adhere to all trade agreements. Discipline may be enhanced and monitoring may become easier once discretion is reduced in this way.
— An attempt was made to expedite the process of dispute settlement, which had been extremely time-consuming in the past. The revised mechanism of dispute settlement will result in decisions that are binding for both parties involved. However, it is open to question whether major players such as the EU and the United States are prepared to accept GATT panel decisions.

The disciplinary effects of institutional reforms are likely to remain limited unless considerable fines can be imposed in the case of non-compliance with GATT rules and panel decisions, and compensation is obligatory. In light of the current trade policy stance of the EU and the United States, it is unreasonable to rely on goodwill as an alternative to credible sanctions, which are still lacking. This sceptical view is supported by the fact that the conclusion of the Uruguay Round was delayed for years, although the major players, who were responsible for the delay, are the main beneficiaries of trade liberalisation. Various empirical studies on the welfare effects of the Uruguay Round demonstrate that the worldwide increase in welfare is heavily concentrated on OECD countries (to 66–86 per cent, depending on the assumptions made).[169] Moreover, these studies clearly reveal that a country's welfare is increased by its own lib-

[169] For an overview, see Langhammer [1994].

eralisation measures in the first place, rather than by improved access to foreign markets attributable to liberalisation measures of trading partners. It follows that sweeping liberalisation would be in each country's own interest, because it provides the strongest real income gains for consumers and taxpayers because of an improved allocation of resources.

3. The Options Ahead

a. Ex ante Harmonisation of Production Standards

Well-organised groups of producers and workers facing heavy competitive pressure from abroad and government myopia blocked a forward-looking strategy of major players in multilateral trade negotiations in the past. Traditional strategies may have to be revised, however, because of rising welfare losses and increasing evasion activities in the era of globalisation. It is open to question in which direction such revisions will point. On the one hand, international competitiveness can only be improved on a sustainable basis if economic policies contribute to higher adjustment flexibility and encourage the search for innovations. On the other hand, defensive attitudes are difficult to overcome under the conditions of economic stagnation and high unemployment in major industrialised countries.

For the time being, it appears that this policy dilemma will again be tackled in a defensive way, i.e., by choking up loopholes and rendering entrepreneurial evasion more difficult. First indications to a more sophisticated protectionism relate to attempts at ex ante harmonisation of production standards. Common standards, for example, with respect to social and ecological production conditions, represent a protectionist device that may be more restrictive than traditional trade barriers. Production standards would remove an important parameter of international competitiveness. Especially the process of catching-up of lower-income countries might be impeded if DCs were required to adhere to the typically more demanding standards of industrialised countries. Trade barriers, providing protection for domestic import-competing industries, create an incentive for export industries to relocate production to lower cost locations. By contrast, common production standards diminish the chances of lower cost locations to attract FDI, as cost advantages of producing in the host country are reduced.

The EU has been among the first to follow the route to ex ante harmonisation of social production standards. Its initiatives at the regional level may indi-

cate future trends in multilateral harmonisation. The Maastricht Treaty, in its Protocol on Social Policy, contains a mandate to issue, with qualified majority, directives on minimum requirements with respect to (i) the working environment to protect workers' health and safety, (ii) working conditions, (iii) information and consultation of workers, (iv) gender equality and (v) the integration of persons excluded from the labour market.[170] In the case of an unanimous vote, common standards may be extended to social security and protection, dismissal protection, worker representation including co-determination, etc.

The EU is claiming authority in the area of social policy because, in its view, unregulated market operations could be at the disadvantage of workers in poorer member states, who are in need of protection. The extent to which labour markets are regulated differs substantially within the EU. The reduction of such differences would run counter to the stated objectives, however: backward regions will suffer if they have to comply with the more advanced social standards of the richer member countries. The mandated social benefits will raise labour costs so that the EU periphery will lose its comparative advantage and, thereby, the chances of catching-up in terms of per capita income. As a corollary, core regions are subject to less pressure to foster their growth potential through innovations. In other words, applying such a strategy means that locational characteristics would be denied their role in shaping the international division of labour.

Seemingly altruistic objectives, such as improving the working conditions of the poor, are also mentioned when it comes to social standards in DCs. However, the motive to avoid "unfair" competition in the form of "social dumping" is a rather selfish one. Multilateral harmonisation can be viewed as an attempt to raise labour costs in DCs, in order to diminish the pressure on real wages in industrialised countries (Chapter VI). Obviously, common social standards imply an asymmetrical treatment of locational characteristics: "Locational advantages of a rich country, such as a well-developed infrastructure and a high-skilled workforce, are perceived as fair, whereas the locational advantages of poor countries, such as low labour costs in terms of money wages and effective social regulations, are perceived as unfair. This is the old-fashioned protectionist pauper-labour argument" [Paqué, Soltwedel et al., 1993, p. 38]. Resistance against structural change and flexible labour markets is understandable from the point of view of those who have to adjust. The demand for protection in the form of common social standards cannot be supported by taking recourse to considerations based on economic fairness, however. In an integrating world economy, fairness in terms of economic competition should mean a guarantee

[170] For detailed information and a critical evaluation, see Paqué, Soltwedel et al. [1993, pp. 36 ff.].

against discrimination. Therefore, economic fairness could be best realised by strict adherence to the MFN principle of the GATT.

Additional variants of ex ante harmonisation have been introduced into the discussion recently:

— The notion of "unfair" competition has been extended to include "eco dumping". Similar to social standards, it is ignored that countries at different stages of economic development face different relative prices and various alternatives to spend scarce resources, for example for education, health care or the environment. Growing ecological concerns in industrialised countries are thus no sufficient proof of the need for worldwide minimum standards.[171] Nevertheless, a first step in this direction has been made in the Uruguay Round [Langhammer, 1994]. Environment-related measures have become part of the agreement on technical standards. International standards shall be developed, though the contracting parties are not (yet) obliged to adjust their national regulations.
— Harmonisation is an issue in the agreement on intellectual property rights (TRIPs), too. In the case of complaints by trading partners, national regulations have to be in accordance with common rules in order to escape unilateral retaliation. Patents are an important case in point. They shall be protected for 20 years. This is substantially above the typical DC norm so that it is again DCs that have to adjust [Hoekman, 1993, p. 1531].
— International rules of competition are considered to be a means by which restrictive business practices can be tackled more effectively than by anti-dumping measures. It cannot be disputed that globalisation and international networking have encouraged private concerted actions that escape GATT monitoring and surveillance [Paqué, Soltwedel et al., 1993, p. 25]. However, it is open to question whether harmonised competition rules will result in more or less competition. If informal restrictions such as effectively closed distribution channels were removed in this way, the rules could have a positive effect. The effect would be

171 Common ecological standards are frequently justified by referring to negative externalities of pollution-intensive production. Nonetheless, ex ante harmonisation of standards appears to be a protectionist device in the first place. There is no economic rationale for international harmonisation in the case of externalities at the local or national level, which are generally assumed to be far more important than international spillovers. Even in the case of cross-border externalities, the appropriateness of harmonised standards is highly questionable. Alternative instruments such as tradable emission permits are superior in tackling global ecological problems without interfering with the international division of labour.

negative if competition rules were used as a surrogate for industrial policies.[172]

Ex ante harmonisation is likely to play a major role in future GATT negotiations [Langhammer, 1994]. The protectionist motives underlying this move are evident. Especially lower-income countries will be subject to pressure to comply with common standards that basically reflect the interests of industrialised countries. Catching-up will become more difficult to the extent that ex ante harmonisation replaces the competition between economies with different institutional and regulatory settings. This may indeed ease the adjustment burden of industrialised countries for a while. However, harmonisation does not offer a long-term solution to the challenge of globalisation. Most importantly, foreclosing institutional competition involves considerable costs because it leads to allocative inefficiency and structural rigidity in the protected economies, while the incentives to increase productivity through innovation are weakened.

Furthermore, harmonised standards cannot prevent evasion even if there are fewer loopholes than for traditional trade barriers. Assuming that standards are effectively enforced, the ultimate consequence will be more migration of workers who are deprived of the chance to achieve higher per capita incomes when staying at home: if capital does not flow to poor countries, labour will move into rich countries.[173] Less spectacular evasion activities may erode the effectiveness of harmonised standards over time. Similar to trade restrictions against labour-intensive and standardised imports, harmonised standards will induce competitive suppliers (for example, Asian DCs) to intensify efforts towards upgrading their production and export structure. The ensuing shortening of product cycles would shift the adjustment burden from traditional and declining industries to those sectors in which industrialised countries should have a comparative advantage.

Finally, it may be difficult to agree on common standards from the very beginning, especially in areas where not only DCs but also industrialised countries are likely to oppose harmonisation. This applies, for example, to Japan that is blamed for informal entry barriers, including restrictive business practices. In other areas, harmonisation may be resisted by national pressure groups. For example, an unanimous support for common social standards is unlikely even in industrialised countries. Producers find themselves in a dilemma. Some

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172 The example of merger control in the EU reveals the practical relevance of this dilemma. The major thrust of competition policies is still subject to controversies between different interest groups [Paqué, Soltwedel et al., 1993, p. 25].

173 Apparently, industrialised countries are aware of this threat. Common rules for regulating the inflow of labour have been added to the list of issues for future harmonisation [Langhammer, 1994].

industries will support harmonisation in order to curtail foreign competition. Others may see this very competition as a vehicle to exert pressure on strict domestic labour market regulations. Harmonisation may also be opposed by producers who are well advanced in terms of globalisation, as common standards would erode their competitive advantage derived from worldwide sourcing. At present, the final outcome of this struggle between different interest groups is impossible to predict. In any case, common minimum standards may become redundant over time due to an ongoing trend towards stricter norms in leading economies, for example in the area of ecological production conditions. A permanent adjustment of common standards, which, principally, may help to avoid redundancy, may easily overtax administrative capacities in regulating and enforcing ever-changing rules.

b. Industrial Policy

Similar to ex ante harmonisation, industrial policy is likely to be one of the controversial topics of the future discussion on how to meet the challenge of globalisation.[174] This refers especially to the EU, where concerns about having lost technological leadership are manifest [Seitz, 1991]. The advancement of Japanese companies in terms of world-market performance and international networking is increasingly attributed to strategic long-term planning, in which the Japanese Ministry for International Trade and Industry (MITI) is considered to be the driving force. Japanese competitors are said to enjoy the advantages of an unlevel playing field, rather than simply being better players. Hence, it is argued that the EU should have its own MITI or at least strengthen coordinated efforts, involving governments, employers and unions, in order to counter the erosion of its competitiveness and technological position.

Strategic industrial policy has several means at its disposal to counterbalance foreign competition, ranging from traditional trade policy measures and outright subsidies granted to strategically important industries to state-aided cooperation and concentration within the corporate sector. Most of these instruments were already applied in the past, at both the national and the EU level. Recently, industrial and technology policy has gathered considerable momentum. The Treaty of Maastricht endows the EU with new and far-reaching competence in this area. The promotion of the competitiveness of EU industries shall become a major task for EU authorities [for details, see Vertrag über die EU, 1992]:

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[174] For detailed analyses on which the subsequent paragraphs draw, see Bletschacher, Klodt [1991; 1992] and Paqué, Soltwedel et al. [1993].

— Art. 130 of the Maastricht Treaty lists various policy instruments that aim at industrial targeting, including public assistance for structural adjustment and official support for cooperation among enterprises.
— In the field of technology policy, specifically designed promotion schemes may be adopted by the Council of Ministers at the request of the Commission (Art. 130 i). The EU may establish "common enterprises" or make similar arrangements to carry out coordinated research programmes and foster technological development.
— Comparable measures at the national level are largely exempted from EU provisions against cartelisation and mergers.

Past experience suggests that the effectiveness of strategic industrial policy is limited, while tremendous costs may be involved. Data on the sectoral distribution of subsidies in Germany reveal that industrial policy has mainly reacted to adjustment problems of ailing sectors.[175] Until the early 1990s, subsidies remained concentrated on agriculture, mining, iron and steel, shipbuilding and railways.[176] This indicates that most public support programmes, while intended to be only temporary, were usually prolonged again and again when sectoral adjustment problems turned out to be persistent. Rather than having promoted the development of technologically advanced industries, industrial policy has contributed to conserving resource-intensive and capital-intensive low-tech industries in the first place.

The few examples of industrial targeting at technologically more advanced industries in Europe are not encouraging either [Bletschacher, Klodt, 1991; 1992]. Estimates suggest that the increase of the European market share in civil aircraft sales (from 12 per cent in 1971–1975 to 21 per cent in 1986–1990) was only achieved at the costs of about $20 billion of government subsidies. Temporary state aid was justified as a means to induce learning effects so that the European aircraft industry could cope up with US competitors after a transition period. This infant industry argument has been discredited by the perpetuation of subsidies over more than two decades. In the case of semi-conductors, a combination of import tariffs, export restraints concluded with Japan and considerable subsidies supporting the research activities of European companies[177] was applied to help the establishment of manufacturing capacity in Europe.

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175 For details, see Weiss et al. [1988] and Rosenschon [1991].

176 These sectors accounted for nearly half of total subsidies in Germany in 1990. In per capita terms, subsidies to mining and railways were 12–13 times the average figure for the total business enterprise sector.

177 For example, DM 8 billion were devoted to the JESSI project (Joint European Semiconductor Silicon) at its start in 1989 [Bletschacher, Klodt, 1991, p. 26].

This attempt proved largely unsuccessful: after the decline of Europe's world-market share in semi-conductors in 1978–1983, its share remained at a low level of about 10 per cent until the early 1990s [Bletschacher, Klodt, 1991, p. 22]. A final example relates to the development of a European variant of the high-definition television (HDTV). In late 1992, the EU was asked to provide ECU 600 million over five years for this purpose [Frankfurter Allgemeine Zeitung, 5 December 1992]. This request was tantamount to a waste of public resources given that the Japanese HDTV system had been fit for production in 1989 already [Koopmann, Scharrer, 1989, p. 213].

From past experience it appears that industrial policy is inherently flawed. Typically, the opportunity costs of strategically motivated support of high-tech industries are ignored. The fiscal effects of subsidies translate into a higher tax burden falling on non-favoured industries and, thereby, affecting their international competitiveness. The privileges granted to some industries at the expense of others encourage lobbying, i.e., scarce resources are absorbed for obtaining a privileged status and are no longer available for productive purposes. Small and medium-sized enterprises are most likely to suffer from discrimination because they are less influential in the political arena. Large enterprises, which have traditionally been the main beneficiaries of subsidies, have better chances to get involved in coordinated attempts at industrial targeting, although they are not necessarily the most innovative segment of the corporate sector.

As concerns the targeting of subsidies and related privileges, the proponents of strategic industrial policy implicitly assume that potential growth industries are easily identified by the state. This assumption is a rather heroic one. The strategy of picking winners faces tremendous constraints in terms of collecting and evaluating the relevant information. It is difficult to conceive that governments and public administrations are better equipped than profit-oriented investors to trace future growth areas. The problems of targeting are further complicated under the conditions of globalised production. Attempts at promoting national (or European) "champions" face legal and practical constraints once foreign-based TNCs are closely involved in the respective industries. Legal provisions are that European companies and foreign-based TNCs producing in the EU have to be treated on equal terms: "Under these circumstances, it will prove very hard to secure European-based firms a competitive edge by providing internal or external protection to these firms exclusively" [Paqué, Soltwedel et al., 1993, p. 28]. Moreover, the example of the automobile industry (Section IV.1) has shown that international networking and cooperation increasingly disguise which company will be the main beneficiary of subsidies and other promotion schemes. The potential for rent shifting through strategically motivated R&D support schemes is reduced, since cross-border R&D alliances contribute to a quick diffusion of technological progress and promote the tendency

to separate research activities from production activities [Krakowski, 1993, p. 62]. As a result, it is rather unlikely that subsidies for R&D activities can raise the domestic growth rate relative to economic growth in other countries.

All in all, strategic industrial policy is no promising response to the challenge of globalisation. Defensive attempts to ease the adjustment burden of aging industries will not prevent their decline and eventually reduce the adjustment flexibility of the whole economy. The promotion of future growth industries runs the risk that scarce public resources are wasted. Finally, strategic behaviour of one major player such as the EU provokes retaliation by other players so that all countries would suffer (see, for example, Siebert, Koop [1990]). Hence, there is no alternative to improving the internal efficiency and adjustment flexibility of EU companies, in order to withstand fiercer competition for markets and mobile factors of production. Important elements of a forward-looking approach include the privatisation of state-owned enterprises and the deregulation of sectors shielded from internal and external competition. Among the latter, the transport sector is a prominent case in point. The major policy problem concerns the future chances of low-skilled labour in industrialised countries, however (Chapter VI). Consequently, the focus is on wage policies and human capital formation in the subsequent sections.

c. Wage Policies

The preceding discussion has shown that traditional and innovative protectionist measures and industrial policies do not offer promising avenues to ensure employment of low-skilled workers in industrialised countries. The effectiveness of defensive policy measures is fairly limited in the longer run, and the strategy of buying time for adjustment is typically very costly. Frequently, adjustment is simply postponed rather than smoothened over time. This is not surprising because defensive policy interventions distort relative prices, which, therefore, can no longer signal the direction of the required structural change.

The conclusion that emerges from the comparison of the US and European reaction patterns to fiercer international competition (Chapter VI) is that wage discipline is necessary in order to maintain employment of low-skilled workers in industrialised countries. The US example shows that the chances for employment are improved if increasing relative wage dispersion is accepted. New employment opportunities were mainly offered in service sectors characterised by relatively low productivity growth. This has led to concerns that the US approach may result in a highly dualistic economy, a trap that may be difficult to escape once it has snapped. However, dualism has not been avoided in European economies either: the consequence of a rigid wage structure at times of in-

tensified competition was rising unemployment, especially of low-skilled workers.

Although both types of dualism give rise to social tension, the US approach appears to be superior to the European approach. High and persistent unemployment can easily result in a vicious circle. It leads to a rising financial burden falling on the government budget and the social security system. In order to finance rising unemployment benefits, the authorities have to increase social security contributions of workers and producers or to raise higher taxes. Consequently, total labour costs will further increase, the international competitiveness of domestic producers continues to decline, and unemployment is likely to mount.

In European countries, wage flexibility and wage differentiation have frequently been resisted, as trade unions have aimed at greater equality of wages across skills and regions. Hence, trade unions have to give up a guiding principle in bargaining with employers in order to alleviate the restructuring of industries under heavy competitive pressure and reduce unemployment. Recent wage agreements in Germany point to an emerging consensus that wage discipline is unavoidable and real wage cuts have to be accepted once job security has become the major concern. It is still questionable, however, whether trade unions will agree to a more pronounced wage differentiation. Their resistance, which hinders flexible labour market adjustment and labour mobility, appears to be mainly due to incentive problems and can be explained in terms of opportunity costs:

— The trade union's position in centralised collective bargaining would be undermined if more wage differentiation were accepted, which basically means accepting the outcome of a flexible labour market.
— Trade unions and employers have insufficient incentives to take the employment effects of collective wage agreements into account, because the responsibility for fighting unemployment has been shifted to governments in many industrialised countries, for example, in Germany.
— Trade unions do not have to support their members in the case of unemployment. In turn, the incentives of workers to search for new employment opportunities and to accept lower paid jobs are inversely related to the generosity of unemployment benefits provided by the government in terms of eligibility, duration and the level of payments relative to wage incomes.

It follows that governments bear major responsibility for overcoming incentive problems and, thereby, improve the chances for wage differentiation. Especially the incentive compatibility of the system of unemployment benefits

may be strengthened in several respects. Strict eligibility criteria should be applied if job offers are declined by beneficiaries. For example, the payment of benefits may be terminated if offers are declined that would have required wage concessions and regional or sectoral mobility. The duration and level of payments should be linked to the beneficiary's willingness to participate in qualification and retraining programmes. Sanctions may be differentiated according to the age of the unemployed, since younger workers should reveal a higher degree of flexibility [Langhammer, Paqué, 1994]. Positive incentives may include government support for training programmes offered by the business sector.

The effectiveness of revising the system of unemployment benefits is likely to remain limited, however, unless trade unions and employers take responsibility for securing employment. This requires governments to be committed not to make up for adverse employment effects of collective wage agreements, for example, by granting protection and subsidies. At present, it can be doubted that such a commitment would be credible. The previous sections have shown that the governments' stance with regard to trade and industrial policies has been influenced by well-organised interest groups, and it can safely be assumed that lobbying will continue. Hence, it cannot reasonably be expected that the required reversal of economic policies will emerge from autonomous government action alone. In the future, much depends on whether traditional policy failures will lead to the formation of influential interest groups that counterbalance the pressure for government support of non-competitive industries.

An effective opposition against industry-specific demands for protection and subsidies may arise from those industries that have to bear the costs of such a strategy in terms of higher input prices, rising taxes and impaired competitiveness. Globalisation may raise the propensity to lobby for major policy revisions for various reasons: First, protectionism and similar measures cause increasing welfare losses under the conditions of globalised production and markets. Second, the more industries are protected and granted a privileged status, the more difficult it becomes to widely diffuse the welfare losses. Consequently, an increasing burden has to be shouldered by a declining number of competitive industries, which provides a strong incentive to organise opposition against the vested interests of well-established pressure groups. Third, the traditional policy stance increasingly fails to achieve its stated objective, as is evident from mounting unemployment in many industrialised countries.

Provided that lobbying is less biased in favour of non-competitive industries in the future, governments will find it easier to resist industry-specific demands for securing jobs. Under such conditions, it may be possible to establish a credible link between government support for the restructuring of declining industries and the industry's own adjustment efforts. For example, the provision

of production-neutral subsidies for a specified time period could be made conditional on collective agreements on wage restraint and a differentiated wage structure [Langhammer, Paqué, 1994]. If appropriate wage policies were a precondition for government help, public support would no longer discourage labour market flexibility and the mobility of workers, as was typically the case in the past.

d. Human Capital Formation

Wage flexibility and differentiation would help to ease employment problems in industrialised countries in the short and medium run. They represent an appropriate market response to fiercer international competition, by which dismissals of low-skilled workers in the affected industries can be prevented. However, flexible wage policies cannot halt globalisation and the ensuing devaluation of low-skilled labour in industrialised countries.[178] The adjustment pressure will persist for two reasons: (i) the long-term trend towards labour-saving technological progress is likely to continue, and (ii) new competitors from the developing world and the former socialist bloc will increasingly challenge the competitive position of industrialised countries.

In order to escape this dilemma, the suggested wage policies should be regarded as a cushion that renders it easier to embark on a long-term strategy of tackling the causes rather than the symptoms of impaired competitiveness. If low-skilled labour is the major problem, such a strategy must focus on human capital formation. In other words, industrialised countries have no choice but to strengthen their comparative advantage in human-capital-intensive sectors by improving the qualification of the workforce. To some extent, a gradual improvement of the average level of qualification may result from natural changes in the structure of labour supply. Specifically, competitiveness would increase if retired low-skilled workers were replaced by better educated school-leavers [Langhammer, Paqué, 1994]. The basic assumption underlying this reasoning is that the productivity of workers at school-leaving age is relatively high because of better formal education, more flexibility in meeting new job requirements and greater familiarity with recent production and communication technologies (for example, computer literacy). The validity of this assumption depends on several factors, however, among which the adequacy of the system of formal education and the relevance of training on the job (relative to formal education) are most important.

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[178] In order to do so, the wage dispersion in industrialised countries would have to increase to a degree that is socially unacceptable.

Generally speaking, the system of formal education has to ensure that workers are well prepared to meet current and future job requirements. Given the permanent change of these requirements in the era of globalisation, human capital has to be built in a way that allows for flexibility and mobility of the workforce. This should have consequences for both the curricula of schools and universities and the focus of government budgets for education. As concerns curricula, it seems necessary to bring schools (including universities) and industry closer together in order to narrow the gap between the skills supplied and those required in labour markets. As concerns government outlays, empirical evidence suggests that the widespread precedence of higher over basic education is inappropriate. A survey of the literature reveals that the returns to primary education are significantly higher than the returns to secondary education, which in turn exceed the returns to higher education [Psacharopoulos, 1993]. This finding does not only apply to DCs but also to OECD countries.

The evidence supports the notion that further spending on all forms of education may be warranted in OECD countries. The relatively low return on higher education still exceeds 8 per cent, which is probably above the social discount rate in OECD countries. However, the focus of government spending should be on basic education rather than universities. This requires major revisions in many industrialised countries. Cases in point are the United States and the United Kingdom, where basic education has traditionally been relatively poor. But the quality of basic education may deteriorate in Germany as well, if the trend against the lower segment of the education system ("Hauptschule") continues.

The relevance of and the returns to vocational training are more difficult to assess. Studies that compared academic or general education at the secondary level with technical or vocational education have found returns to the former to be significantly higher [Psacharopoulos, 1993].[179] Empirical evidence on in-company training is largely lacking, however. Likewise, the relative role of training on the job is open to debate. On the one hand, the positive correlation between wages and the duration of employment in a particular firm indicates that experience is considered to be a relevant factor in enhancing productivity. On the other hand, the acquired skills may not fit easily into other workplaces to the extent that they are firm-specific.

The debate on the appropriateness of different training systems is still unsettled because of the ambiguities with regard to vocational training [The Economist, 1994]. Systems that were successful in the past may reveal significant flaws once flexibility is of overriding importance. The widely admired appren-

[179] The reason is that vocational training is far more expensive to provide than academic education.

ticeship system in Germany may provide an example. First, it may be less efficient in service sectors with a relatively short life cycle of vocational skills than in manufacturing. Second, the system produces fairly narrow specialists, rather than flexible generalists, who will increasingly be required in the era of globalisation. Finally, the expensive apprenticeship system is not easily transferable to other countries with completely different social institutions and relationships.[180] Likewise, the Japanese system of prolonged in-company training, which allowed the country to pioneer flexible production processes, is not only difficult to copy; it may also need major revisions in Japan itself, once life-time employment can no longer be guaranteed and growing individualism raises the risk of poaching.

A related question concerns the role that governments have to play with regard to vocational training. The case for public involvement depends on the existence of market failure, i.e., in-company training remaining below its social optimum because a worker trained at the cost of one company may be poached by another one. The degree of such externalities has generally been overstated. Typically, workers involved in vocational training will be paid less than the value of their work to the company that runs the training programme. In other words, workers (rather than companies) bear the costs of training and capture the subsequent benefits in terms of higher wages [Becker, 1994]. Nevertheless, markets may fail to provide sufficient vocational training from the society's point of view. Most notably, a bigger stock of skilled labour may deliver social benefits in terms of greater flexibility in responding to economic change [Porter, 1990]. Hence, there is reason for governments to support vocational training, although specific training may be largely left to the market and the exact degree of government involvement is open to debate.

In summary, human capital formation is of increasing importance under the conditions of globalised production and markets. Some unsettled issues concerning the relative effect of formal education and training on the job and the role of public versus private training activities require further research. Nonetheless, the presently available evidence offers some relevant guidelines for policy reforms in industrialised countries. What appears to be required in the future are flexible generalists rather than narrow specialists. Consequently, curricula must be revised in cooperation with the business sector. Government out-

[180] It may be noted that the merits of apprenticeships are increasingly discounted by young Germans, too. More than half of school-leavers are now choosing to go into higher education rather than take an apprenticeship. Notwithstanding the apparently higher private rates of return of this strategy, the social rates of return seem to be much lower because "Germany's universities are some of the worst organised in the rich world, with ... an average graduation age of more than 30" [The Economist, 1994, p. 28].

lays should be concentrated on establishing a sound educational basis that allows to acquire a broad spectrum of specific skills according to changing demands. Training and retraining should take place within companies to the largest extent possible and may be promoted by the government. Reforming the system of education and training will take considerable time to become effective. It is exactly because of these time lags that reforms should no longer be postponed.

VIII. Summary and Policy Conclusions

The world economy has become more integrated since the 1980s. Previously, this process was mainly driven by international trade offering chances for specialisation. The globalisation of production and markets has added a new dimension to the international division of labour. The fragmentation of production at a worldwide scale has gathered momentum over approximately the last decade. The trend towards globalisation, which is highly likely to continue, has been fuelled by various factors. The number of players in world markets have increased significantly attributable to the success of many DCs in catching-up with industrialised countries, so that market size no longer constrains globalisation strategies. At the same time, transaction and communication costs have fallen, and standardised business services have been available around the globe. Furthermore, improved macroeconomic stability has reduced the risks for international investors and, therefore, promoted globalisation. In turn, the high mobility of financial capital predisposes economic policies towards achieving macroeconomic stability in economies competing for risk capital.

Booming FDI flows in the 1980s are the clearest indication of globalised production patterns. Regional integration, particularly in Europe, has definitely contributed to the unprecedented growth of FDI. However, international investors have not considered a stronger regional engagement to be an alternative to worldwide production, sourcing and marketing, as is evident from rising interregional FDI flows. Regionalisation and globalisation have rather proceeded hand in hand. The evidence on non-equity forms of international cooperation provides further support in this respect. NEC has grown parallel to FDI and plays an increasingly important role in the globalisation strategies of foreign investors. It allows for risk diversification and provides a means to circumvent FDI restrictions. NEC is the preferred mode of globalisation if production processes are standardised (for example, in the manufacture of clothing), while FDI dominates in human-capital-intensive industries (for example, the automobile industry).

From the analysis of corporate strategies at the sectoral level, it is also evident that industry characteristics, such as factor intensities and the competitive environment, are relevant for globalisation:

— The recent move towards the deepening and widening of integration in Europe has induced a relocation of automobile production within the region, while it has not affected the efforts of EU companies outside Europe. However, automobile producers based in the EU are generally

far narrower in global terms than their competitors from the United States and Japan. Policy interventions, notably import restrictions, have added to the reluctance of EU companies to go global. As a result, they are facing considerable difficulties to catch up with Japanese standards in terms of cost efficiency. Closer intra-EU cooperation will probably remain insufficient to meet the challenge of fiercer worldwide competition.

— The competitive position of EU producers appears to be much better in the physical-capital-intensive chemical industry, in which EU producers have been among the frontrunners of globalisation. Rather, they had weak incentives to focus their attention on the emerging Single European Market, while globalisation was encouraged by the need for restructuring chemical production. FDI by means of mergers and acquisitions dominates their engagement in industrialised countries, particularly in entering US markets, whereas NEC dominates their engagement in DCs.

— Notwithstanding intense policy interference over decades, competitive pressures from newly emerging suppliers are particularly pronounced in textiles and clothing. Trade restrictions have caused substantial evasion, starting with moves towards globalisation by Japanese trading companies in the 1960s. NEC-type arrangements such as subcontracting and offshore processing have a long tradition especially in the labour-intensive manufacturing of clothing, which is an ideal candidate for globalisation. Tapping labour markets of low-wage countries, without losing control over design and marketing, was the major motive underlying the globalisation of clothing production. FDI is more important in the relatively capital-intensive textile industry. Although textile production of EU suppliers was increasingly relocated to competing industrialised countries, in order to produce in proximity to overseas customers, there is no evidence on investment diversion at the expense of DCs. Globalisation in both textiles and clothing will become an even more important determinant of competitiveness in the future, when the MFA will be phased out.

Obviously, globalisation is attributable to corporate reactions to changes in the international environment and provides a means to restore or enhance competitiveness. Constraints that hindered globalisation in the past are no longer binding. At the same time, globalisation increasingly constrains governments to pursue economic policies of their own liking. At the sectoral level, the effectiveness of trade restrictions is eroded if FDI and NEC are used to jump over protectionist fences. The constraints for economic policy become even more

binding if globalisation is associated with more rather than less trade at the aggregate level. Most importantly, national governments will find it increasingly difficult to protect less competitive factors of production if the international division of labour proceeds through trade and foreign investment at the same time. The empirical analysis of the link between FDI and trade flows shows that this is exactly what has happened.

First of all, bilateral FDI flows and trade flows are positively correlated. The higher contemporary and past FDI flows from Germany, Japan and the United States to foreign countries, the higher exports to and imports from the host countries are. The positive link is strongest for Japan, but relatively weak for the United States. Notwithstanding such differences among major investor countries, the evidence is consistent with the globalisation hypothesis according to which both FDI and trade are driven by a common set of determinants. As a consequence, FDI is positively correlated with exports of home countries and with exports of host countries.

In addition, globalisation has contributed to profound changes in the regional and structural pattern of international trade. The increasing number of competitive suppliers in world markets indicate the adjustment problems that result in industrialised countries. Asian DCs have strongly increased their share in trade of manufactures with the Triad. The adjustment pressure will mount when further DCs become integrated into the globalisation strategies of TNCs. Especially Latin American economies have regained international competitiveness after the recent reforms towards macroeconomic stability and trade liberalisation. But globalisation has not only stimulated trade between countries with different factor endowments and per capita incomes. At the same time, trade in manufactures has further increased between industrialised countries despite similar factor endowments.

Expanding trade in manufactures within the Triad and the growing role of Asian DCs have led to an increase of intra-industry trade. This increase has been most pronounced for Japan. At the same time, inter-industry specialisation has continued to be of major relevance for Japan in relatively labour-intensive sectors. This pattern suggests that Japan's integration into the international division of labour has been most successful among the members of the Triad. By contrast, EU trade has been at least partly in conflict with factor endowments. The EU reveals an extremely high level of intra-industry specialisation not only in human-capital-intensive industries but also in traditional industries. This distinct EU pattern reflects the complex interplay of globalisation strategies and EU trade policies. Apparently, policy interventions have hindered industrial restructuring, i.e., a more pronounced shift from labour-intensive to human-capital-intensive sectors. Delayed adjustment in relatively labour-intensive industries in the EU has contributed to increasing competitive pressure for more dif-

ferentiated goods. Intra-firm trade, which has amounted to a substantial fraction of total merchandise trade, adds to this pressure. For example, intra-firm trade data point to an increasing competitiveness of Asian suppliers (notably Japan and South Korea) in relatively technology-intensive and human-capital-intensive industries.

From the analysis of the FDI-trade link, it follows that the effects of globalisation strategies on the volume and structure of trade depend on the way in which globalisation proceeds. However, different globalisation strategies have in common that they give rise to mounting pressure on non-competitive factors of production in industrialised countries. Although it is very difficult to empirically disentangle the complex linkages between international trade and FDI flows on the one hand and technological change, jobs and wages on the other hand, our results indicate that increasing globalisation is at least partly responsible for the adjustment pressures that worry policymakers, producers and workers in advanced countries. Trade data show that the prices for goods produced with a relatively large input of low-skilled labour have fallen compared with goods produced with a relatively large input of high-skilled labour. This result implies that the relative wage for unskilled labour tends to fall, or, if wage flexibility is restricted, that unemployment of low-skilled workers tends to rise. It is of minor relevance whether globalisation also works indirectly through labour-saving technological change, or whether this technological change is not at all related to globalisation. In any case, the adjustment pressure for unskilled labour will further increase on top of intensified competition resulting from a more integrated world economy.

Rising and persistent unemployment has become the major concern of economic policymakers in industrialised countries, especially in the EU. Even though globalisation cannot be blamed for all the economic ills in advanced countries, it tends to aggravate the problem of unemployment. Hence, the relevant question is what governments can do to cure unemployment in the age of globalisation. Typically, governments resorted to protectionism in order to maintain employment in non-competitive industries. However, economic policies aiming at redistribution are increasingly constrained under the conditions of highly mobile production factors. Traditional attempts at protecting non-competitive production factors in industrialised countries, notably low-skilled labour, are bound to fail. Especially the effectiveness of trade restrictions is seriously undermined because globalisation offers more options for evasion and increases competitive pressures. Therefore, the principal players in multilateral trade negotiations should give up their defensive attitudes with respect to sweeping trade liberalisation. A liberal world trading system is not only best suited to raise economic welfare at a worldwide scale. It is also in the self-interest of the major players. Open markets for imports and FDI help to overcome

policy-induced inflexibility and disincentives to adjustment. They provide the best chances to participate successfully in the global competition for risk capital and, thereby, create new employment opportunities. This applies to major regional integration schemes such as the EU as well. The deepening and widening of integration are no promising alternative to worldwide sourcing and marketing, i.e., improving competitiveness by world-market standards.

It follows that the current trade policy stance should be revised in various respects:

- The trend towards tackling trade conflicts on a bilateral and discretionary basis must be reversed. Otherwise, greater GATT discipline will remain an illusion although it figured high on the agenda of the Uruguay Round. Credible sanctions are indispensable to enforce GATT rules.
- In order to prevent regionalism from undermining multilateralism, transparent mechanisms have to be implemented providing for compensation for those non-member countries whose trade is negatively affected.
- Rather than extending the concept of managed trade to investment-related restrictions, TRIMs such as local content requirements must be prohibited to substantiate the principle of equal treatment of foreign and domestic investors.
- GATT rules should apply to trade in services as well, so that globalisation can proceed on a reliable basis. This requires that future GATT negotiations must aim at overcoming the numerous qualifications made by contracting parties during the Uruguay Round.
- Attempts at applying harmonised production standards as a sophisticated protectionist device must be resisted in future GATT negotiations. Economic fairness requires strict adherence to the MFN principle, rather than mandated social standards, which would erode the locational advantage of low-income countries. Ecological problems of a worldwide dimension should be tackled by market-related instruments (for example, tradable permits or taxes) aiming at production rather than trade. In the case of local ecological problems, there is no economic rationale whatsoever for multilateral action (except aid).

In addition to conventional and innovative trade restrictions, governments have attempted to tackle the problem of unemployment by referring to selective industrial policies. Non-competitive sectors have been granted huge subsidies on a prolonged basis. At the same time, public support was targeted at potential future growth industries. The rather discouraging results suggest that policy reorientation is not only required with respect to trade interventions but also with

respect to industrial policies. Most importantly, the tremendous costs of subsidising ailing industries should no longer be ignored. Much depends on whether those industries that have to bear the costs in terms of higher input prices, rising taxes and impaired competitiveness organise an effective opposition against such a strategy. However, countervailing lobbying should not aim at a different form of selective industrial policies, for example, a strategy of picking the winners. Technological leadership has to be restored by means of entrepreneurial adaptation and innovation, rather than by the governments pursuing a policy of industrial targeting. The deeper governments are involved in selective industrial policies, the less prepared they are (in both financial and administrative terms) to fulfil their fundamental role in the era of globalisation, i.e., to provide an economic policy framework that is predictable and stimulates innovative investment and, hence, employment on a non-discriminatory basis. Major elements of the policy that strengthens the locational advantages of economies under heavy competitive pressure are: deregulation and privatisation, a reduced tax burden, a critical review of the social security system, the provision of adequate infrastructure and investment in education. The business sector should realise that the chances for such reforms improve to the extent that industry-specific demands for government support are resisted.

Hence, it depends on both the governments and the corporate sector whether industrialised countries will remain competitive in the future. Globalisation implies a greater need for structural change and adjustment flexibility. The challenge is felt in labour markets in the first place. Resistance against flexible labour markets is understandable from the point of view of those who have to adjust. From a macroeconomic point of view, however, there is no choice but to accept that globalisation is associated with considerably reduced degrees of economic freedom in the national realm. In the short run, wage discipline and wage differentiation are indispensable to contain unemployment of low-skilled workers in industrialised countries. Flexible wage policies cannot halt globalisation, but they provide a cushion until a long-term strategy becomes effective. Such a strategy must focus on human capital formation in order to strengthen the comparative advantage of industrialised countries in skill- and R&D-intensive sectors. It is thus of utmost importance that governments, business associations and trade unions critically review whether traditional systems of education and training are still appropriate under the conditions of globalised production and markets, and that the necessary reforms are implemented without further delay.

Appendix Tables

Table A1 — FDI Outflows and Exports, 1982–1992 (billion dollars)

	FDI outflows	Exports of goods and services		FDI outflows	Exports of goods and services
1982	21.6	2,332.7	1989	217.6	3,532.1
1983	39.6	2,388.6	1990	238.4	4,081.6
1984	49.1	2,165.3	1991	189.2	4,203.6
1985	58.3	2,193.4	1992	170.9	4,545.4
1986	91.6	2,422.4	*Annual growth*		
1987	135.7	2,860.2	*(per cent)*	23.0	6.9
1988	169.3	3,263.6			

Source: IMF [a].

Table A2 — Share of the Triad in Global FDI Flows, 1982–1992

	1982–1985		1986–1989		1990–1992	
	mil. $	per cent	mil. $	per cent	mil. $	per cent
Annual outflows	42,153	100	153,545	100	199,524	100
of which:						
EU–12	20,433	48.4	72,852	47.4	101,487	50.9
United States	4,817	11.4	22,185	14.4	32,203	16.1
Japan	5,031	11.9	28,092	18.3	32,010	16.0
Annual inflows	50,511	100	136,524	100	170,749	100
of which:						
EU–12	13,077	25.9	49,191	36.0	83,648	49.0
United States	17,277	34.2	54,747	40.1	23,827	14.0
Japan	361	0.7	–45	–0.03	1,950	1.1

Source: IMF [a].

Table A3 — European Foreign Direct Investment by Countries of Origin and Host Regions, 1985–1991[a]

		World	EU-12	Other industrialised countries[b]	Central and Eastern Europe	DCs	Asian DCs
		mil. ecus	per cent				
Belgium/ Luxembourg	1985–1987	1,437	61.3	18.8	–	3.5	2.7
	1988–1990	4,437	68.8	8.9	0.6	17.5	–
	1991	4,908	104.6	–	4.7	26.6	4.6
Denmark	1985–1987	510	48.4	41.0	na	8.6	3.3
	1988–1990	1,310	70.4	22.5	0.0	3.4	2.3
	1991	1,658	49.6	41.6	0.5	7.9	8.0
France	1985–1987	5,278	41.7	45.6	0.1	5.9	1.4
	1988–1990	16,186	65.0	30.4	0.1	2.6	0.5
	1991	16,589	53.0	42.1	1.0	1.6	1.1
Germany	1985–1987	8,021	32.0	61.9	0.2	4.7	1.3
	1988–1990	13,703	56.9	38.2	0.6	3.6	1.5
	1991	18,093	67.0	23.8	3.6	5.4	2.0
Italy	1985–1987	2,386	60.3	16.7	0.2	3.5	na
	1988–1990	3,995	78.1	2.9	0.8	0.5	na
	1991	5,398	13.4[c]	3.2	0.5	0.0	na
Netherlands	1985–1987	4,368	43.0	38.8	0.0	10.0	3.0
	1988–1990	8,069	47.2	37.7	0.1	11.7	4.0
	1991	9,759	68.2	19.7	1.3	13.3	6.2
Portugal	1985–1987	7	–	na	na	na	na
	1988–1990	92	81.8	3.5	na	12.3	3.3
	1991	381	84.4	4.9	na	4.4	1.6
Spain	1985–1987	510	49.0	19.8	na	25.7	na
	1988–1990	2,445	53.7	17.2	na	21.3	na
	1991	5,269	62.2	7.3	0.2	27.1	na
United Kingdom	1985–1987	19,792	17.6	68.5	na	13.1	2.9
	1988–1990	25,871	30.6	54.9	na	12.3	2.9
	1991	12,877	39.6	42.1	na	16.5	4.0

[a]Time periods 1985–1987 and 1988–1990: annual average. — [b]Austria, Finland, Iceland, Norway, Sweden, Switzerland, other Europe, North America, Australia, Japan. — [c]Large disinvestment in Belgium-Luxembourg and undisclosed flow to "other industrialised countries".

Source: OECD [1993b].

Table A4 — Major EU Car Manufacturers: Equity Participation and Cooperation Agreements[a]

	Partner (country)	Equity stake[b]	Operational relationship
Mercedes-Benz, Germany	Ssangyong, Korea	—	Licensing agreement in 1991. Production of engines and CVs to start in 1994; possible stake in the company.
	Mitsubishi, Japan	—	Plan for a joint production of a 4WD vehicle.
	LIAZ, Russia	—	Technical collaboration agreement.
	Steyr–Daimler–Puch, Austria	—	Builds the *G–Wagen*.
	Porsche, Germany	—	Builds the 500E for Mercedes-Benz.
VWAG/ Audi Germany	SEAT, Spain	1986: 75% (99.9%)	Wholly acquired.
	Autolatina, South America	1986: 51%	Joint venture with Ford.
	AKMB, Skoda, Czech Republic	1991: 25–31% (1995: 70%+)	Formation of a new joint-stock company.
	BAZ, Slovakia	1991: 80%	Produces transmissions and presses.
	FAW/VW, China	40%	Production start in 1993.
	Shanghai Car plant, China		Wholly acquired by Shanghai Volkswagen in 1992.
	Ching Chung Motor, Taiwan	33%	Joint venture with Ching Fong Investment. Plan for a joint production of vans and pickups.
	Toyota, Japan	—	Joint production of the "Taro".
	Ford, United States	—	Joint venture in 1990 to produce a multi-purpose vehicle in Portugal (represents the largest single FDI in Portugal).
	Steyr–Daimler–Puch, Austria	—	Produces 4WD & LCV.

Table A4 continued

	Partner (country)	Equity stake[b]	Operational relationship
Peugeot SA, France	Sevel, Italy	50%	Joint venture commercial plant with Fiat.
	Automot. Franco, Chile	59%	Joint venture with Renault.
	SAW, China	(30%)	Joint venture in 1990; production of 150,000 Citröen ZX per year planned.
	Yeu Tyan Co Ltd, Taiwan	10%	
	Mahindra, India	4.7%	Licensing agreement for diesel engines.
	Iran	—	Industrial agreement with Iran in 1989.
	Canton Automob., China	—	Small joint venture.
	Renault, France	—	Research partnership.
	Renault, France, Volvo, Sweden	—	Engine research agreement in 1989.
	Rover, United Kingdom	—	Produces diesel engines for Rover cars.
	FSL, Poland	—	Technical cooperation agreement in 1992. PSA will produce at least 2,000: 405s per year from kits at FSL.
Renault/ RVI, France	Ojak-Renault, Turkey	43%	Joint venture with local investment.
	Volvo AB, Sweden	1991: 8.3 %	Complex cross shareholding; the planned strategic alliance was finally rejected by Volvo in late 1993 and equity stake was reduced to 3.45% in 1994; engine research agreement since 1971.
	Revoz, former Yugoslavia	20%	Partnership agreement and joint venture with IMV (YU).
	Automot. Franco, Chile	41%	Joint venture with Peugeot.
	Chrysler, United States	—	Joint production of 4WDs in 1992 in Spain. Sales and distribution agreement in France until 1992.
	DAF, Netherlands	—	Plan for a joint venture.

Table A4 contined

	Partner (country)	Equity stake[b]	Operational relationship
	SAW, China	—	Agreement for diesel engines.
	VWAG, Germany	—	VW produces automatic transmissions.
Rover Group, United Kingdom	BMW, Germany		Majority stock (80%) acquired by BMW in January 1994.
	Honda, Japan	1989: 20%	20% cross-shareholding.; in 1994, Honda decided to sell its shares to BMW.
	DAF, Netherlands	16%	
	Iran	—	Letter of intent to set up car assembly plants in Iran.
Fiat, Italy	Sevel, Italy	50%	Joint venture commercial plant with PSA.
	Alfa Romeo, Autobianchi and Lancia, Italy	1986: 50% (100%)	Wholly acquired.
	Ferrari, Italy	1986: 50% (90%+)	Wholly acquired.
	Innocenti, Maserati, Italy	51% or 49%	
	ZJA, former Yugoslavia	18% (50%+)	
	VAZ, Russia	1991: 30%	Factory built using Fiat expertise.
	FSM, Polen	1992: 90%	Licensing agreement; acquisition in 1992.
	Chrysler, United States	—	Joint venture imports and distributes the Alfa Romeo 164 in the United States.

[a]Local assembly plants and subsidiaries excluded. The situation portrayed is basically as of 1992; more recent information is included where available from press and company reports. — [b]Figures in parenthesis refer to extended equity stakes planned for the future.

Source: EIU [1992].

Table A5 — Share of the Chemical Industry in Total Inflows and Outflows of FDI, 1982–1992 (per cent)

	1982–1984	1985–1989	1990	1992
		Inflows		
Denmark	–8.00	5.92	6.83	3.43[a]
France	11.08	3.23	5.93	4.10
Germany[b]	1.75	–2.80	67.40	–10.21
Italy	22.48	15.25	0.63	36.48[a]
Netherlands[c]	–11.41	29.21	28.20	10.43[a]
Spain[d]	14.84	16.77	12.55	9.01[a]
United Kingdom	na	6.48	2.31	4.54[a]
EU[e]	12.28[f]	9.66	5.91	6.94[a]
Japan	28.11	12.59	15.76	20.79[a]
United States	6.09	13.63	17.47	66.32
		Outflows		
Denmark	–4.55	4.18	5.00	3.12[a]
France	3.28	7.95	9.67	5.30
Germany[b]	na	13.25[g]	8.97	6.74
Italy	8.98	5.43	2.98	0.79[a]
Netherlands[c]	53.56	23.44	10.57	18.40[a]
Spain[d]	5.51	4.84	7.61	3.20[a]
United Kingdom	na	11.41	15.55	17.64[a]
EU[d]	18.44[f,h]	11.84	10.07	8.39[a]
Japan	3.83	2.63	4.03	5.90
United States	17.59	11.80	8.24	13.68

[a]1991. — [b]For outflows the data are not available prior to 1986. — [c]Including mining, quarrying and oil. — [d]Including mineral products. — [e]Includes Denmark, France, Germany, Italy, Netherlands, Spain, United Kingdom. Based on data converted into ecus at period average exchange rates. — [f]United Kingdom only 1984. — [g]1986–1989. — [h]Without Germany.

Source: OECD [e]; Deutsche Bundesbank, unpubl. data; Banque de France [a, 1993]; MOF [a]; USDOC [a].

Table A6 — Major EU Chemical TNCs: Recent Acquisitions, Mergers and International Cooperations

BASF	*EU: Italy*: Ravizza (1986, A), Pigmenti Italia (1986, A), Cesano Maderno (1986, A), Bio Research (1990, A), Routland (1988, A). — *United Kingdom*: Monsanto (1986, merger of the polyamid production in United Kingdom). — *Denmark*: DanoChemo (1992, A) — *Spain:* Critesa (1989, A). *Other industrialised countries: United States:* Immont Corp. and American Immont Group (1985, A), American Enka (1985, A, fibres), Polysar (1988, A, Latex-Division). — *Japan*: Idemitsu Petrochemicals (1985, L), Takeda Chemical Ind. (1988, JV), Nippon Oil (1990, TC and JV). — *Switzerland*: CMT International AG (1988, A). — *Austria*: Leopold & Co. (1988, A). *DCs and others: Mexico*: Aurolin (1989, A). — *Argentina*: Lusol (1988, A). — *Hungary:* Kemipur (1989, JV). — *Russia*: Gazprom (1990, TC and long-term contract). — *South Korea*: Hangyang Basf (1988, JV).
Bayer	*EU: United Kingdom*: Sturge (1990, merger of the citric acid bus.). — *Denmark*: Agro-Kemi A/S (stake increased to 100%). — *France*: Rhone-Poulenc (1990, merger of citric acid business). *Other industrialised countries: United States*: Conesco Corp. (1988, A), Wyrough & Loser Inc. (1987, A), Mobay Synthetics (1988, A), Matrix (1988, A), Denka Chemical (1987, A), Agrion (1989, A), Cooper Technicron (1989, A), Creation Aromatics (1989, A), Sterling Drug (1986, reacquisition of trade mark), Hercules Inc. (1992, merger of the perfum activities), Nova Corp. (1990, merger of the Polysar rubber div.), Diamond Scientific Comp. (1989, A), Compugraphic Corp. (1988, stake increased to 100%). — *Japan*: V-Tech Fansteel (1990, A), Teijn (1990, L), Toda Kogyo Corp. (1991, TC), Copal Co. (1987/88, JV and TC). — *Canada*: Polysar Rubber (1990, A). — *Austria*: Chemia GmbH (1991, stake increased to 100%).
Höchst	*EU: France*: Soekami-Lefrancq Lab. (1989, A). — *Italy*: Milanfarma (1988, A), Camillo Corvi (1989, A), Deniel (1990, A). — *Spain*: Laboratorios Hosbon (1988, A). — *Portugal*: Valentine (1990, A), Finicis (1990, A). *Other industrialised countries: United States*: Celanese (1987, A), Granutec (1988, A), Custom Pounding (1990, A), Sterling Winthrop (1992, L). — *Japan*: Dai Nippon Toryo (1991, JV), Teijn (1991, JV), Asin Chemicals (1991, TC). — *Austria*: Altona (1991, JV stake increased). *DCs and others: Hungary*: (1990, JV). — *Mexico*: Celanese (1991, stake increased).

Table A6 continued

Henkel	*EU: France*: Lesieur-Cotelle S.A. (1987, A), Caourep (1990, A). — *Portugal*: Sociedade Nacional de Saboes (1991, merger of detergents and household cleaners and cosmetics). — *United Kingdom*: ICI (1991, A of metal surface cleaning prod.), Nitromers (1989, merger of sealants and fillers), Unibond-Copydex, Jones & West Starches, Magnus, Samson Adhesives (1986, A), Henara/Fashion Style (1992, A). — *Ireland*: Industrial Detergents (1988, A). — *Spain*: Pulcra S.A. (1986, A), Plastrom S.A. + Ceras Alex S.A. (1986, A). *Other industrialised countries: United States*: Staley (1988, merger of cleaning products), Specilaty Prod. Marketing Inc. (1988, A), Hercules Inc. (1987, JV "Aqualon group"), Emery (1989, A), Henkel-Ecolab + Ecolab Inc. (1991, JV), Ecolab (1990, JV), Oxy Process (1987, A). — *Switzerland*: Schnyder & Cie (1990, A), Parker Chemical (1987, A). — *Canada*: Canadian Oxy Metal Finishing (1988, A). — *Australia*: Harcros Chemicals (1992, merger of Nightingale). — *Japan*: Lion Corp. (1985, cooperation + JV). — *Sweden*: Barnängen (1992, A). *DCs and others: Poland*: Pollena SA (1991, A), Henkel Cosmetics Sp.zo.o (1991, JV), Henkel Bautechnik Polska (1991, JV). — *Hungary*: Tomi + Tiszamenti Vegyimüvek (1992, A), Metakemia + Taurus (1990, JV). — *Slovenia*: Zlatorg and Rivera (1990, A). — *Russia*: Sovhenk (1990, JV, detergents). — *CSFR*: Henkel-Palma Spol.S.r.o. (1991, A). — *China*: Tianjin Synthetic Detergent (1992, JV). — *Egypt*: Port Said Detergent & Chemical Industries Co. (1992, JV). — *Malaysia*: Henkel Rika SDN (1991, JV), Henkel Kimianka SDN.BHD. (1987, JV).
Schering	*United States*: AKS Corp. (1988, A), Codon (1990, A), Trition Biosciences (1990, A), Sterling Winthrop (1992, TC + L), Bristol-Myers Squibb (1991, L). — *Japan*: Tanabe Seiyaku (L). — *Switzerland*: Sandoz (1990, TC).
Akzo	*United States*: Warner Lambert, Liton Bionetics and Wilson-Fiberfil International (1985-87), Reliance (1988), Diamond Crystal (1990, merger of salt business), Stauffer (1990, merger of the chemical division).
DSM	*EU: Germany*: Verwertungsges. (1991, JV), BWR Bizerba Werkstoffsysteme (1991, A), Chem-Y (1992, sold to Kao Corp. Japan), Squibb-von Heyden (1992, A). — *United Kingdom*: Freeman Chemicals (1988, A), ERF Plastics (1990, A). — *Belgium*: Lwan Comfort (1989, A). *Spain*: Fiberfachs (1989, A), Vitroplast (1990, A), Rodex (1990, A). *Other industrialised countries: United States*: Polymer (1988, A), Rubbermaid (1990, JV), Copolymer Rubber & Chemical (1990, new plant), Novacor (1992, A of thermoplastic elastomers). — *Japan*: Idemitsu Petrochemical (1991, JV). — *Switzerland*: Plaine Chemicals (1988, A), Alusuisse/Lonza (1990, JV). *DCs and others: Indonesia:* (1991, JV). — *Hungary*: Pannonplast (1991, JV). — *Taiwan*: Nan Ya Plastics (1992, cooperation agreement).

Table A6 continued

ICI	*EU: Germany*: Agroplant Saatenvertrieb (1990, A). *Other industrialised countries: A in United States*: Stauffer Chemicals (1988), Beatrice Companies (1985), Glidden (1985), Tioxide (1990, stake increased), Atlas Powder (1990), Edward J. Funk & Sons (1990), Ferro Group (1991), Sherwin-Williams (1988). *Others: Ukraine*: (1991, new JV).
Rhone-Poulenc	*EU: Germany*: Nordfaser (1991, A), Boehringer (1992, TC). — *United Kingdom*: ICI (1988, announcement to take over silicone business). — *Spain*: Erkimia (1991, JVs "Erkol" and "Rhodiamul"). — *Canada*: Connaught Biosciences (1990, A). *Other industrialised countries: United States*: Rorer (1990, new JV), Eastman Kodak (1991, new JV "Primester"). *DCs and others: Hungary*: Viatfort (1991, equity participation). — *Ukraine*: Consortium Biochimique (1992, JV). — *Czech Republic*: Chemlon (1992, majority stake). — *Venezuela*: Mantex (1992, JV).
Montedison	*EU: UK*: Erbamont (1989, A), JB Tillozz (1989, A). — *Spain*: Antibioticos (1987, A), Guadalco Feruzzi (1989, A). — *France*: Celtic Langlois Nutriton Animale (1989, A), Oli Provence (1991, A). *Other industrialised countries: United States*: Hercules (1986, new JV "Himont"), PlasmaScience (1989, A), Colgate Palmolive (1989, JV), Ferro Inc. (1991, A). — *Japan*: MGC (1991, JV). *DCs and others: Taiwan*: Chao Group (1989, JV in Malaysia). — *Korea*: Kolon Industries (1989, JV). — *Hungary*: Agrocomplex (1991, A). — *Poland*: Brzozowo (1991, A), Central Soya Rolpol (1991, A).

A: acquisition, JV: joint venture, L: licensing agreement, TC: technical cooperation.

Source: Annual reports of the companies under consideration, various years; Handbuch der deutschen Aktiengesellschaften [var. issues].

Table A7 — The World's Largest Textile and Clothing Companies, 1992

		Home country	Sales 1992 (mil. DM)	No. of employees 1992
1.	Kanebo	Japan	6,273	9,504
2.	Coats Viyella	United Kingdom	5,230	62,000
3.	Samsung (Textiles)	South Korea	4,449	13,273
4.	Toyobo	Japan	4,112	8,125
5.	Toray (Textiles)	Japan	3,841	na
6.	Sara Lee Corp.	United States	3,500	na
7.	Unitika	Japan	3,251	5,444
8.	Burlington Holdings	United States	3,223	na
9.	Benetton	Italy	3,188	na
10.	Springs Industries	United States	3,082	na
11.	Beaulieu-Group	Belgium	3,042	na
12.	Shaw Industries	United States	2,732	na
13.	D.M.C.	France	2,549	14,050
14.	Marzotto	Italy	2,480	na
15.	Courtaulds (Textiles)	United Kingdom	2,446	25,600
16.	Gunze	Japan	2,282	3,919
17.	Chargeurs (Textiles)	France	2,227	7,250
18.	Nisshinbo	Japan	2,194	6,326
19.	Fieldcrest Cannon	United States	1,899	na
20.	Dominion Textile	Canada	1,771	9,300

Source: Frankfurter Allgemeine Zeitung, 4 January 1994, p. 14.

Table A8 — The Significance of FDI Outflows in Textiles and Clothing for Major Industrialised Countries,[a] 1986–1991 (per cent)

	FDI in textiles and clothing in per cent of:			
	total FDI outflows		exports of textiles and clothing[b]	
	1986–1988	1989–1991	1986–1988	1989–1991
France	0.85	0.97	1.04	2.12
Germany	0.53	0.74	0.37	0.77
Italy	0.30	1.90	0.07	0.50
Japan	0.57	1.17	3.16	9.91
United States	0.28	0.55	1.40	2.31

[a]Leather is included, except in the US. — [b]Exports under SITC 65 and 84.

Source: OECD [e]; UN [b]; Deutsche Bundesbank, unpubl. data.

Table A9 — EU Textile and Clothing Companies: Recent Major Acquisitions and Joint Ventures[a]

	Acquisitions and joint ventures
Dolfus-Mieg & Cie, France	*United Kingdom*: Donisthorpe & Cy. Ltd. (1988, A, 100%, industrial textiles). — *Turkey*: Bozkurt Mensucat Sanayii (1988, equity stake 50%).
Hugo Boss, Germany	*United States*: Joseph & Feiss Company and the parent company TJFC Inc. (1989, A, 100%, clothes for men and women). — *Ireland*: Kingcourt Sportswear Ltd. (1986, A, 50%). — *Australia*: Hugo Boss Australia (1989, JV, 50%, garment manufacturer). — *Brazil*: Hugo Boss Moda Ltda. (1988, JV and L, 33%, produces Boss products for the local market).
KBC, Germany	*United States*: Fashion Fabrics of America Inc (1989, cloth printing fabric). — *Hungary*: KBC Kelmenyomo R.T. (1988, JV, 50%, garment manufacturer). — *Netherlands*: Watermolen B.V. (1989, A, 100%).
Verseidig, Germany	*United States*: Dimension Sailcloth Inc. (1991, A, 100%, manufacturer of sailclothes), Burrell-Belting Company (1991, A, 100%, belting business). — *Italy*: LederOrago (1992, A of the belting division). — *Switzerland*: Leder Co. AG (1990, A of the belting business, 100%).
Benetton, Italy	*United States*: Prince Holdings Inc. (1990, A, sport articles), United Optical (1988, cooperation, manufacture of eyeglasses), Benetton Manufacturing Corporation (1986, 100%, cotton articles), Marubeni (1988, cooperation, manufacturer of shoes). — *Japan*: Seibu/Saison (1989, formation of the JV "Linz Co. Ltd." and licensing agreement). *Turkey*: Benetton Bosphorus Casual Wear A.S. (1991, JV, 50%). — *Brazil*: Benetton do Brasil Textile Ltda. (1987, 100%, manufacturer of clothing articles). — *Argentina*: Vantoc S.A. (1988, JV, 47.2%, manufacturer of clothing articles). — *Russia*: Ajas Benetton (1990, JV).
Marzotto, Italy	*Germany*: Boss Konzern (1991, majority stake, 77.5%).
Royal-Nijverdal-Ten Cate, Netherlands	*United States*: Weathside (1992, sold). — *Ireland*: Atlantic Mills (1988, A, Denim fabrics). — *United Kingdom*: Stolz & Co. (1988, A, 100%, interlinings for the clothing industry). — *South Africa*: Mooi River Textiles Ltd. (1989, sold).

Table A9 continued

	Acquisitions and joint ventures
Coats Viyella, United Kingdom	*EU: France*: Steiner Freres (1991, A, crafts). — *United Kingdom*: Tootal (1991, A, thread). — *Germany*: Opti-Werk GmbH & Co KG (1989, A, zip business). — *Netherlands*: Lantor BV and Tootal Fabrics (1991, A, yarns & fabrics). *Other industrialised countries: United States*: Talon (1991, A, zip business). — *Canada*: Consoltex (1991, disposal). — *Sweden*: Mölnlycke Sytrad AB (1991, thread). *DCs and others*: *Chile*: Cia Ind. — Hiols Cadena (1988, stake increased to 93%). — *China*: Guangying Spinning Company Ltd (1991, JV, 50%), Jingying Spinning Company Ltd (1991, JV, 50%). — *Hong Kong*: Coats Patons Limited (1989, S, 100%, industrial sewing products), China Thread Development Company Limited (1991, thread). — *Hungary*: Coats Hungary Ltd (1990, JV, 60%). — *Indonesia*: PT Coats Rejo (1989, JV, 60%), PT Tootal Thread Indonesia (1991, JV, 70%, thread). — *Malaysia*: J. & P. Coats Sdn Bhd. (1989, JV, 51%), Tootal Thread Malacca Sdn Bhd (1990, JV, 51%, thread). — *Morocco*: UCOM (1989, A, sewing thread manufacture). — *Philippines*: Allied Thread Company Inc. (1991, thread). — *Slovenia*: agreement for a JV plant (1992, precision engineering).— *South Africa*: Gelvenor Textiles (1991, disposal).
Courtaulds Textiles, United Kingdom	*France*: Georges Reich SA (1989, A, 100%, designer clothing). — *Morocco*: Chella Confection SA (1990, increased stake from 34 to 68%).

[a]Excluding sales outlets and franchises. A: acquisition, JV: joint venture, L: licensing.

Source: Annual reports of the companies under consideration, various years; Stopford [1992]; Handbuch der Deutschen Aktiengesellschaften [var. issues].

Table A10 — The Statistical Effect of FDI and GDP on Trade, 1989–1992[a] (detailed regression results)

	Germany			Japan			United States		
	α	β	$\overline{R}^2$	α	β	$\overline{R}^2$	α	β	$\overline{R}^2$
	Exports = $c + \alpha GDP + \beta FDI$								
1989	0.59	0.38	0.73	0.25	0.47	0.66	0.62	0.26	0.60
	(0.15)	(0.11)		(0.18)	(0.08)		(0.15)	(0.10)	
1990	0.57	0.37	0.77	0.22	0.47	0.60	0.41	0.35	0.62
	(0.14)	(0.09)		(0.13)	(0.10)		(0.13)	(0.08)	
1991	0.45	0.41	0.75	0.28	0.43	0.62	0.53	0.22	0.49
	(0.16)	(0.11)		(0.12)	(0.09)		(0.15)	(0.11)	
1992	0.33	0.65	0.89	0.19	0.60	0.61	–	–	–
	(0.11)	(0.09)		(0.20)	(0.16)				
	Imports = $c + \alpha GDP + \beta FDI$								
1989	0.55	0.27	0.70	0.42	0.40	0.50	0.83	0.12	0.54
	(0.14)	(0.10)		(0.17)	(0.11)		(0.18)	(0.12)	
1990	0.52	0.26	0.71	0.37	0.47	0.60	0.53	0.32	0.55
	(0.13)	(0.09)		(0.15)	(0.11)		(0.16)	(0.10)	
1991	0.38	0.34	0.75	0.40	0.40	0.54	0.64	0.27	0.52
	(0.14)	(0.10)		(0.16)	(0.12)		(0.17)	(0.13)	
1992	0.29	0.58	0.83	0.31	0.48	0.69	–	–	–
	(0.12)	(0.10)		(0.16)	(0.13)				

[a]All variables in logs; annual data; standard errors in parentheses.

Source: IFM [b; c]; MOF [var. issues]; OECD [e]; Deutsche Bundesbank, unpubl. data.

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