Development and determinants of international direct investment

German direct investment abroad has increased substantially since the mid-eighties as German enterprises, following the worldwide trend towards globalisation, have proceeded to extend their traditional sales markets abroad and to open up new markets. Contrary to the trend in German direct investment abroad, foreign corporate involvement in Germany has shown major fluctuations over the past ten years. Following an increase in inbound direct investment in the late eighties and early nineties, Germany has lost some of its attractiveness as a business location in the last few years. The resulting deterioration in the direct investment account is often interpreted as signalling a certain locational weakness on the part of Germany. The reasons adduced for this in the current debate are, above all, high wage costs, the sporadic appreciation of the Deutsche Mark, the heavy burden of taxes and social security contributions on enterprises and the overregulation of the German economy. Taking a somewhat longer-term perspective, the following article examines the determinants of the trend in direct investment and discusses some of the implications for Germany's locational competitiveness.

German direct investment abroad

German direct investment in the form of corporate start-ups abroad or participating inter-

Increase in German direct investment abroad ...

ests in foreign firms has increased markedly since the mid-eighties, according to the figures recorded in the German balance of payments. Whereas domestic enterprises invested around DM 15 billion in their foreign subsidiaries in both 1984 and 1985, for example, German direct investment reached a peak of DM 55 billion in 1995, owing to some very large transactions, and still totalled as much as DM 42 billion in 1996. The stock of German corporate assets abroad has also been expanded considerably through the continuously high financial involvement in the form of capital interests and the granting of intra-group loans to foreign subsidiaries. The primary participating interests of German enterprises abroad more than trebled between 1984 and the end of 1995 to reach over DM 360 billion.

... in line with the international trend

The direct investment of German enterprises abroad has developed largely in parallel with the international trend since the middle of the eighties. In the wake of the growing international orientation of firms in the industrial countries, their direct investment exports rose from just under US$ 50 billion in 1984 to around US$ 300 billion in 1995. That corresponds to an average annual growth of 17½ %, which is significantly greater than the average annual rate of expansion of world trade during the same period. Germany's share in the direct investment exports of the industrial countries fluctuated between 6½ % and 12½ % during the period under review. At 10 %, its average between 1990 and 1995 was a little higher than in the years 1984 to 1989 (8 %), although that was due mainly to the strong appreciation of the Deutsche Mark against the US dollar in the first half of the nineties.

German direct investment abroad

DM billion

Year	New investment (net) according to the German balance of payments	Stock at year's end 1
1984	13.5	125.9
1985	15.1	130.5
1986	21.9	135.8
1987	17.4	141.0
1988	21.2	167.2
1989	28.5	194.9
1990	38.7	221.8
1991	39.3	253.5
1992	30.5	275.8
1993	25.3	308.4
1994	27.8	330.9
1995	55.2	361.7
1996	41.8	.

1 Stock of primary German direct investment abroad. From 1989 extended statistical recording. Owing notably to the different valuation of equity capital and to exchange rate changes, the changes in the stock are not directly comparable with the new investment recorded in the balance of payments statistics.

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With a net investment of US$ 138 billion, German firms have for years been the fourth largest investors in the worldwide ranking behind enterprises from the United States (US$ 330 billion), Japan (US$ 262 billion) and the United Kingdom (US$ 150 billion).[1] In terms of its foreign trade and economic resources, Germany likewise fails to lead the table of "direct investors" among the G-5 countries, despite the remarkably dynamic expansion of German foreign investment. The United Kingdom's direct investment exports amounted to 2½ % of GDP in the nineties, whereas the

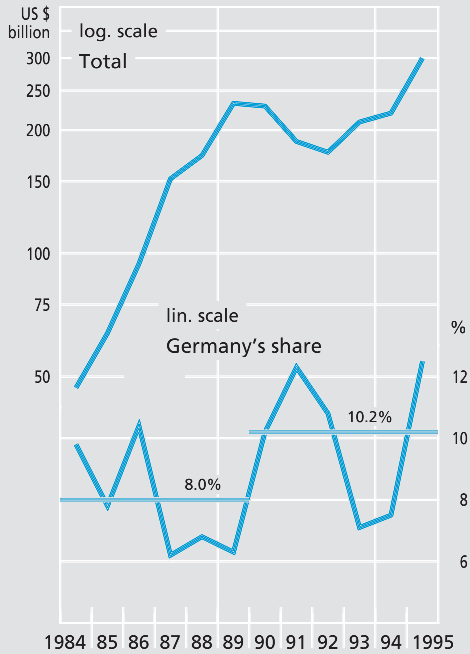
1 The figures are based on the national balance of payments statistics of the individual investor countries and relate to the period from 1990 to 1995. The informative value of such international comparisons is limited, however, as the methods of recording direct investment flows vary from country to country. See Deutsche Bundesbank, Problems of international comparisons of direct investment flows, Monthly Report, May 1997, pages 77–83.

corresponding ratio for Germany – similar to that for France, Japan and the United States – was only about 1% of GDP. In relation to exports of goods and services, German direct investment abroad totalled just short of 5 %, whereas the United Kingdom and Japan both generated about twice as much outbound direct investment.

Multiple determinants of direct investment

The trend in German direct investment abroad has multiple determinants that are hard to separate empirically. Part of the problem is that the direct investment flows aggregated in the balance of payments relate to very disparate transactions. These range from the setting-up of new production sites abroad and the extension of the foreign sales and service network to "passive" participating interests in foreign investment management companies. Furthermore, the balance of payments data on direct investment solely measure the movements of capital and proprietors' loans (i.e. only the direct financial links between domestic investors and foreign investment enterprises), whereas they provide no information on actual entrepreneurial involvement in other countries. Studies for the United States and Germany conclude that the bulk of investment undertaken by affiliated companies is financed through external sources (in particular, borrowing in the capital market of the country in which the subsidiary is located) which are not separately identified in the data on direct investment.[2] Finally, there is often a lack of suitable indicators for measuring the multiplicity of motives and locational factors which have a bearing on the direct investment decisions of multinational corporations.

Direct investment exports of the OECD countries



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Market-related motives

In theoretical and empirical studies alike, market-related motives have emerged as a major factor in decisions on foreign investment and in the choice of location of international enterprises. Firms invest in other countries in order to extend existing sales markets or to open up new ones. According to estimates, strategic sales motives played a primary role in almost half of all worldwide direct investment at the end of the eighties.[3] For various reasons, establishing a presence at foreign locations is necessary if the desired sales objectives are to be achieved. The grow-

2 See Feldstein, M., The Effects of Outbound Foreign Direct Investment on the Domestic Capital Stock, NBER Working Paper No. 4668, 1994, page 7 ff., and Jost, T., Direct investment and Germany as a business location, Discussion Paper 2/97, Economic Research Group of the Deutsche Bundesbank, June 1997, page 3 f.
3 See Dunning, J. H., Multinational Enterprises and the Global Economy, Wokingham etc. 1994, page 59.

ing trend towards product differentiation increasingly requires firms to become familiar with local consumer preferences and to step up their efforts in the fields of marketing, distribution and services.[4] In the sphere of industrial demand, the increasing flexibility and more efficient organisation of production (just-in-time manufacturing) are obliging more and more intermediate firms and suppliers to follow major industrial enterprises as the latter move abroad. Certain goods have to be wholly or partly manufactured in the target country on account of storage problems, transportation costs or local content regulations. In line with their global production and marketing strategy, many enterprises consider it crucial to establish a presence on the main markets alongside their direct competitors. Finally, if the domestic market is largely saturated, often the only route to corporate expansion, under certain conditions, is moving to another country.

Key role of market-related motives in surveys of German firms

Market-related motives apparently play a major role in the international investment decisions of German enterprises, too. That is borne out by numerous corporate surveys. For example, in a broadly based poll of German firms conducted by the ifo institute in the autumn of 1995, two-thirds of the large-scale firms surveyed stated that they had undertaken direct investment in the past in order to tap new markets, while more than half of the enterprises mentioned the safeguarding of market share and participation in the growth of foreign markets as further principal motives behind their investment in other countries.[5]

Close link between German direct investment and exports

Furthermore, the parallel trends in German direct investment abroad and German exports indicate that domestic enterprises expand their involvement in other countries principally for strategic sales reasons. The regional distribution of the stock of German direct investment abroad is, moreover, largely identical to the regional pattern of German exports. The close link between the trends in exports and direct investment can be explained by the fact that firms, especially in the manufacturing sector, frequently undergo a process of increasing internationalisation in stages.[6] Put very simply, this evolves as follows. First the firms begin to export to other countries; then they establish distribution, storage and service facilities; some subsequently grant licences to local suppliers; and finally – once they have acquired sufficient experience in the market in question – the firms set up their own assembly and production sites, which are initially largely dependent on the domestic parent company but later are often expanded and upgraded to form autono-

4 See Thomson, S. and Woolcock, S., Direct Investment and European Integration – Competition among Firms and Governments, London 1993, page 36 ff.: "Just as product differentiation leads to intra-industry trade, it may also lead to foreign direct investment".

5 See ifo Institut, *Umfang und Bestimmungsgründe einfliessender und ausfliessender Direktinvestitionen ausgewählter Industrieländer – Entwicklung und Perspektiven, Gutachten im Auftrag des Bundesministeriums für Wirtschaft,* Munich 1996. Similar conclusions are arrived at by Beyfuss, J. and Kitterer, B. H.-J., *Deutsche Direktinvestitionen im Ausland. Bestandsaufnahme und Ergebnisse einer Unternehmensbefragung, Beiträge zur Wirtschafts- und Sozialpolititk,* Institut der deutschen Wirtschaft, Cologne, No. 137, 1990; Beyfuss, J., *Ausländische Direktinvestitionen in Deutschland, Beiträge zur Wirtschafts- und Sozialpolitik,* Institut der deutschen Wirtschaft, No. 205; DIHT, *Aussenhandel und Wettbewerbsfähigkeit; DIHT-Umfrage bei den deutschen Auslandshandelskammern,* Bonn 1996; and Maisch, C., *Beurteilungskriterien für Auslandsinvestitionen deutscher Unternehmen,* Frankfurt 1996.

6 See United Nations Centre on Transnational Corporations, World Investment Report – Investment, Trade and International Policy Arrangements, New York and Geneva 1996, page 75 ff.

Figures showing the importance of foreign direct investment of major industrial countries

1990-5 in comparison with 1984-9

Country	Direct investment (net) abroad US$ billion		Direct investment in relation to exports [1] %		Direct investment in relation to GDP %	
	1984-9	1990-5	1984-9	1990-5	1984-9	1990-5
France	52.5	101.8	4.9	5.5	1.1	1.3
Germany	56.9	138.1	3.2	4.6	1.0	1.2
Japan	192.6	262.2	13.0	11.0	1.5	1.1
United Kingdom	145.2	149.7	15.1	9.7	3.8	2.4
United States	126.5	330.1	5.9	8.5	0.5	0.9

Sources: OECD, IMF, Deutsche Bundesbank. — **1** Exports of goods and services.

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mous foreign subsidiaries. If direct investment follows the same pattern, the trend in exports may be expected to provide a statistical explanatory approach in respect of the development of direct investment: higher exports to a given country lead to an increase in the level of direct investment in that country.

Results of an econometric analysis

The close link that may be surmised between German direct investment abroad and German exports is confirmed by the results of an econometric analysis of this question, which are discussed in detail in the annex to this article. The findings suggest that, on average over the past 20 years, an increase of 1% in German exports of goods and services was accompanied by a rise in German direct investment to other countries of just under 2%, other things being equal.[7]

German direct investment additionally stimulated by the European internal market programme

The market-related international expansion of German enterprises received a fresh impetus at the end of the eighties, in particular, from the European internal market programme.[8] At this time, a large number of German firms attempted to improve their sales

7 A positive influence of exports on direct investment was also found by various other studies. However, not only do rising exports lead to higher direct investment, but conversely, direct investment also affects foreign trade. An overview of the literature on the link between direct investment and foreign trade can be found in: Cantwell, J., The Relationship between International Trade and International Production, in: Greenaway, D. and Winters, A. L. (eds.), Surveys in International Trade, Blackwell, Oxford, Cambridge, Mass. 1994; and in: WTO, Annual Report, Volume I, Geneva 1996.
8 See Agarwal, J. P., European Integration and German FDI: Implications for Domestic Investment and Central European Economies, National Institute Economic Review, No. 160, April 1997, pages 100–111; and Pain, N. and Lansbury, M., Regional Economic Integration and Foreign Direct Investment: The Case of German Investment in Europe, National Institute Economic Review, No. 160, April 1997, pages 87–99.

opportunities in the single European market by merging with or acquiring enterprises in EU partner countries. In addition, German banks and insurance enterprises, in particular, undertook substantial direct investment in the neighbouring EU states on account of the liberalisation of the European services sector. On top of this, major restructuring and rationalisation moves in the manufacturing sector triggered a wage of mergers and acquisitions in Europe in which German investors, too, were heavily involved. All this resulted in the doubling of German direct investment in the European partner countries during the preparatory phase for the creation of the single European market. Between 1988 and 1992 more than 60 % of German direct investment was channelled into the (at that time 11) EU partner states. The stimulating impact which the internal market programme had on German direct investment abroad is also revealed in the individual econometric tests described in the annex to this article. The inclusion of an "internal market dummy", which is given the value one in the preparatory phase for the creation of the single European market between 1988 and 1992, and the value zero for the rest of the estimation period, points at all events to a significant influence.

Cost-related motives…

Besides sales motives, cost factors also play an important role in the investment and locational decisions of multinational enterprises. Relative increases in domestic costs can prompt a firm to shift its production to a lower-cost country. Several empirical studies for various industrial countries have found a significant influence of exchange rate-adjusted changes in relative wage costs on international direct investment.[9] In the economic policy debate about direct investment and Germany's relative attractiveness as a business location, too, reference is repeatedly made to the high cost burden of enterprises in Germany. In particular, the worsening of international competitiveness brought about by the relatively sharp rise in unit labour costs (calculated in a uniform currency) has caused some German enterprises to shift part of their production abroad in the past few years; at the same time it has deterred foreign firms from investing more heavily in Germany. In the aforementioned surveys of German enterprises, at all events, a majority of the respondents stated that, after market-related factors, cost considerations play the second most important role in their direct investment decisions, and that the significance they attach to such considerations has increased in recent years.

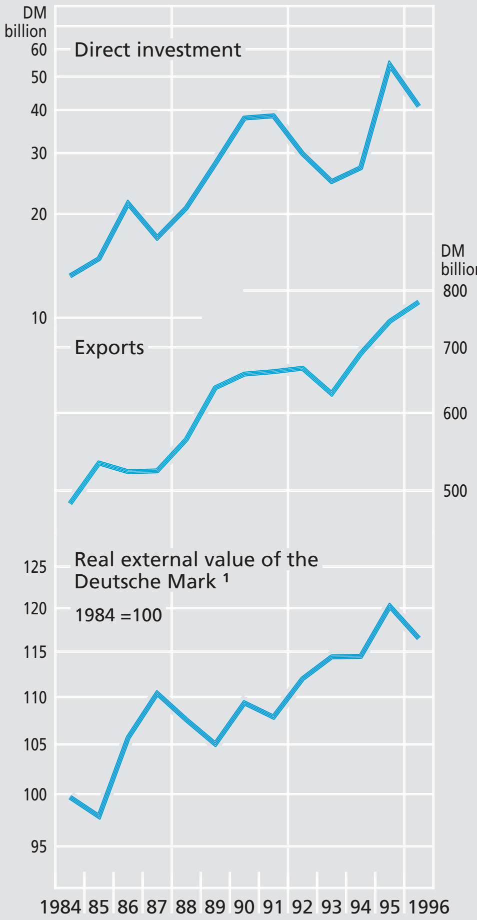
…show a significant influence

The econometric studies presented in the annex likewise showed a significant influence of relative cost movements, and hence of price competitiveness, on international direct investment. In contrast to the studies mentioned previously, these tests focused on the overall cost of domestically generated value added, although this is indeed largely determined by the trend in wage costs. Specifically, the deflators of total expenditure were used and, taking due account of exchange rates, they were aggregated with their respective foreign trade weights to form an index. In terms of the

9 See, for example, Cushman, D. O., The Effect of Real Wages and Labor Productivity on Foreign Direct Investment, Southern Economic Journal, 1987, pages 174–185; and Culem, C., The Locational Determinants of Direct Investment among Industrialised Countries, European Economic Review, Vol. 32, 1988, pages 885—904.

German direct investment abroad, exports and real external value

Annual figures, log. scale



1 Weighted real external value of the Deutsche Mark against the currencies of 18 industrial countries, based on the deflators of total expenditure.

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exchange rate, therefore, the study examined the real external value of the Deutsche Mark against the currencies of 18 industrial nations on the basis of deflators for total expenditure.

The results show that German foreign investment depends – in addition to strategic sales motives – to an important extent on the relative cost position. In purely mathematical terms, a deterioration in price competitiveness of 1% led, on average over the long term, to an increase of 2½% in German direct investment abroad. In phases of a marked deterioration in Germany's price competitiveness as a business location owing to a relatively steep increase in costs (calculated in uniform currency) – such as the period from 1992 to 1995 – cost considerations thus prompted German firms increasingly to shift their production abroad.

Impact of taxation on direct investment

In addition to the cost aspects mentioned previously, the high tax burden on firms in Germany is also mentioned in the debate on Germany's standing as an industrial and investment location as a motive for the rising level of German investment abroad – and the lower level of investment in Germany by foreign firms. Differences in taxation unquestionably play a major role in the locational decisions of internationally operating enterprises. International tax comparisons are a very complex matter, however, which usually cannot be captured by simple indicators. Hence, the mere comparison of nominal tax rates, which are very high in Germany, conveys little information *per se.* It is at least necessary to take into account as well the depreciation rules, the possibilities to set up untaxed provisions, the valuation rules and options under tax law and whatever other accounting leeway may be available. Furthermore, the profitability of an investment in another country depends not only on the tax system of the country in question but also on the interaction of the respective tax systems in the investor country and in the target country, on the form of financing and on the type of investment.

Foreign direct investment in Germany

DM billion

Year	New investment (net) according to the German balance of payments	New investment (net) according to foreign balances of payments 1	Stock at year's end 2
1984	1.5	2.7	84.8
1985	1.6	3.6	90.9
1986	2.5	4.7	95.6
1987	3.3	4.2	102.3
1988	2.0	1.3	109.5
1989	13.3	19.7	154.7
1990	4.0	26.8	178.7
1991	6.8	26.1	199.8
1992	4.2	16.9	209.8
1993	3.2	13.4	224.0
1994	2.5	19.5	248.0
1995	17.2	44.0	271.0
1996	– 4.9	.	.

1 Data of 18 OECD countries (Australia, Austria, Belgium, Denmark, Finland, France, Italy, Japan, Netherlands, New Zealand (from 1991), Norway (from 1986), Portugal (from 1989), Spain, Sweden, Switzerland (from 1993), Turkey (from 1989), United Kingdom, United States). This group of countries accounts for around 95 % of the stock of foreign direct investment in Germany. — **2** Stock of primary foreign direct investment in Germany. From 1989 extended statistical recording. Owing to the different valuation of equity capital, the changes in the stocks are not directly comparable with the new investment recorded in the balance of payments statistics.

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It is therefore very difficult to quantify the extent to which German direct investment abroad was affected by tax considerations during the period under review. The influence of taxation on German direct investment abroad was therefore not explicitly included in our econometric analysis, as there is no suitable indicator for mirroring the effective tax burden on multinational enterprises in different countries in comparison with Germany over time.[10] But the impact of taxation on direct investment is reflected indirectly, at least partly, in the results presented. That may occur, for example, because a high tax burden and an inefficient system of corporate taxation tend to dampen domestic economic growth and in this way render foreign markets more attractive. Moreover, a growing tax burden may lead to a worsening of the price competitiveness of a given location (as a result of relatively higher costs and prices) and hence may affect direct investment, too. Both situations tend to lead to rising direct investment in other countries and to falling investment by other countries in Germany.

Other locational factors

It is likewise hard to quantify other locational factors and their influence on firms' international investment and thus to include them in econometric analyses. Other locational factors include obstacles to investment which may arise from administrative regulations and statutory stipulations or from protracted and cumbersome authorisation procedures. Taking a broader view, this heading also includes general political resistance (e. g. to product and process innovation) which may cause domestic enterprises to invest more in other countries and, conversely, may point to some of the reasons for the reluctance of foreign firms to undertake direct investment in Germany.

10 One of the few comprehensive studies on the effective tax burden on profits stemming from international direct investment undertaken by firms from industrial countries, covering various forms of financing, was carried out by the OECD in 1991. The data show a variegated picture for Germany. It is extremely unattractive for investors from all other countries to finance a subsidiary in Germany through reinvested earnings owing to the high tax rates on profits in this country by international standards. This drawback is sharply reduced, however, if the foreign parent company finances its subsidiary in Germany through a participating interest, and actually turns into an advantage if the German subsidiary is funded by means of a shareholder's loan owing to the deductibility of interest paid on borrowed funds in determining the tax base. See OECD, Taxing Profits in a Global Economy – Domestic and International Issues, Paris 1991, pages 123–161.

Direct investment exports and imports of selected industrial countries

Cumulative total during the period 1984-95

Rank	Direct investment exports		Direct investment imports based on data of the ...			
	Investor countries	US$ billion	... target countries	US$ billion	... investor countries	US$ billion
1	United States	456.6	United States	513.8	United Kingdom	232.6
2	Japan	455.0	United Kingdom	186.7	United States	219.9
3	United Kingdom	294.8	France	103.6	Japan	152.3
4	Germany	195.0	Spain	92.6	Netherlands	149.7
5	France	154.2	Belgium/Luxembourg	73.7	Germany	118.9
6	Netherlands	117.2	Canada	66.8	France	117.4
7	Switzerland	77.0	Netherlands	63.4	Switzerland	86.3
8	Sweden	72.7	Australia	55.3	Belgium/Luxembourg	58.8
9	Canada	61.4	Italy	39.1	Canada	38.7
10	Italy	54.5	Sweden	38.9	Sweden	31.9
11	Belgium/Luxembourg	53.2	Germany	36.9	Italy	28.6
12	Australia	33.6	Japan	29.1	Australia	26.4

Source: OECD.

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Foreign direct investment in Germany

Discrepancies in the data on foreign direct investment in Germany

In contrast to the data on German direct investment abroad, the various sources available on the trend in foreign corporate investment in Germany paint a rather contradictory picture.[11] For many years now the German balance of payments has shown a very low level of foreign direct investment in Germany. The sole exceptions were in 1989 and 1995, when capital inflows exceeded DM 10 billion on account of some large-scale transactions. Over the entire period from 1984 to 1996, the cumulative total of direct investment imports recorded in the German balance of payments came to less than DM 60 billion. These small inflows indicated by the German balance of payments statistics contrast sharply, however, with the figures on the changes in the stocks of foreign participations in Germany. The latter suggest that foreign corporate assets in Germany, in the form of primary capital interests and intra-group loans granted from abroad, rose by around DM 190 billion between the end of 1983 and the end of 1995.[12] This increase roughly corresponds to the cumulative direct investment exports to Germany recorded in the foreign balance of payments of the OECD countries.[13]

11 See Deutsche Bundesbank, Problems of international comparisons of direct investment flows, Monthly Report, May 1997, pages 77–83.
12 Part of this rise (DM 27 billion) can be explained by the extended statistical recording of direct investment in the stock statistics since 1989.
13 The direct investment data are taken from the OECD database for the International Direct Investment Statistics Yearbook (position: June 1997). They were converted into Deutsche Mark using average annual exchange rates.

Germany's longer-term position as a recipient country of direct investment

Hence, according to the data of the investor countries, Germany's position as a recipient country of international direct investment appears in a much more favourable light over a longer period than according to the customary "cross-country rankings" based on national balance of payments data. If, for instance, the direct investment inflows into Germany are compared with the direct investment imports of France and the United Kingdom (Germany's "immediate" rivals for inbound corporate capital), those two countries – according to their respective national balance of payments data – were able to attract almost three times and five times as much foreign capital, respectively, as Germany in the period from 1984 to 1995. But if the data on the investor countries' capital exports are taken as a gauge, Germany's inflows, at US$ 119 billion, were actually a little higher than those of France (US$ 117 billion). The United Kingdom, with inflows of US$ 233 billion, again turns out to be the most attractive target country for foreign direct investment in Europe. However, the gap between the UK and Germany is much smaller than in a comparison based on the national balance of payments data.

Germany's relative attractiveness for direct investment from industrial countries

The difference between the figures recorded in the foreign balance of payments statistics and those of the German balance of payments statistics widened dramatically from 1989 on. According to the data of the investor countries, foreign corporate investment in Germany initially continued to expand sharply in 1990, too, and remained at this high level in 1991. In the two subsequent years, when Germany experienced a marked downturn, and its economy went through a radical restructuring process and lost ground in terms of price competitiveness, foreign corporate involvement in Germany decreased noticeably, however. The overall portion of direct investment from the OECD area that was channelled into Germany between 1984 and 1994 fluctuated between ½ % and 10 %. Over the period as a whole it averaged 4 ½ %; that is distinctly less than the share of German foreign investment in the overall direct investment exports of the OECD countries (9 %).

Market and cost-related motives of foreign investors

The trend in Germany's share of the direct investment of the industrial countries can be explained fairly well, just like the trend in German direct investment abroad, by market-related and cost-related determinants. A cross-country time series analysis of the determinants of direct investment of the OECD countries in Germany (see Annex) showed a significantly positive effect of relative market growth in Germany on the respective investment of these countries. In phases during which the German economy grew fairly strongly, the level of direct investment of other countries in Germany vis-à-vis other target countries rose. By contrast, the impact of Germany's relative cost position on the foreign direct investment in Germany is negative, as was to be expected; in other words, the relative investment of the OECD countries in Germany decreased during phases in which Germany's price competitiveness worsened.

Relatively small inflows of foreign direct investment into eastern Germany

The rather weak development of foreign direct investment in Germany overall is in some ways surprising, not least in the context of German unification and the process of economic reconstruction in eastern Germany. At any rate, according to all the statistical sources, the widely expected massive inflow of foreign corporate investment has largely failed to materialise. Even the somewhat higher inflows at the end of the eighties and the beginning of the nineties, which are evident from the foreign balance of payments data, are fairly modest compared with the high level of investment from western Germany and should more properly be seen instead in conjunction with the general cyclical recovery and the unification-induced boom in demand.[14]

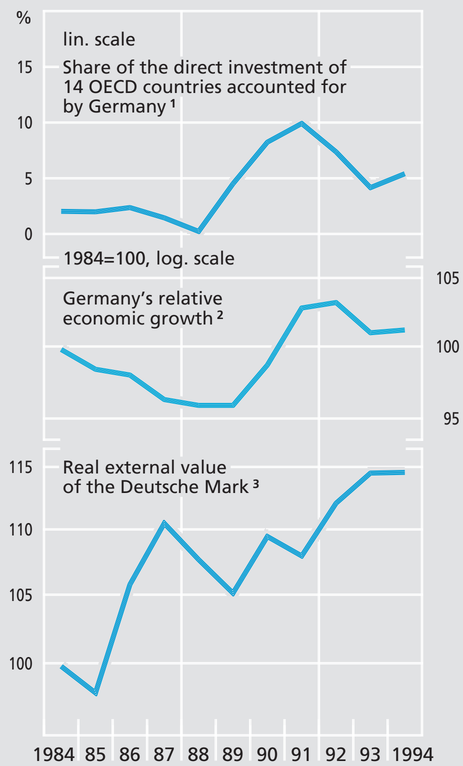
Obstacles to foreign investment in Germany

Besides the trend in price competitiveness, however, other factors, too, probably contributed in the past few years to dampening foreign corporate involvement in Germany which, notwithstanding a noticeable rise in the nineties, has remained below initial expectations. One such factor often mentioned is the high degree of regulation in Germany, especially in the services sector. Critics also point to protracted and bureaucratic authorisation procedures and strict environmental protection requirements, the extensive powers of co-determination granted to employee representatives and inflexible and short working times. In the past two years the Federal Government has gone some way towards addressing these problems with a series of legislative measures and has improved Germany's locational attractiveness by eliminating various administrative and regulatory obstacles.

Corporate structure and financial market

Another locational disadvantage of Germany hindering the inflow of foreign corporate capital is probably the specific structure of the enterprises and their financing. In making their international investment decisions, multinational enterprises must first decide whether to set up a branch of their own in the potential target region or instead to acquire a participating interest in an existing foreign firm. In many cases it is more cost-

Foreign direct investment, relative economic growth and real external value



1 Australia, Austria, Belgium, Denmark, Finland, France, Italy, Japan, Netherlands, Norway, Spain, Sweden, United Kingdom, United States. — **2** A rise in the curve means that real GDP in Germany is growing faster than the OECD average. — **3** Weighted real external value of the Deutsche Mark, based on the deflators of total expenditure, against the currencies of 18 industrial countries. A rise in the curve denotes a real appreciation of the Deutsche Mark.

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14 According to the figures of the German stock statistics, the primary and secondary holdings of foreign firms in the five new Länder (including Berlin) reached DM 17 ½ billion at the end of 1995.

effective and quicker to acquire a participating interest or to completely take over a foreign firm than to set up a new plant. For that reason, an estimated four-fifths of new direct investment worldwide goes into mergers with and acquisitions of existing enterprises.[15]

However, the acquisition of participating interests in Germany is often more difficult than in other industrial countries, especially in the Anglo-Saxon states, if only because of the size structure of the enterprise sector and of the high share of smaller and medium-sized firms compared with major partner countries and the associated organisational and legal forms of the enterprises. At the end of 1995 only 678 domestic firms in Germany were publicly listed, compared with 1,971 enterprises in the United Kingdom. Although, in absolute terms, the German equity market is the fourth largest in the world – albeit far behind the United States, Japan and the United Kingdom –, market capitalisation in Germany is comparatively small in relation to the country's economic strength.[16] Moreover, in Germany the possession of shares is concentrated fairly strongly on the domestic enterprise sector itself, which constitutes a barrier to the acquisition of a major shareholding and to "hostile takeovers" from outside,[17] as relatively large capital interests of frequently more than 50 % are usually preferred in order to exert effective influence over business activity.[18]

It is therefore likely to be difficult and expensive for foreigners to "buy their way into" the broad stratum of medium-sized enterprises in Germany, which have often remained in the hands of a single family for decades and are run as sole proprietorships, partnerships or unlisted corporations.[19] Furthermore, Germany experienced nothing like the level of privatisations via the stock exchange in the past ten years – with associated good "openings" for foreign investors – reached by certain European neighbouring states, in which the amount of publicly owned enterprises had in some cases been significantly higher than in Germany.[20] Although substantial privatisation measures were carried out in eastern Germany by the Treuhand agency (outside the stock market) following reunification, the involvement of foreign investors was very small.

Summary and conclusions for Germany as a business location

Informative value of direct investment data for Germany's locational quality

The trend in international direct investment is playing a significant role in the debate in Germany on the country's locational qualities and problems. But when it comes to assessing the

15 See Sherman, H. C., Globalisierung: *Transnationale Unternehmen auf dem Vormarsch,* ifo Schnelldienst, No. 23, 1996, page 10.
16 See Deutsche Bundesbank, Shares as financing and investment instruments, Monthly Report, January 1997, page 27.
17 See Edwards, J. and Fischer, K.: Banks, Finance and Investment in Germany, Cambridge 1994, page 190 ff.
18 Of the foreign holdings in Germany at the end of 1994, almost 70 % were accounted for by wholly owned subsidiaries (8,540 of a total of 11,581 enterprises).
19 See Klodt, H. and Maurer, R., *Internationale Direktinvestitionen. Determinanten und Konsequenzen für den Standort Deutschland,* Kieler Diskussionsbeiträge, No. 284, November 1996, page 27 f.
20 Between 1985 and 1995, for instance, nationally owned firms in the United Kingdom and France were privatised via the stock market to the volume of US$ 85 billion and US$ 34½ billion, respectively, as against only US$ 2½ billion in Germany. Foreign investors have played a major role in most of the privatisations in Europe. Around 43 % of the institutional demand in the case of international stock placement came from foreign purchasers. See Morgan Stanley, Privatisation: The Second Tranche, 1996, page 5.

quality of Germany as a business location on the basis of the trend in inbound and outbound direct investment and to comparing it with other business locations, a highly differentiated approach must be taken. Firstly, one must remember that the data on direct investment, especially the flow data of the balance of payments (which are often the focus of attention by virtue of being more up-to-date), provide only very limited information on real cross-border economic activities. Secondly, an increase in direct investment may be due to widely disparate motives. The establishment of a new production site abroad in order to lower wage costs, the extension of the sales network to boost exports, or the takeover of a foreign enterprise in order to eliminate a rival, merit different assessments from the point of view of location policy.

International comparisons of locations via direct investment data

The divergent recording methods from one country to another mean that, in Germany's case, the direct investment inflows from abroad recorded in the German balance of payments have understated foreign firms' involvement in Germany over a fairly long period in comparison with other countries.

Deterioration of Germany's direct investment account in recent years

Even if the German direct investment account, based on the balance of payments figures of the investor countries, matches that of most other industrial countries in a longer-term perspective, it has clearly deteriorated in recent years, although actually it might have been expected to improve in the wake of German unification and the process of economic reconstruction in eastern Germany. Whereas in the second half of the eighties and in the early nineties net capital exports through direct investment amounted to roughly ½ % to ¾ % of GDP, they have subsequently more or less doubled. The growing level of outbound direct investment and the lower volume of inbound investment funds have numerous causes. The studies presented here have shown that German direct investment abroad, as well as foreign investment in Germany, are undertaken both for strategic sales reasons and on the basis of cost-related considerations.

The striking rise in the deficit in the German direct investment account cannot be explained entirely by these longer-term patterns of behaviour, however. According to information provided by the enterprise sector itself, cost factors, as well as other locational considerations that are difficult to quantify, have indeed gained significance in recent years. In a broader sense, these locational considerations include the high government burdens in the form of taxes and social security contributions. The complex web of regulations and the manifold rigidities and inflexibilities on the labour market have proved to be additional obstacles. A number of reforms and individual measures have been initiated in recent years in order to counteract these negative phenomena. Wage policy makers, too, have adjusted to today's requirements with more moderate pay settlements and by making encouraging initial efforts towards more flexible labour market regulations. But further endeavours are necessary in all the aforementioned areas to correct the errors of the past and to enable Germany to participate successfully in the locational competition among the highly developed industrial nations.

Annex

Econometric analysis

Explanation of German direct investment abroad with the aid of an error correction model

Preliminary theoretical considerations

First, the development of German direct investment abroad is to be explained with the help of an error correction model. Such a model is particularly well-suited to testing the long-run relationship expected according to theoretical considerations between German direct investment and exports, on the one hand, and the price competitiveness of Germany as a business location, on the other, and also to providing statements about the short-run adjustment dynamics to the longer-term equilibrium.

In the approach used here, German direct investment abroad is explained on the basis of the trends in German exports (exports of goods and services) and in the real external value of the Deutsche Mark as an indicator of Germany's price competitiveness. An "internal market dummy" is also included in the estimation equation. The reason for including it is to test whether German direct investment abroad has been additionally stimulated by the establishment of the single European market.

Estimation equation

The (logarithmic) estimation function for German direct investment abroad is:

$$(1)\ di = \alpha_0 + \underset{(>0)}{\alpha_1} \cdot ex + \underset{(>0)}{\alpha_2} \cdot q + \underset{(>0)}{\alpha_3} \cdot md + \upsilon,$$

where the indicators in brackets beneath the variables give the expected signs for the coefficients according to theoretical considerations.

ADF tests for non-stationarity for direct investment, exports and the real external value of the Deutsche Mark [1]

1st quarter of 1975 to the 1st quarter of 1997

Variable	Specification [2]	Lag	t-value
	Level		
di	C, T	4	– 2.76
ex	C, T	4	– 1.99
q	C	1	– 2.01
	First difference		
Δ di	N	0	– 14.42
Δ ex	N	0	– 8.90
Δ q	N	0	– 6.51

1 Comparison of the t-values with the critical values of J.G. MacKinnon, Critical Values for Cointegration Tests, in: R.F. Engle and C.W.J. Granger (eds): Long-Run Economic Relationships, Oxford 1991. — **2** C = constant, T = trend, N = no constant and no deterministic trend.

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di = German direct investment abroad
ex = German exports of goods and services
q = Weighted real external value of the Deutsche Mark
md = Internal market dummy
υ = Error term

Estimation method

The direct investment equation is estimated using a one-step error correction model according to Stock in first differences:[21]

$$(2)\ \Delta di = \beta_o \cdot \Delta ex + \beta_1 \cdot \Delta q + \beta_2 \cdot [di_{-1} - (\beta_3 + \beta_4 \cdot ex_{-1} + \beta_5 \cdot q_{-1} + \beta_6 \cdot md_{-1})]$$

In addition, the t-statistics are calculated for the long-run coefficients using the Bewley transform-

21 Stock, J. H., Asymptotic Properties of Least Square Estimators of Cointegrating Vectors, in: Econometrica, Vol. 55, 1987, page 1035 ff.

ation, as the usual tests for significance cannot be applied to the conventional t-values of the Stock method owing to the non-stationarity of the regressors.[22]

Data

The observation period on which the estimations are based stretches from the first quarter of 1975 to the first quarter of 1997. The estimation uses logarithmic, seasonally adjusted quarterly data on German direct investment abroad and German exports of goods and services taken from the balance of payments statistics. The real external value of the Deutsche Mark against the currencies of 18 industrial countries based on total expenditure prices is taken as the measure of Germany's price competitiveness.[23] The internal market dummy has the value one from the first quarter of 1988 to the fourth quarter of 1992, i.e. during the "preparatory phase" of the creation of the single European market, and zero during the rest of the estimation period. As can be seen from the table on page 76, all the variables used in the estimation are integrated of order 1 (significance level < 5%), i.e. they are difference-stationary. Thus the basic precondition for applying the procedure used here is met.

Estimation results

The estimation results for German direct investment abroad are given in the adjacent table. The coefficient of the error correction term is negative and significant at the 1% level, which means that the coefficients of the cointegration relationship come to bear in the long run. In the long-term perspective, an increase of 1% in German exports, other things being equal, is connected with a rise in direct investment abroad of just under 2%. The impact emanating from exports is reinforced by a deterioration in Germany's price competitiveness in relation to the rest of the world. All other things being equal, a real appreciation of the Deutsche Mark of 1% leads to an increase in German outbound direct investment of 2½% on a long-term average.

German direct investment abroad as a function of German exports and the real external value of the Deutsche Mark

1st quarter of 1975 to the 1st quarter of 1997

Explanatory variable	Coefficient	t-value
	Long-run relationship	
Constant	– 25.27	– 7.30
Exports	1.83	15.67
Real external value of the Deutsche Mark	2.56	4.02
Internal market dummy	0.26	2.58
	Short-run dynamics	
Exports	3.11	3.26
Error correction term	– 0.80	– 7.35
	Statistics	
Corr. R^2	0.39	
DW	2.00	

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As presumed, the internal market dummy also turns out to be significant. German enterprises stepped up their direct investment in Europe ap-

22 Scharnagl, M., Monetary aggregates with special reference to structural changes in the financial markets, Discussion paper 2/96, Economic Research Group of the Deutsche Bundesbank, March 1996, page 18; West, K. D., Asymptotic Normality, When Regressors Have a Unit Root, in: Econometrica, vol. 56, 1988, page 1397 ff.
23 For the information content of the real external value of the Deutsche Mark as an indicator of Germany's international competitiveness, see Deutsche Bundesbank, Real exchange rates as an indicator of international competitiveness, Monthly Report, May 1994, pages 45–57. Further details of the method used for calculating the nominal and real external value of the Deutsche Mark against the currencies of 18 industrial countries can be found in: Deutsche Bundesbank, Revision of the method used for calculating the external value of the Deutsche Mark and foreign currencies, Monthly Report, April 1989, pages 43–52.

preciably in the preparatory phase for the European single market at the end of the eighties and the beginning of the nineties.[24] The short-run dynamics are explained, besides the error correction term, by export growth, whereas changes in the real external value do not lead to any significant reactions of direct investment in the short term. The high value of the coefficient of the error correction term (– 0.80) indicates a rapid adjustment process.

Evaluation

The results of the tests thus support the hypothesis of a close long-run relationship between German direct investment abroad and German exports. In addition, it was demonstrated that a deterioration in Germany's price competitiveness – measured in terms of the real external value of the Deutsche Mark – leads to an additional shift abroad of the activities of German enterprises. But the relatively low determination coefficient also indicates that, besides these two factors, other determinants which are difficult to quantify, and which were analysed in the article on page 69 f., may likewise exert an influence on foreign direct investment in Germany.

Explanation of foreign direct investment in Germany with the aid of a cross-country time series analysis

Preliminary theoretical considerations

Following the determinants of German direct investment abroad, the determinants of foreign direct investment in Germany are now to be tested. The extent to which foreign direct investment in Germany is a function of sales-related and cost-related factors is examined in parallel with the first estimation. In view of the statistical problems of comparing the relative attractiveness of a location for inbound direct investment, as mentioned on page 70 f., this estimation is based on the data of the investor countries.[25] However, for a sizeable group of countries, foreign balance of payments data on direct investment in Germany are only available as annual data from the early eighties. But sufficient observations for a meaningful estimation can be obtained if a combined time series and cross-country analysis is made for those countries which provide regional data on their direct investment in Germany. Such data are available for 14 OECD countries for the period from 1984 to 1994.[26] In the period under review, these 14 countries accounted for 95 % of the direct investment abroad of the OECD countries (excluding Germany), and they represent just over four-fifths of foreign investment in Germany. Of the major investor countries, only Switzerland has not been included, as regional data on Swiss direct investment abroad are only available from 1993.

Testing two hypotheses

Two hypotheses, in particular, are to be tested by this method. Firstly, we wish to ascertain whether market growth in Germany, compared with its major potential "rivals" for foreign capital, has a significant bearing on the relative share of foreign direct investment in Germany. The theoretical considerations would lead us to suppose that direct investment in Germany increases relative to direct investment in other industrial countries whenever the German market grows more rapidly than the

24 The internal market dummy possibly also partly captures the effects of German unification and the change in the statistical method of recording foreign trade (from the beginning of 1993). Two additional dummies included for these structural breaks turned out to be non-significant in the estimation.
25 See Deutsche Bundesbank, Problems of international comparisons of direct investment flows: Monthly Report, May 1997, page 77 ff. and Jost, T., Direct investment and Germany as a business location, Discussion paper 2/97, Economic Research Group of the Deutsche Bundesbank, June 1997, page 35 ff.
26 Specifically, the data relate to the following industrial countries: Australia, Austria, Belgium, Denmark, Finland, France, Italy, Japan, Netherlands, Norway, Spain, Sweden, the United Kingdom and the United States.

markets of its potential competitors. In that case, foreign enterprises would have an incentive to invest more heavily in Germany so as to participate directly in the higher market growth by manufacturing and selling their products "locally". It is to be expected, moreover, that the direct investment accompanying exports to Germany will increase if Germany imports more goods and services on account of its higher economic growth.

Secondly, this simple estimate is used to test what effect a change in Germany's price competitiveness has on the flow of direct investment into Germany. Theoretically, a deterioration of Germany's price competitiveness (measured as a real appreciation of the Deutsche Mark against the currencies of Germany's major competitors on the world market) should lead to a relative decline in foreign direct investment in Germany, because in that case it is more advantageous for foreign enterprises to serve the German market as well as third markets by exporting goods from abroad.

Estimation approach

The following approach was therefore chosen for the estimation:

$$(3)\ dig_i = \alpha_{0i} + \underset{(>0)}{\alpha_1} \cdot y + \underset{(<0)}{\alpha_2} \cdot q + \vartheta_i$$

dig_i = Share of direct investment of country i in Germany in the total direct investment of 14 OECD countries (in per cent)[27]

y = Real gross domestic product (GDP) of Germany relative to the real GDP of the OECD countries (excluding Germany)

q = Weighted real external value of the Deutsche Mark

ϑ_i = Error term

Estimation method and definition of the variables

Thus, for each of the 14 OECD countries (i = 1, 2, ..., 14) an equation is estimated with a country-specific constant (α_{0i})[28] expressing different level effects across countries, whereas the income and cost elasticities (α_1 and α_2) are assumed to be identical for all countries.

The percentage share of the (annual) direct investment of country i in Germany in the total direct investment of the 14 OECD countries in each respective year ($dig_{i,t}$) was determined on the basis of the data of the investor countries in question. The relationship between real German GDP and the real GDP of the OECD countries (excluding Germany) y_t was calculated from the corresponding growth rates as an index series (with 1984 = 100).[29] The variable q_t was again measured by the

27 The direct investment of country i in Germany was related to the total foreign direct investment of the 14 OECD countries and not to the total direct investment of country i because the balance of the outward direct investment of some countries is negative in certain years and therefore no meaningful relation can be formed. In addition, the share of direct investment in Germany of individual small countries is subject to major fluctuations that are difficult to interpret economically owing to some large-scale transactions, and these fluctuations are levelled somewhat by the approach chosen here. Since the direct investment of the countries analysed also shows negative values in certain years, i.e. direct investment in Germany dating from previous years was run down on balance, the variables cannot be expressed as logarithms. A similar estimation approach for the direct investment of the OECD countries in the east European countries in transition can be found in Lansbury, M., Pain, N. and Smidkova, K., Foreign Direct Investment in Central Europe since 1990: An Econometric Study, National Institute Economic Review, May 1996, pages 104–114.

28 For the estimation problems involved in using combined time series and cross-country data see, for example, Judge, G. G., Hill, R. C, Griffiths, W. E., Lütkepohl, H. and Lee, T. C.: Introduction to the Theory and Practice of Econometrics, New York etc. 1982. One difficulty in the estimation is that direct investment and real GDP are not stationary variables. To mitigate this problem, the two variables were defined not in absolute but in relative terms. Nevertheless, the estimation results must be interpreted with caution.

29 The growth rates of real GDP for Germany relate to western Germany up to 1991 and to Germany as a whole from 1992.

Foreign direct investment in Germany * as a function of Germany's relative market growth and the real external value of the Deutsche Mark

Combined cross-country and time series analysis
Estimation period: 1987-94, 112 observations,
96 degrees of freedom

Explanatory variable	Coefficient	t-value
Germany's relative market growth	0.028	4.27
Real external value of the Deutsche Mark	– 0.019	– 2.80
Statistics		
Corr. R^2	0.66	
DW	1.52	

* Direct investment of 14 OECD countries in Germany as a proportion of these countries' total foreign direct investment.

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real external value of the Deutsche Mark based on the deflators for total expenditure.

Results

The estimation explains the trend in the relative share of foreign direct investment in Germany remarkably well if it is remembered that even the annual figures for the direct investment of the smaller OECD countries in Germany are subject to considerable fluctuations due to large-scale transactions. The results show that the direct investment of the OECD countries in Germany during the period under review showed a positive correspondence with the development of real GDP in Germany compared with the OECD average, and a negative correspondence with the real external value of the Deutsche Mark.

Initially, however, the influence of the real external value of the Deutsche Mark proved to be non-significant. This is probably attributable to the extreme depreciation of the US dollar in the mid-eighties which constituted a counterswing, as it were, to the trend at the beginning of the eighties, and was thus regarded by market participants more as a return to normal and not necessarily entirely as a lasting change in the price competitiveness of the German economy. Thus, if the estimation period is shortened so as to exclude these extreme fluctuations in the exchange rate (from 1987), a quite significant impact of price competitiveness on foreign direct investment in Germany is revealed.

The results are summarised in the adjacent table. They indicate that, all other things being equal, the direct investment in Germany of the OECD countries included in the study increases by 0.028 percentage points in relation to the overall direct investment of all 14 OECD countries if the German economy grows by 1 percentage point more than those of its potential "competitors". At first sight this does not appear to be very much. Aggregated across all 14 investor countries, however, this adds up to an increase in direct investment in Germany of around US$ 1 billion, given a total amount of outbound direct investment of the OECD countries of approximately US$ 300 billion. Conversely, the direct investment of the individual OECD countries in Germany falls by 0.019 percentage points in relation to the total direct investment of this group of countries if the real external value of the Deutsche Mark rises by 1 percentage point.

Evaluation

The estimation approach chosen here provides a fairly good fit for the trend in the direct investment of the OECD countries in Germany over a relatively long period, although even the estimation of other countries' direct investment in Germany, with a determination coefficient of just short of 0.7, points to the importance of other determinants which were not explicitly considered here.

There were no indications of a structural break. That is surprising, as, at least in the nineties in conjunction with German unification, a marked divergence from the pattern of development seen in the eighties might have been expected. To that extent, the estimation result is in harmony with the impression that the level of foreign direct investment in eastern Germany has fallen well short of the original expectations (see above page 72 f.).