Direct investment and Germany as a business location

Thomas Jost

Discussion paper 2/97

Economic Research Group

of the Deutsche Bundesbank

June 1997

Deutsche Bundesbank, Wilhelm-Epstein-Strasse 14, 60431 Frankfurt am Main,
P.O.B. 10 06 02, 60006 Frankfurt am Main, Federal Republic of Germany

Telephone (0 69) 95 66-1
Telex within Germany 4 1 227, telex from abroad 4 14 431, fax (0 69) 5 60 10 71

Please address all orders in writing to: Deutsche Bundesbank,
Press and Public Relations Division, at the above address, or via fax No. (0 69) 95 66-30 77.

ISBN 3–932002–40–7

Summary

The unfavourable balance of foreign direct investment plays a major role in the ongoing debate on the quality of Germany as a business location. High direct investment outflows and low inflows compared with the United Kingdom and France are often seen as a sign of weakness of Germany as a business location. The relative attractiveness of different countries for foreign direct investment is usually measured in terms of the balance of payments data of the host countries. However, owing to still very divergent recording practices across the industrial countries, such comparisons may be misleading. In this paper it is shown that the statistical errors are minor if investor countries', rather than host countries', data are used to compare the relative attractiveness of different economies for foreign direct investment. Over a period of 11 years, foreign balance of payments data show that Germany has received a considerably higher amount of foreign direct investment than is recorded in the German balance of payments. On the outflow side the different data sources give a more homogeneous picture of a persistently heavy commitment of German companies abroad.

The locational decisions of multinational enterprises are dependent on a great variety of factors. The empirical analysis in this paper is limited to the influence of market and cost-oriented factors, which in several surveys of foreign and German enterprises have been identified as the main reason for foreign direct investment. In a cross-country study and a cointegration analysis it is shown that German direct investment abroad is indeed mainly influenced by market-oriented factors. The development of German investment abroad is closely connected with the development of German exports. In this respect, rising foreign direct investment is not an unequivocal sign of weakness of Germany as a business location. But the market-oriented pressure for expansion abroad is reinforced by rising prices and costs in relation to major competitors for foreign capital. At times of a considerable deterioration in price competitiveness - as in the period from 1992 to 1995 - German firms have increasingly shifted production facilities abroad.

Similar to German firms, foreign enterprises also react to relative changes in the market and cost situation. In a cross-country time series study using foreign balance of payments data, it is shown that foreign direct investment in Germany is favourably influenced by relative growth and unfavourably affected by a deterioration in the relative price competitiveness of the German economy. During the period from 1989 to 1991, when Germany experienced a higher rate of economic growth than the other industrial countries, and when its cost situation was relatively favourable, foreign direct investment in Germany, relative to other OECD countries, rose considerably. By contrast, the lower foreign direct investment in recent years seems to be caused by a comparatively low growth rate and a worsened international competitive position of Germany.

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Direct investment and Germany as a business location*

If entrepreneurs have invested all their money abroad,
one talks of the graveness of the situation; and if no
capital flows in, there is a lack of dough.

(With apologies to Tucholsky)

1. Introduction

International direct investment has played a major role in the debate on Germany as a business location for several years. The high German direct investment abroad and the small inflows of direct investment to Germany, compared with the United Kingdom and France, are often seen as a sign of weakness of Germany as a business location. The attractiveness of various business locations for foreign direct investment is, as a rule, compared on the basis of the national balance of payments data of the individual countries. However, such comparisons may lead to sharp distortions if the national balance of payments data are not recorded consistently. In Germany, in particular, different recording methods lead to highly contradictory information on foreign inward direct investment. In the present contribution, an attempt is made to objectivise the debate on direct investment by analysing and comparing the informative value of various statistical sources on international direct investment (chapter 2).

The determinants of direct investment are most varied and often difficult to test empirically. In the current debate the high wage costs, the at times sharp appreciation of the Deutsche Mark as well as the tax burden and the extensive regulation of the German economy are repeatedly cited as causes of the increasing deterioration of the German direct investment account in the past few years. For that reason, the significance and influence of major locational factors on international direct investment will be analysed for Germany in the following theoretical and empirical parts of this paper (sections 3 and 4).

* I would like to thank, in particular, A. Cimper (OECD), W. Masseling, D. Scholz, B. Stejskal-Passler (Deutsche Bundesbank) and G.A. Pollack (US Department of Commerce) for providing data and important information on the individual statistics. I am likewise grateful to R. Fecht, W. Friedmann, M. Glaum, U. Grosch, A. Jung, H. Hansen, J. Reckwerth, K. Sauvant, M. Wilhelm and the participants in a workshop at the Deutsche Bundesbank for valuable suggestions and critical remarks. I also thank O. Kolczok and K. Michel for preparing the charts and tables.

2. Trend in direct investment and problems of international comparisons of direct investment data

General conclusions as to the locational quality of the country in question are frequently derived from the trend in direct investment flows. Basically, it can be said that the balance of payments data on direct investment, by definition, can have only a limited informative value for locational comparisons since they record only the financial links between the investors and the investment enterprises and allow no precise conclusions as to the real economic activities and especially the expenditure on tangible fixed assets of foreign subsidiaries. In addition, despite international harmonisation efforts, the national balance of payments data are still recorded according to very different methods; as a result, comparisons of the attractiveness of various locations on the basis of direct investment data must be made with utmost caution. For these reasons, direct investment will initially be defined and the problems connected with the informative value of direct investment figures for locational comparisons will be briefly described in the following section. Following that, the trend in the German direct investment account and the discrepancies between the German and the foreign balance of payments statistics will be analysed. Finally the change in direct investment stocks in the German stock statistics will be compared with the direct investment flows in the balance of payments. It is the objective of this chapter to gain an idea of the most appropriate data that should be used for the empirical analysis of the determinants of international direct investment for Germany.

2.1. Definition and informative value of direct investment data

The term direct investment was largely coined by the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD).[1] By direct investment the IMF and the OECD understand an international investment where the investor has the objective of establishing a lasting interest in an enterprise abroad. A lasting interest means a long-term relationship between the direct investor and the direct investment enterprise as well as a marked influence of the investor on the management of the investment enterprise.[2] An enterprise is deemed a direct investment enterprise if another enterprise from a foreign economic territory holds at least 10 % of its capital interests or

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[1] The IMF defined direct investment in the Balance of Payments Manual (5th edition, 1993) and in the accompanying Balance of Payments Compilation Guide (1995) which are the guidelines for the compilation of balances of payments for all IMF member countries. The IMF concept is also the basis of the Benchmark Definition of Foreign Direct Investment of the OECD (3rd edition, 1995).

[2] A largely identical definition of direct investment can be found in the legal basis for the compilation of the balance of payments and the external assets and liabilities account of the Federal Republic of Germany. In the Foreign Trade and Payments Act and in the Foreign Trade and Payments Regulation (section 55), direct investment is defined as the investment of assets in foreign economic territories to establish lasting economic ties.

voting rights. Direct investment comprises not only the initial purchase of the participating interest, but also all subsequent financial transactions between the investor and the direct investment enterprise, i.e. the increase in capital interests, credit operations between the parent company and the foreign investment enterprise and the subsidiary's reinvested earnings accounted for by the parent company.[3]

The balance of payments data on direct investment therefore measure the financial ties between the investor and the investment enterprise. They tell us nothing, however, about the actual real investment amounts, the size and the growth of the foreign subsidiaries. An increase in direct investment abroad may conceal very different economic activities with very different motives. The establishment of a new production plant abroad to save wage cost, the extension of the marketing network to increase exports, the takeover of a foreign enterprise for the purpose of eliminating a competitor or a "passive" participating interest in a foreign investment management company doubtless need to be assessed very differently from locational policy aspects. International direct investment is frequently associated with greenfield investment. However, this traditional form of direct investment has lost much significance since the beginning of the eighties, whereas mergers and acquisitions of existing foreign enterprises have increased sharply. Today at least four-fifths worldwide of new direct investment abroad is made in the form of participating interests and takeovers.[4] In the extreme case, a participating interest in or acquisition of a foreign enterprise may lead to a mere change in ownership without making a real investment or creating a single additional job.

More accurate information on the economic activities of foreign direct investment enterprises and on the trend in their profitability and employment can at present only be obtained in Germany from the balance sheet data of corporate reports for the stock statistics on international direct investment. Compared with the balance of payments data, however, these have the disadvantage that they are only available with a time lag of about 1 ½ years and are even less comparable internationally, with the result that they are often neglected in the current economic policy debate.[5]

A rise in direct investment is not necessarily connected with additional real investment abroad. Conversely, the economic activities of direct investment enterprises abroad may expand even without an increase in the financial interest or a loan from the domestic parent company. For example, a US-domiciled subsidiary of a German enterprise may invest without a capital injection or a proprietors' loan from its German parent company if it raises the requisite funds in the US capital market. In most cases the "external" financing of direct

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[3] See OECD (1995), p. 6 ff.
[4] See Sherman (1996), p. 10.
[5] For the German stock statistics, see section 2.3.

investment enterprises far exceeds the intra-group capital injection. At the end of 1994 only about 25 % of the total own and borrowed funds of (primary) German direct investment enterprises abroad (excluding banks) was accounted for by participating interests and loans by the German parent companies and affiliated enterprises in Germany, whereas 75 % was financed by foreign shareholders and borrowing in the market. The subsidiaries of foreign enterprises in Germany financed 37 % by own funds and loans from their foreign parent companies and 63 % by external capital. The figures for US direct investment abroad are in a similar range. According to a study by the US Department of Commerce, less than 40 % of the assets of US subsidiaries abroad (excluding banks) is financed by capital interests and loans (including reinvested earnings) of parent companies. About 60 % of the assets, by contrast, is financed locally, particularly by borrowing in the capital market of the subsidiary's country of domicile.[6] In the following section initially the trend in international direct investment in the German and foreign balances of payments will be compared, irrespective of the generally limited informative value of direct investment data.

2.2. Trend in international direct investment and discrepancies between the German and the foreign balance of payments data

The German balance of payments has shown very small inflows of direct investment from abroad for many years (table 1). Even during the unification boom at the beginning of the nineties, there was hardly any rise in foreign direct investment in Germany. In the entire period under review from 1984 to 1994, the foreign direct investment in Germany recorded in the German balance of payments increased by only DM 43 billion net. Only in 1989, when some large-scale transactions accumulated, was a major inflow of capital of DM 13 ½ billion registered. In the past two years there was little change in this picture. Although in 1995 Germany was able to benefit slightly more from the worldwide increase in direct investment, with net capital imports of around DM 17 billion, foreign enterprises slightly reduced their participating interests in Germany in 1996 (by DM 5 billion net).

The small inflows of foreign direct investment shown in the German balance of payments statistics are in stark contrast to the direct investment in Germany recorded by other countries. According to the balance of payments statistics of 18 OECD countries, enterprises from that area invested DM 137 billion net in Germany between 1984 and 1994, i.e. three times as much as is shown in the German balance of payments.[7] The gap

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[6] See Feldstein (1994), p. 7 ff.

[7] The direct investment data of the 18 countries analysed were taken from the OECD database for the International Direct Investment Statistics Yearbook (position: autumn 1996). They were converted into Deutsche Mark at annual average rates. The 18 OECD countries analysed include the most important investor countries in Germany, with the exception of Canada and (until 1992) Switzerland.

Table 1

Foreign direct investment in Germany

- Discrepancies between German and foreign balance of payments statistics -

- Net investment, in DM billion -

Year	German balance of payments statistics		Foreign balance of payments statistics
	Total	18 OECD countries[1]	18 OECD countries[1]
1984	1.5	0.8	2.8
1985	1.6	0.7	3.3
1986	2.5	2.5	4.7
1987	3.3	2.8	4.0
1988	2.0	0.6	1.3
1989	13.3	12.7	18.5
1990	4.0	2.9	26.1
1991	6.8	4.7	26.0
1992	4.2	5.6	18.3
1993	2.9	0.6	13.4
1994	1.1	0.9	18.9
1984/94	43.2	34.6	137.2

1 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.

Sources: Deutsche Bundesbank, OECD.

between the investment volume given in the foreign statistics and that recorded in the German balance of payments statistics widened starkly from 1989. In the years following German unification, foreign corporate investment in Germany rose sharply. The OECD countries invested DM 26 billion net in Germany both in 1990 and 1991, whereas the German balance of payments statistics recorded inflows of only DM 4 billion and DM 7 billion, respectively. The total difference between the outflows to Germany registered abroad and the total inflows recorded in the German balance of payments statistics amounted to DM 94 billion in the period under review (1984 to 1994). If the direct investment by the 18 OECD countries in Germany is compared with the inflows

from these countries recorded in the German balance of payments (DM 34 ½ billion), the difference rises to as much as DM 102 ½ billion.

Whereas in the case of foreign direct investment in Germany the German figures are far lower than the foreign figures, the German balance of payments shows higher German direct investment abroad than do the foreign balances of payments. Compared with the inflow side, the discrepancies on the outflow side are much smaller, however (table 2).

Table 2

German direct investment abroad

- Discrepancies between German and foreign balance of payments statistics -

- Net investment, in DM billion -

Year	German balance of payments statistics		Foreign balance of payments statistics
	Total	18 OECD countries[1]	18 OECD countries[1]
1984	13.5	9.4	5.0
1985	15.1	12.5	8.9
1986	21.9	19.4	9.1
1987	17.4	14.0	12.0
1988	21.2	18.3	9.2
1989	28.5	24.2	16.9
1990	38.7	32.1	16.5
1991	39.3	32.2	16.3
1992	30.5	25.0	18.3
1993	25.3	19.8	30.5
1994	27.0	19.2	23.4
1984/94	278.5	226.1	166.0

1 Australia (from 1987), Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Japan, Netherlands, Norway (from 1986), Portugal, Spain, Sweden, Switzerland (from 1993), Turkey, United Kingdom, United States.

Sources: Deutsche Bundesbank, OECD.

The data of 18 OECD countries showed German net investment of DM 166 billion in the period from 1984 to 1994. In the German balance of payments statistics, net German direct investment in the 18 OECD countries accumulated to a total of DM 226 billion. Hence, the German balance of payments showed DM 60 billion or about 35 % higher direct investment in the OECD countries than the foreign balances of payments, whereas the difference between foreign and domestic data on the inflow side amounted to around 300 %.

Table 3

Bilateral discrepancies in international direct investment

- Accumulated over the period 1984-94, in DM billion -

Partner countries	Foreign direct investment in Germany[1]	German direct investment abroad[2]
Belgium/Luxembourg	+37.7	+0.4
France	+5.4	-6.0
Ireland	n.a.	-15.6
Italy	+3.9	-8.1
Japan	+5.5	-0.7
Netherlands	-0.7	-9.7
United Kingdom	+7.1	-14.8
United States	+37.4	-3.4

1 A plus sign denotes that the balance of payments statistics of the partner country show higher direct investment in Germany than the German balance of payments statistics.-

2 A minus sign denotes that the German balance of payments statistics show higher direct investment in the partner country than the balance of payments statistics of the recipient country.

Sources: Deutsche Bundesbank, OECD, US Department of Commerce.

The bilateral discrepancies between the German and the foreign balance of payments statistics on international direct investment vary greatly from country to country. Table 3 shows eight partner countries for which the bilateral differences are greatest, in absolute terms, in the period under review. Taken together, these eight countries explain over 90 % of the total discrepancy vis-à-vis the foreign data on both sides of the German direct

investment account. In the case of foreign direct investment in Germany, particularly the United States, by far the largest investor in Germany, and Belgium/Luxembourg showed distinctly higher figures than the German balance of payments. In the period from 1984 to 1994 as a whole, net investment by US enterprises and firms from Belgium and Luxembourg was about DM 37 ½ billion higher in each case than the German figures. Both countries, taken together, thus explain about two-third of the total difference in each case between the German and the foreign statistics. Markedly higher direct investment in Germany was also shown by the United Kingdom (DM 7 billion more), France and Japan (DM 5 ½ billion in each case) and Italy (DM 4 billion). But nearly all other smaller investor countries from the OECD area, too, recorded higher direct investment in Germany in their balances of payments than did the German balance of payments.

In the case of German direct investment abroad, the differences are greatest in respect of the United Kingdom and Ireland. The German balance of payments showed DM 15 ½ billion higher direct investment in Ireland and DM 15 billion higher direct investment in the United Kingdom than the balance of payments statistics of the recipient countries. Higher net capital outflows were also shown in the case of the Netherlands (DM 9 ½ billion), Italy (DM 8 billion) and France (DM 6 billion), whereas the data an German direct investment in the United States, Belgium/Luxembourg and Japan largely agree with the foreign figures.

There are many reasons for the bilateral discrepancies in international direct investment. Although direct investment was uniformly defined by the IMF and the OECD and detailed guidelines were drafted for recording direct investment in the course of the international harmonisation efforts in the past 20 years, the national practices and reporting systems still vary greatly. In order to gain an impression of the causes and significance of the statistical differences, the eight countries analysed here were asked for more accurate information on the practice of recording direct investment flows in their balance of payments statistics. In addition, the bilateral direct investment data - as far as they were available - from the German and foreign statistics were compared, broken down by the three components capital interests, (short and long-term) credit operations and reinvested earnings. In this way an attempt was made to locate the greatest discrepancies between the German and the foreign figures.

The essential differences in recording direct investment in the German balance of payments statistics and in the balance of payments statistics of eight partner countries compared with the IMF Manual guidelines are summarised in table 4:

International differences in recording direct investment in the balance of payments **Table 4**

Recording of primary direct investment	Guideline of the BoP Manual	Germany	United States	United Kingdom	Belgium / Luxembourg
• Threshold for capital interests	• ≥ 10 %	• > 20 % (until 1989: ≥ 25 %)	• ≥ 10 %	• > 10 % (until 1995: > 20 %)	• none
Loans					
• Long-term	• yes	• yes	• yes	• yes	• yes
• Short-term	• yes	• yes (since 1997)	• yes	• yes	• yes
• Trade credits	• yes	• yes (since 1997)	• yes	• yes	• yes
• Reinvested earings	• yes	• yes	• yes	• yes	• no

Recording of primary direct investment	France	Japan	Italy	Netherlands	Ireland
• Threshold for capital interests	• ≥ 10 % (until 1993: ≥ 20 %)	• ≥ 10 %	• ≥ 20 %	• none	≥ 10 %
Loans					
• Long-term	• yes	• yes	• no	• yes	• yes
• Short-term	• yes (since 1996)	• yes	• no	• yes	• yes
• Trade credits	• no	• no	• no	• yes	• yes
• Reinvested earnings	• yes (since 1997)	• yes (since 1996)	• no	• yes (since 1996)	• no

Sources: OECD, national agencies.

(1) Participation threshold for primary direct investment

According to the guidelines of the new IMF Manual, an international corporate interest of 10 % or more should be recorded as a direct investment.[8] The United States, Japan, Ireland, France (since 1994) and the United Kingdom (since 1996) are already using a participation threshold of 10 %. Belgium and the Netherlands are not oriented to any specific participation threshold but decide from case to case whether a direct investment as defined by the IMF exists; in other words, they also include participating interests below the 10 % mark. Only Germany and Italy still use a higher participation threshold of 20 %. Theoretically, the higher participation threshold in Germany might explain a certain part of the gap between the foreign and the German data on foreign direct investment in Germany.[9] This part is likely to be very small, however. In a study of the global discrepancies in international financial transactions on the basis of the stock data of six countries, the IMF found that the major part of international direct investment by the industrial countries is accounted for by majority interests (between 83 % and 97 % on the outflow side and as much as 94 % to 96 % on the inflow side), while minority interests of between 10 % and 20 % make up only 1 % to 2 % of the direct investment stocks.[10] In Germany, too, the bulk of international direct investment is accounted for by majority interests. Of the foreign holdings in Germany at the end of 1994, as much as 69 ½ % was made up of wholly owned foreign subsidiaries (8,540 out of a total of 11,581 enterprises).[11]

(2) Lending

Whereas the IMF makes no distinction between the different maturities of loans and includes all financial and trade credits between the direct investor and the direct investment enterprise,[12] some countries - including Germany - have so far recorded only direct investment loans with a maturity of more than 12 months but no short-term loans or trade credits.

The non-inclusion of short-term credits and trade credits partly explains the fact that, according to the foreign figures, foreign direct investment in Germany is distinctly higher than it is according to the German figures. The adjustment of the German balance of payments to the new guidelines of the IMF by the belated inclusion of short-term credits between affiliated enterprises, which the Bundesbank carried out in May 1997, leads to the

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8 See IMF, BoP Manual, paragraph 362, p. 86.

9 On the outflow side, by contrast, the discrepancy between the German and the foreign data should become larger if German corporate interests abroad of between 10 % and 20 % were included.

10 See IMF (1992), p. 24 f.

11 Of the German stock of direct investment abroad, 67 % was accounted for by wholly owned subsidiaries at the end of 1994 (13,436 investment enterprises out of a total of 21,424).

12 See IMF, BoP Manual, paragraph 370, p. 88.

result that foreign direct investment in Germany in the period 1984 to 1994 increases by DM 13 billion according to preliminary calculations. This correction is based on the so-called „directional" principle that the IMF prescribes as the new guideline.[13] According to this principle, all changes in the assets and liabilities of a domestic enterprise vis-à-vis the foreign parent company should be shown under foreign direct investment at home (as a new investment or liquidation). Conversely, the changes in the assets and liabilities of a domestic parent company vis-à-vis its foreign subsidiaries should be shown under direct investment abroad. If - in contrast - the short-term credit operations are recorded under the asset/liability principle, foreign direct investment in Germany rises even more (by DM 64 ½ billion).[14] Whereas the inclusion of short-term credits closes part of the gap between the German and the foreign data on foreign direct investment in Germany, it widens the gap between the German and the foreign figures on the outflow side, namely by around DM 13 billion in the case of the directional principle and DM 68 billion in the case of the asset/liability principle. A third option for assessing the significance of short-term financial operations between affiliated enterprises is provided by the changes in the stock data; we shall have a closer look at these data in section 2.3.

It should be noted in this context that opinions may no doubt differ as to whether short-term credit operations and trade credits should be recorded under direct investment - as prescribed by the new IMF Manual. Lending between affiliated enterprises is of a different quality from that of capital interests.

(3) Reinvested earnings

In contrast to most other countries, reinvested earnings have been recorded under direct investment and shown separately in the German balance of payments for some time, but only as far as direct participating interests are concerned. Apart from Germany, only the United States and the United Kingdom showed reinvested earnings in their balances of payments in the period under review from 1984 to 1994. Although the Netherlands has recorded reinvested earnings for many years, it has shown them in its balance of payments only since 1996. Japan and France have included reinvested earnings since 1996 and 1997,

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[13] See Deutsche Bundesbank (1997a).

[14] In line with the asset/liability principle, all cross-border payments associated with intra-group assets are shown as direct investment abroad. This also applies to the assets of a domestic subsidiary vis-à-vis the foreign parent company, which, according to the IMF Manual, should be shown as a deduction under foreign direct investment at home. Conversely all transactions associated with intra-group liabilities (including the liabilities of a domestic parent company to the foreign subsidiary) are classified as foreign direct investment at home, which - according to the directional principle - should be shown as a deduction under domestic direct investment abroad. To the extent that other countries use the asset/liability principle (on which no detailed information is available) foreign direct investment in Germany would be overstated measured according to the new rules of the IMF. At the same time, this would explain another part of the discrepancy between the foreign data and the German data on the inflow side.

respectively. In contrast to the own funds and credit transactions, however, there is no direct reporting requirement for reinvested earnings for the German balance of payments statistics. Reinvested earnings are estimated for the current year and, for the preceding years, the figures are revised with the aid of incoming data from the balance sheets of enterprises reporting for the German stock statistics. Although the IMF has given detailed instructions on the calculation of reinvested earnings,[15] national practices differ considerably in this respect and are also strongly influenced by the respective tax system and the accounting regulations. Moreover, differences in the collection method may also lead to discrepancies in the figures.

The non-inclusion of reinvested earnings by six of Germany's eight partner countries analysed in the period from 1984 to 1994 may explain part of the discrepancy between the German and the foreign data on the outflow side. Between 1984 and 1994 the German balance of payments recorded net capital outflows of DM 15 ½ billion as a result of the investment of reinvested earnings in Belgium/Luxembourg, France, Italy, Ireland, Japan and the Netherlands; these were not recorded as inflows by the countries concerned. On the inflow side, however, the different recording methods for reinvested earnings offer no explanation for the overall discrepancy between the German data and the data of these countries, for in the German balance of payments the capital inflows and outflows due to the reinvested earnings of foreign enterprises from the six countries cancelled out over the period as a whole.

Table 5

US direct investment in Germany (1984-94)

in DM billion, net capital investment: +

	Own funds	Reinvested earnings	Loans	Total
US balance of payments	+6.8	+20.6	+4.0	+31.4
German balance of payments	-3.9	-6.1	+4.0	-6.0
Difference	+10.7	+26.7	+0.0	+37.4

A bilateral comparison shows, however, that there is a large discrepancy between the German and the US balance of payments data on the reinvested earnings of US enterprises in Germany (table 5). According to the German data, US subsidiaries disinvested DM 6 billion net in Germany in the period under review, whereas, according to the US

[15] See BoP Compilation Guide, paragraphs 602-613, p. 136 f.

data, US direct investment increased by DM 20 ½ billion as a result of the "reinvestment" of earnings by US firms in Germany. The difference of DM 26 ½ billion explains more than two-thirds of the total discrepancy between the US and the German data on US direct investment in Germany. It is probably largely attributable to different calculation methods for reinvested earnings. It might also be of importance that the United States (so far the only country to do so) has likewise recorded the reinvested earnings from secondary holdings abroad.[16]

(4) Recording of secondary direct investment

According to the IMF guidelines, the following may be direct investment enterprises: branches with a 100 % capital interest, subsidiaries in which the direct investor holds a share of more than 50 % and associates with a capital interest of between 10 % and 50 %. A direct investment operation covers not only direct (primary) participating interests, but also indirect (secondary) participating interests in foreign enterprises. These include all branches of a direct investment enterprise, associates of subsidiaries and subsidiaries of associates. Only the associates of associates are not considered part of the direct investment ties.

The new IMF Manual provides for the financial transactions between investors and secondary participating interests abroad to be recorded as direct investment. In the German balance of payments lending operations, but not capital transactions, between such enterprises are included. In recording the credit operations with secondary direct investment enterprises, the German balance of payments statistics use the definition of the German stock statistics: a secondary direct investment of a German enterprise abroad exists if a non-resident enterprise in which the German enterprise holds a share of over 50 % (this is deemed a "dependent" enterprise), in turn, holds shares of more than 20 % in other foreign enterprises.[17] If the dependent enterprise wholly owns another non-resident enterprise, this other enterprise and, assuming a 100 % interest, any further enterprise, is deemed "dependent". The participating interests of these further dependent enterprises in foreign firms, if they comprise more than 20 % of the shares or voting rights, are likewise considered secondary direct investment. By contrast, only corporate interests of more than 20 % "mediated" via a domestic enterprise in which the direct investor holds more than

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[16] The remaining discrepancy between the US and the German data results from differing information on the trend in the capital interests of US enterprises in Germany. According to the US balance of payments, these rose by DM 7 billion net in the period under review, whereas a disinvestment of DM 4 billion net was shown in the German balance of payments. The large difference of DM 11 billion can probably partly be explained by the lower participation threshold for primary direct investment and the "broader" recording of secondary direct investment in the US balance of payments.

[17] Both the capital interests and loans to secondary direct investment enterprises are recorded in the German stock statistics. For details, see section 2.3.

50 % of the shares are regarded as secondary participating interests of non-residents in Germany. However, in this context, the term "direct investor" is defined more broadly than in the case of German direct investment abroad. Economically linked foreign investors are likewise considered direct investors if they pursue common economic interests. This applies, for example, if they have jointly established the German enterprise, if they have family ties or are associated with one another within the meaning of section 13 of the Companies Act.

The differences in the definition of secondary direct investment between the IMF Manual and the Bundesbank practice become clearer if the examples shown in chart 1 are considered. According to the German regulation, the enterprises in the grey boxes B, L, M, N, P and R are deemed to be secondary German direct investment abroad.[18] According to the IMF regulations, the enterprises C, E, O and Q in the shaded boxes would have to be recorded in addition as secondary German direct investment abroad. Of the foreign participating interests in Germany the enterprises G, J, L and P in the grey boxes are regarded as secondary foreign participating interests in the German statistics. According to the IMF guidelines, the enterprises D, E, H, K and Q in the shaded boxes would have to be included as non-residents' secondary direct investment in Germany as well.

The two examples show that in the German statistics, particularly on the inflow side, a number of capital links between foreign and German enterprises that are currently not regarded as secondary direct investment would in future have to be included in a further adjustment to the IMF Manual. However, it is difficult to assess to what extent the non-recording of secondary capital interests and the only partial recording of credit operations in the case of secondary direct investment contribute to explaining the large overall discrepancy between the foreign and German data on the direct investment of foreign enterprises in Germany, since for most countries detailed information on the recording practice for secondary direct investment is not available.

Besides the aforementioned differences in recording direct investment, there are a number of other reasons for international discrepancies in the direct investment data, such as the differing treatment of transactions of so-called special purpose entities or the recording of real property. In addition, not least the differing recording methods (link to reports in payments or the collection of survey data) result in differing data on direct investment flows.[19]

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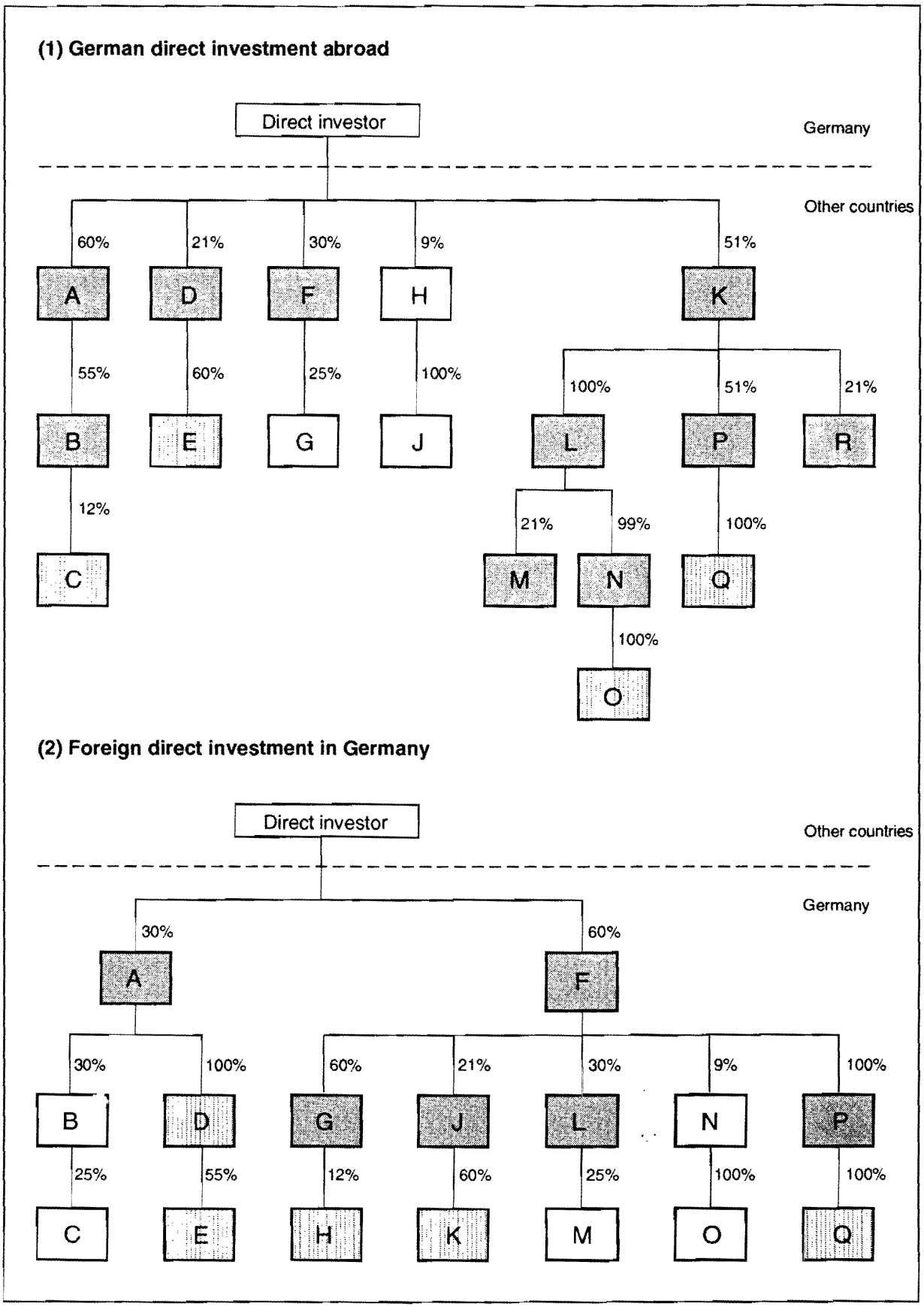
[18] Enterprises A, D, F and K represent primary German direct investment abroad.

[19] See IMF study (1992), p. 25 ff. and Deutsche Bundesbank (1997a).

Differences in the recording of secondary direct investment between the IMF Manual and the German regulations*



*According to the German regulations, only the enterprises in the grey boxes would be direct investment enterprises. According to the IMF Manual, enterprises shown in the hatched boxes are also considered direct investment enterprises.

A case in point are the different respective national practices in recording German assets in Ireland: the high direct investment made by German enterprises in Ireland in the early nineties (between 1989 and 1991 alone: DM 12 ½ billion net) concerned almost exclusively tax-induced transfers of assets of domestic investors to "passive" investment management companies under Irish law which, in economic terms, were really portfolio investment. Owing to the involvement of a foreign subsidiary, these transfers were, however, recorded as direct investment in Ireland in the German balance of payments, in contrast to the Irish balance of payments.

In summary, the following can be said: the discrepancies between the German and the foreign balance of payments data on direct investment may have a number of causes which can only be quantified approximately on the basis of the information available so far. On the outflow side, the difference (of roughly DM 60 billion in the period 1984-94) between the German and the foreign data decreases by about half if it is remembered that the German balance of payments "recorded" direct investment assets of approximately DM 15 billion as a result of reinvested earnings in six countries which were not shown as direct investment by the recipient countries in their balances of payments. Moreover, net capital investment in Ireland of around DM 15 billion mostly included financial assets which were not classified as direct investment in the Irish balance of payments. On the inflow side, the large gap (about DM 100 billion) between the foreign and the German figures can partly be explained by the fact that until 1996, short-term credits and trade credits between affiliated enterprises were not recorded in the German balance of payments. In addition some countries have registered financial transactions between direct investors and direct investment enterprises according to the asset/liability-principle, which results in an increase of the gross direct investment flows and therefore in tendence also to higher foreign direct investment in Germany. Moreover, the United States shows much higher reinvested earnings and capital interests in Germany (about DM 37 ½ billion in total) as a result of a "broader" definition of direct investment.

For the empirical analysis of the determinants of international direct investment, the discrepancies between the German and foreign data suggest the following procedure: since, on the outflow side, the German and foreign direct investment data differ only relatively little, the econometric analyses of the determinants of German direct investment abroad can be based on the German balance of payments data. These are available as quarterly data for a long period of more than 20 years; as a result, a cointegration approach can be chosen for the econometric estimate (see section 4.3.).

Table 6

Foreign direct investment in Germany, France and the United Kingdom

- in US$ billion -

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1984/94
National statistics of the recipient countries												
Germany	0.5	0.5	1.3	2.0	0.3	7.0	1.2	3.8	2.5	1.3	0.7	21.1
France	2.0	1.9	2.4	4.4	7.1	9.4	8.7	11.1	15.3	11.8	11.0	85.1
United Kingdom	- 0.4	4.6	7.0	12.9	20.3	28.1	28.1	14.9	14.2	12.9	9.4	152.4
National statistics of the investing countries												
Germany	1.0	1.1	2.1	2.2	0.8	9.8	16.2	15.7	11.7	8.1	11.6	80.3
France	1.4	2.1	2.5	3.6	8.6	8.8	10.3	12.1	13.0	4.7	9.9	77.0
United Kingdom	5.6	5.9	6.3	13.2	16.7	29.2	25.8	22.4	15.8	37.8	16.0	194.7

Source: OECD.

Because of the very divergent national recording practies the analysis of the determinants of foreign direct investment in Germany and the relative attractiveness of Germany (as well as other countries) as a business location for multinational enterprises should - in contrast to the usual practice up to now - be based on the data of the investor countries. The individual investor countries, admittedly, use very different recording methods. If it is assumed, however, that their outflowing direct investment is recorded by region according to the same principles, the "statistical error" in a comparison of direct investment inflows to various target countries on the basis of the investor data is smaller than in a comparison of the inflows on the basis of the national data.[20]

If, for example, the direct investment inflows to Germany are compared with the direct investment imports by France and the United Kingdom - Germany's "direct" competitors for foreign corporate capital - a completely different picture is obtained, depending on the data used (table 6). According to the national balance of payments data, Germany was able to attract only US$ 21 billion net in foreign direct investment in the period from 1984 to 1994, whereas France attracted four times as much (US$ 85 billion) and the United Kingdom seven-and-a-half times as much foreign capital (US$ 152 ½ billion). From the perspective of the investor countries, by contrast, these invested US$ 80 ½ billion net in Germany, i.e. four times as much as suggested by the national data. Hence, Germany even outstripped France (US$ 77 billion). With net inflows of US$ 194 ½ billion, the United Kingdom remains the most attractive location for foreign direct investment. Compared with the national balance of payments data, however, the gap between the United Kingdom and Germany is significantly smaller. Chart 2 shows that Germany's total share of direct investment from the OECD area (according to the data of the investor countries) fluctuated between ½ % and 10 % between 1984 and 1994. The relative position of Germany as a recipient country of direct investment over a longer period (more than ten years) was accordingly much better than it was according to the customary "country rankings" on the basis of the national balance of payments data, in which Germany, along with Japan and Italy, mostly languished at the bottom of the table of the major industrial countries.[21]

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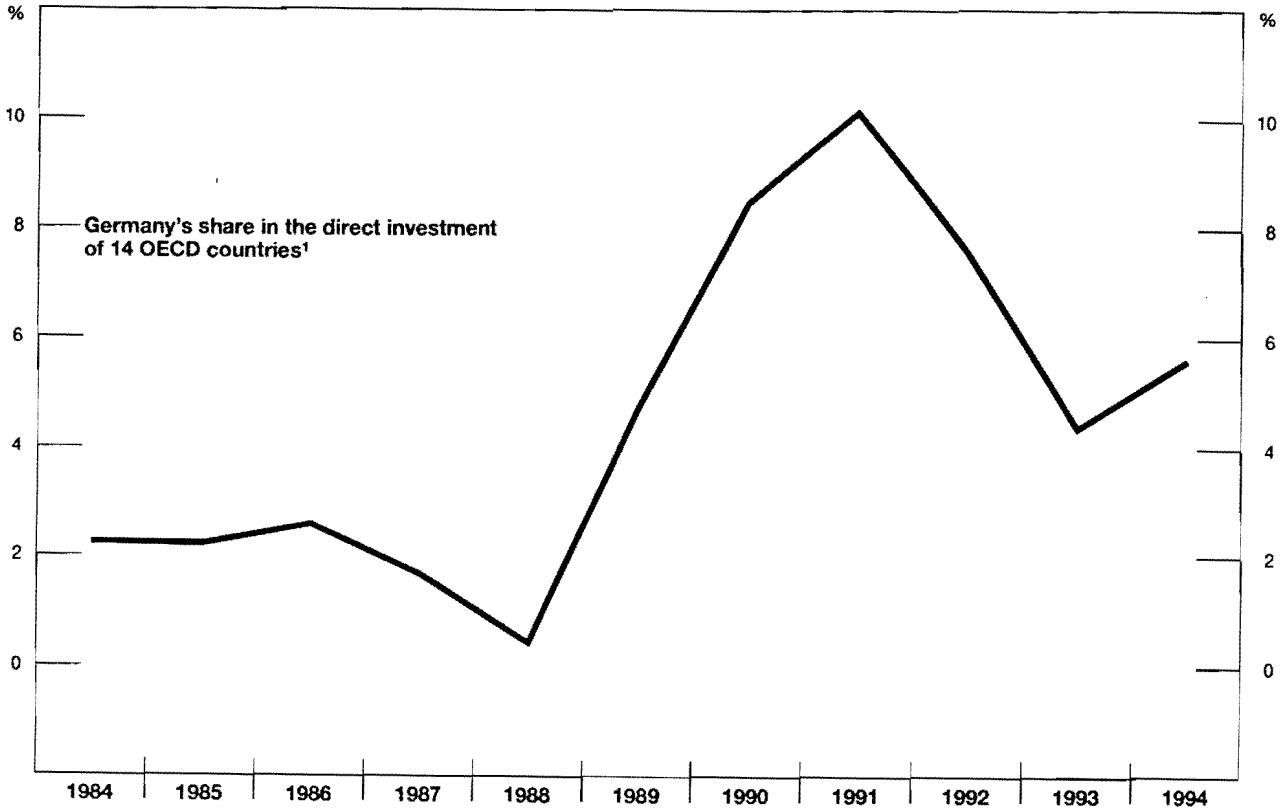
[20] The "statistical error" depends on the structure of outflowing direct investment if the data of the investor countries are used. If, for example, the United States which records direct investment in a comparatively broad definition, traditionally invests substantially in the United Kingdom, the direct investment flowing to the United Kingdom is "overstated" compared with other target countries which receive relatively little direct investment from US firms.

[21] According to a table of the WTO (1996) Germany, for instance, ranked only 15th among the major recipient countries of direct investment between 1985 and 1995 on the basis of the respective national balance of payments data.

Chart 2

Relative attractiveness of Germany for direct investment from the industrial countries



1) Australia, Austria, Belgium, Denmark, Finland, France, Italy, Japan, Norway, Netherlands, Spain, Sweden, United Kingdom, United States.

2.3. Change in direct investment stocks

More comprehensive data on the trend in international direct investment than those provided by the balance of payments statistics may be taken from the Deutsche Bundesbank's statistics on enterprises' international capital links which are based on the stock reports of domestic enterprises and individuals on residents' assets in foreign economic territories and non-residents' assets in Germany.[22] The stock statistics show the trends in investment capital and lending between affiliated enterprises, broken down by region and economic sector. Moreover, they record different variables of direct investment enterprises, such as the trends in the number of employees, the annual turnover and the balance sheet total, which permit more accurate statements to be made about the economic activities and the success of international direct investment. Below, the trends in German direct investment stocks abroad and in foreign holdings in Germany will be briefly outlined and compared with the balance of payments data.

[22] The data on the stock statistics can be found in the Special Statistical Publication 10 of the Deutsche Bundesbank ("International capital links") and are analysed comprehensively at two-yearly intervals. See, for instance, Deutsche Bundesbank (1993, 1995 and 1997b).

The changes in direct investment stocks are, admittedly, only comparable to a limited extent with the corresponding transactions in the balance of payments, owing to the different valuation methods used. Whereas the stock statistics show the book values from the balance sheets, which may conceal sizeable undisclosed reserves, the balance of payments reflects the market values of the transactions, i.e. it shows the totals that were were actually paid for the acquisition or sale of a corporate interest.[23]

Table 7

Change in the stock of foreign direct investment in Germany

- in DM billion -

	Change in stocks[1]	Compare: balance of payments statistics	
		German balance of payments	Foreign balances of payments[2]
1984	3.7	1.5	2.8
1985	6.1	1.6	3.3
1986	4.8	2.5	4.7
1987	6.7	3.3	4.0
1988	7.2	2.0	1.3
1989	17.5	13.3	18.5
1990	24.0	4.0	26.1
1991	21.1	6.8	26.0
1992	9.9	4.2	18.3
1993	14.3	2.9	13.4
1994	21.0	1.1	18.9
1984/94	+136.3	+43.2	+137.2

1 Change in primary stocks. From 1990 extended statistical recording. Owing to the different valuation of investment capital, the stock statistics are not directly comparable with the balance of payments statistics.-

2 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). At the end of 1994 these countries accounted for about 95 % of the stock of foreign direct investment in Germany.

Sources: Deutsche Bundebank, OECD.

[23] See Deutsche Bundesbank (1993), p. 35 f.

Foreign corporate assets in Germany in the form of direct capital interests, including intragroup credit granted by non-residents, rose by DM 136 ½ billion in the period under review from the end of 1983 to the end of 1994.[24] This increase almost matches the rise in direct investment in Germany (DM 137 billion) recorded in the foreign balances of payments of 18 OECD countries. The annual change in foreign direct investment stocks in Germany, too, moved largely parallel to the trend in foreign direct investment according to the balance of payments data of 18 OECD countries. Foreign holdings increased most sharply in 1990 and 1991 (by DM 24 billion and DM 21 billion, respectively). In the two following years when the German economy underwent a profound restructuring process amid a marked cyclical downturn, foreign commitments in Germany decreased perceptibly.

The rise in foreign direct investment stocks in Germany stands in stark contrast, however, to the information derived from the German balance of payments statistics, according to which foreign direct investment in Germany increased by only DM 43 billion in the period under review. The discrepancy of DM 93 billion is largely due to the fact that in the stock statistics, in contrast to the balance of payments statistics, not only long-term lending by foreign shareholders and other affiliated enterprises abroad but also all other credits (mainly short-term credits and trade credits) are recorded as direct investment. As far as foreign assets in Germany are concerned, intragroup credit operations were of major importance above all during the nineties - probably for tax reasons.[25] Between the end of 1989 and the end of 1994, 48 % (DM 34 ½ billion) of the gap between the increase in foreign direct investment in Germany as recorded in the stock statistics and in the balance of payments statistics (of DM 71 ½ billion) was due to short-term credits and trade credits (table 8). Deviations between the transaction values and the book values of participating interests shown in the balance sheets as well as other factors account for 46 % of the discrepancy (DM 33 billion).[26]

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[24] Here only the trend in primary direct investment stocks is traced as these can be better compared with the balance of payments transactions, which include only primary but no secondary capital interests.

[25] See also the more detailed statements in section 3.4., p. 30 ff.

[26] During the eighties, the difference between the stock data and the balance of payments data was almost exclusively due to valuation factors, while the short-term credit operations between foreign subsidiaries in Germany and their parent companies virtually cancelled out between the end of 1983 and the end of 1989. In 1989, however, there was a strong increase (of DM 27 ½ billion) in foreign holdings in Germany mainly on account of the inclusion of credits from affiliated enterprises in the stock statistics.

Table 8

Movements of assets and transactions in primary direct investment

- in DM billion -

	Primary foreign direct investment in Germany	Primary German direct investment abroad
Level of direct investment assets at end-1983	**81.1**	**106.6**
Payments for participating interests according to the balance of payments	+7.6	+81.3
Changes in value owing to exchange rates		-19.8
Reinvested earnings	+2.6	+21.1
Long-term loans from shareholders according to the balance of payments	+12.0	+10.0
Short-term loans and trade credits	+0.0	-0.6
Discrepancies between transaction values and book values shown and other influences	+23.8	-13.3
Level of direct investment assets at end-1989	**127.1**	**185.3**
Increase owing to extended statistical recording[1]	+27.6	+9.6
Level of direct investment assets at end-1989	**154.7**	**194.9**
Payments for participating interests according to the balance of payments	+17.7	+135.1
Changes in value owing to exchange rates		-14.5
Reinvested earnings	-15.2	+10.2
Long-term loans from shareholders according to the balance of payments	+20.5	+0.0
Short-term loans and trade credits	+34.3	+15.6
Discrepancies between transaction values and book values shown and other influences	+33.0	-11.5
Level at end-1994	**245.0**	**329.8**

1 From 1989 changed statistical recording. The resulting increase in the stock of direct investment is mainly attributable to the inclusion of loans of affiliated enterprises and to a lesser degree to the lowering of the investment threshold (from 25 % to 20 %).

The relatively great importance of intragroup lending in the case of foreign direct investment in Germany also becomes clear if the structure of foreign investment capital is considered (table 9). At the end of 1994 51 % (DM 124 billion) of the primary foreign direct investment stock was accounted for by credits of foreign shareholders and other affiliated enterprises. The primary investment capital, by contrast, came to only 49 % (DM 121 billion).

Table 9

German direct investment abroad and foreign direct investment in Germany, by type of capital ties

- End-of-year level, in DM billion -

	Foreign direct investment in Germany		German direct investment abroad	
	1989	1994	1989	1994
Primary and secondary investment capital	**85.5**	**120.9**	**141.7**	**261.1**
Direct shares in nominal capital	56.8	75.0	73.8	145.6
Direct pro rata reserves	28.7	45.9	67.9	115.5
Loans of affiliated enterprises	**69.3**	**124.1**	**53.1**	**68.7**
Direct loans from foreign/ German shareholders[1]	41.6	61.1	43.5	54.1
Loans of other affiliated enterprises abroad/in Germany[1]	27.7	63.0	9.6	14.6
Total of primary direct investment	**154.7**	**245.0**	**194.9**	**329.8**

1 Including direct loans to enterprises with secondary German or foreign capital interests.

According to the stock statistics, German corporate assets abroad rose by DM 213 ½ billion between 1984 and 1994 (table 10). The increase in the German direct investment stock abroad was thus DM 65 billion lower than the rise in German direct investment according to the balance of payments (DM 278 ½ billion). The major part of this can be explained by valuation losses. Firstly, the value of German corporate interests

abroad fell considerably as a result of exchange rate changes. The translation of the capital amounts shown in the balance sheets in foreign currency into Deutsche Mark gave rise to exchange rate losses of an estimated DM 34 ½ billion between the end of 1983 and the end of 1994 (see table 8). Most of these losses occurred in 1986 and 1987 when the value of German corporate assets in the United States decreased considerably (by DM 15 billion) owing to the marked fall in the US dollar exchange rate. Secondly, there were valuation-related book losses in the direct investment stock (including other factors, these added up to DM 25 billion).

Table 10

Change in the stock of German direct investment abroad

- in DM billion -

	Change in stocks[1]	Compare: balance of payments statistics	
		German balance of payments	Foreign balances of payments[2]
1984	19.3	13.5	5.0
1985	4.6	15.1	8.9
1986	5.3	21.9	9.1
1987	5.2	17.4	12.0
1988	26.2	21.2	9.2
1989	18.1	28.5	16.9
1990	26.9	38.7	16.5
1991	31.7	39.3	16.3
1992	22.3	30.5	18.3
1993	32.6	25.3	30.5
1994	21.4	27.0	23.4
1984/94	213.6	278.5	166.1

1 Change in primary stocks. From 1990 extended statistical recording. Owing to the different valuation of investment capital and exchange rate changes, the stocks statistics are not directly comparable with the balance of payments statistics.-

2 Data of 18 OECD countries (Australia (from 1987), Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Japan, Netherlands, Norway (from 1986), Portugal, Spain, Sweden, Switzerland (from 1993), Turkey, United Kingdom, United States). At the end of 1994 these countries accounted for roughly 80 % of the stock of German direct investment abroad.

Sources: Deutschen Bundesbank, OECD.

The comparison between the stock data and the flow data shows the following: In the case of German direct investment abroad, the discrepancy between the stock data and the

balance of payments data is predominantly attributable to valuation differences between the two sets of statistics, whereas in the case of foreign direct investment in Germany the different treatment of short-term credit operations is of major importance. Since the stock data and the flow data for German direct investment abroad do not differ significantly, the empirical analysis of the determinants of German direct investment abroad is made alternatively also using the stock data (section 4.2.). Initially, however, the indicators to be tested for the empirical analysis will be defined theoretically in chapter 3.

3. Locational factors and direct investment

International enterprises' investment decisions and the choice of location depend on a large number of factors. The so-called "eclectic" approach by Dunning offers a comprehensive and suitable theoretical framework for analysing the significance of the individual determinants of the choice of business location; initially this approach will therefore be described briefly. Subsequently the various locational factors, which are of major importance in the theoretical and empirical work and economic policy debate in Germany, are discussed in respect of their relevance for direct investments of German and foreign enterprises. These include, in particular, sales-oriented factors such as the size and growth of the market, cost factors such as wage costs and taxation, and the different structures of the corporate landscape and the financial system. In chapter 4 the influence of sales-oriented factors and Germany's price competitiveness on international direct investment will then be tested empirically.

3.1. Theory of direct investment and locational theory

The most widely used approach in the literature to explaining the internationalisation of enterprises is the "eclectic approach" by J.H. Dunning. Dunning summarised the various direct investment theories initiated by Hymer (1960) and developed during the sixties and the seventies into a consistent paradigm within which the various aspects of the establishment and development of multinational enterprises can be analysed.[27] According to Dunning, three conditions have to be met if an enterprises is to make a direct investment abroad: firstly, the enterprise must have ownership-specific advantages which outweigh the costs of an expansion abroad; secondly, the potential target country must offer the investor location-specific advantages; and, thirdly, it must be more profitable for the enterprise to utilise these advantages itself and not via local firms, for example through licensing (internationalisation incentive advantages).[28]

[27] See Dunning (1977, 1979 and 1988). Dunning modified his approach on several occasions in the course of time and in response to criticism: see Dunning (1994) and the comprehensive and critical description of the Dunning approach and more recent developments in Glaum (1996) and Gray (1996). Besides

Dunning's first and third conditions explain direct investment by specific properties and the competitiveness of the individual enterprises. The explanatory approaches based thereon and the empirical analyses are therefore strongly microeconomically oriented. Dunning's second condition takes account of the fact that the internationalisation of enterprises is always based also on locational decisions. It is therefore geared to the macroeconomic environment in which enterprises operate. It has not yet been possible, however, to integrate the locational decisions of international enterprises into a satisfactory, consistent theoretical concept and to test them empirically. Instead, a large number of greatly varying factors are found in the literature which affect the potential success and the risks of individual locations.[29] The significance of individual locational qualities depends, *inter alia*, on the type of the investment project concerned and the stage of development of the investment and target country. The locational factors can be broadly classified into three groups:

- market-oriented locational factors: market properties of the potential target country such as market size and (potential) market growth, and the degree of openness to foreign trade,

- cost-oriented locational factors such as, for instance, wage costs, taxes and subsidies, quality of the infrastructure, human capital and financial market, and

- "soft" locational factors such as culture, language and political risk.

The following sections analyse in greater detail some of these market and cost-oriented factors which are of major importance for the relative attractiveness of Germany as a business location. The objective of the analysis is to define suitable indicators which can then be tested in chapter 4 for their empirical relevance to international direct investment in Germany.

Dunning's approach, a large number of theories on direct investment can be found in the literature. None of these explanatory approaches shows the same degree of complexity and consistency as the Dunning paradigm, however. A good overview of the various theories is given by Agarwal (1980), Glaum (1996), Lizondo (1991) and the United Nations Centre on Transnational Corporations (1992).

[28] By combining the initial letters of the English terms for these three conditions, the customary abbreviation for Dunning's approach, the so-called "OLI paradigm" is obtained.

[29] See Glaum (1996), p. 61 ff.

3.2. Market-oriented locational factors

One of the most important motives for direct investment abroad are sales-oriented considerations. Enterprises invest abroad so as to secure and extend existing markets or to open up new ones. There are estimates according to which at the end of the eighties market-oriented motives played a primary role in nearly half of the direct investment made worldwide.[30] In order to achieve the desired sales objectives, a presence in foreign business locations is necessary for several reasons. The ever-increasing product differentiation requires a steadily growing awareness of local consumer preferences and greater efforts in marketing, distribution and services.[31] In the field of industrial demand, the increasing flexibilisation and more efficient organisation of production (just-in-time manufacture) means that a growing number of intermediate goods producers and suppliers follow large industrial enterprises abroad. Owing to stockkeeping problems, transportation cost or local content regulations, certain goods have to be produced completely or partly in the target country. As a result of their global production and marketing strategy, many enterprises consider it imperative to be present in the major markets alongside their direct competitors. And finally, given a far-reaching saturation of the domestic market, an enterprise can only expand under certain conditions if it is prepared to move abroad.

A number of surveys among German and foreign firms suggest that market-oriented motives play a principal role in direct investment decisions and therefore probably make a major contribution to explaining German direct investment abroad and foreign investment in Germany. In a broadly based survey of the ifo institute conducted among German and foreign enterprises in the autumn of 1995, for example, two-thirds of the German large enterprises indicated that they had effected direct investment in the past to open up new markets, and more than half of the enterprises gave the securing of market shares and participation in the growth of foreign markets as further key motives for their investment abroad. Similarly, for foreign enterprises sales market considerations were the most important factor behind the acquisition of participating interests abroad.[32] Beyfuss/Kitterer (1990), Beyfuss (1992) and Maisch (1996) arrived at similar findings in various other corporate surveys.

The size and (potential) growth of the market are the most important variables for locational decisions of multinational enterprises in the case of sales-oriented investment.[33] The dependence of direct investment by various countries on the growth and size of the

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[30] See Dunning (1994), p. 59.

[31] See Thomson/Woolcock (1993), p. 36 ff.: "Just as product differentiation leads to intra-industry trade, it may also lead to foreign direct investment".

[32] See ifo institute (1996), pp. 134-175, and Wilhelm (1996).

[33] See ifo institute (1996), p. 74 f.

potential target market has been confirmed in numerous empirical studies. Culem (1988), for example, showed in a study for six industrial countries that the size and growth of the market in the target country, as a rule, have a positive impact on the inflow of direct investment. Ray (1989) demonstrated that direct investment by foreign enterprises in the United States reacts favourably to relative growth gains of the US economy. Moore (1993) established in an empirical study for the period 1980-88 that direct investment by the German manufacturing sector in 17 countries depends on the relative market size in the target country. In a panel study of the changes in the direct investment stock of German manufacturing enterprises in ten countries or regions, Barrell/Pain/Hubert (1996) demonstrated a significantly positive influence of the market size in the target country on German direct investment.[34]

The link between relative market growth and foreign direct investment in Germany will be tested econometrically in section 4.1. with the aid of a combined time series and cross-country analysis using the balance of payments data of investor countries.[35] The dependence of German direct investment on the market size in the target countries will be analysed in section 4.2. in a cross-country analysis using the stock data for German direct investment abroad.

Besides the size and growth of the market, the link between foreign trade and direct investment is frequently examined in the literature. A relatively "rich" country with a high rate of growth normally attracts increasing exports and direct investment. Many empirical studies have therefore found a significantly positive influence of exports on direct investment.[36] This influence can be substantiated by the fact that multinational enterprises, particularly in the manufacturing sector, often undergo a gradual process of increasing internationalisation.[37] Put very briefly, this process approximately takes the following form. First of all, enterprises start to export abroad (depending on requirements), then they establish marketing, warehouse and service facilities, in some cases licences are granted to local suppliers, and finally, once they have gathered sufficient experience in the market concerned, they set up assembly and production sites of their own, which are initially largely dependent on the domestic parent company but later are frequently turned into independent foreign subsidiaries. If direct investment follows this pattern, exports

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[34] Agarwal (1980) gives an overview of older empirical studies of the link between market size and market growth and direct investment.

[35] As described in detail in the statistical part of this paper in section 2, the data of the investor countries on their direct investment in Germany provide a more informative picture of the relative attractiveness of Germany as a business location than the German balance of payments data, which are likely to understate foreign corporate commitments in Germany.

[36] See, for instance, Culem (1988), Markusen (1983) and Balasubramanyan/Greenaway (1993).

[37] See United Nations Centre on Transnational Corporations (1996), p. 75 ff.

contribute to explaining direct investment. Higher exports to a given country lead (with a certain time lag) to an increase in direct investment in that country.

But it is not only the case that rising exports result in direct investment; direct investment conversely influences foreign trade. On the one hand, production abroad may replace exports and, on the other, the establishment of production plant abroad induces exports of capital goods, intermediate products and services. It is therefore not easy to determine the net effect of rising direct investment abroad on foreign trade. Most empirical studies arrive at the conclusion that the trade-creating effect of direct investment predominates.[38] In summary, the following can be said. The link between exports and direct investment is mutual and very complex. In the following empirical analysis in section 4.3. the long-term link and the short-term adjustment dynamics of changes in exports on German direct investment will be tested in a simple cointegration analysis, assuming *a priori* a dominant influence of exports on direct investment.

3.3. Real exchange rate as a gauge of differences in relative costs

Investment decisions by multinational enterprises are always determined by the relative costs of different locations, too. High costs at home may prompt an enterprise to shift its production abroad. An unfavourable cost situation in a potential target country may offset the advantages of that location in other areas and result in a planned direct investment being made in a neighbouring, lower-cost country in the target region. A significant influence of exchange-rate-adjusted changes in relative wage costs on international direct investment was established in several empirical studies for various industrial countries.[39]

In the economic policy debate on direct investment and Germany as a business location, too, reference is made time and again to the high costs in Germany. In particular, the deterioration of international competitiveness as a result of high wage rises and the appreciation of the Deutsche Mark is said to have prompted German enterprises in the past few years to shift their production abroad and discouraged foreign enterprises from investing in Germany. In the aforementioned surveys among German and foreign enterprises, the majority of respondents indicated that cost considerations are the second most important yardstick in their direct investment decision after sales-oriented factors.[40]

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[38] See, for example, Pfaffermayr (1996) in a study for Austria and Bloomström, Lipsey, Kulchycky (1988) in a study for Sweden and the United States. A comprehensive overview of the literature on the link between direct investment and foreign trade can be found in Cantwell (1994) and the WTO (1996). The question of the domestic employment effects of increasing direct investment abroad is closely linked with these problems: see for instance, Agarwal (1996), RWI (1996), Bloomström (1991) and Stevens/Lipsey (1992).

[39] See, for example, Cushman (1987) and Culem (1988).

[40] See ifo institute (1996), Wilhelm (1996), Beyfuss (1992) and Maisch (1996).

For that reason, in the empirical analysis in chapter 4 the influence of costs and Germany's price competitiveness on international direct investment will be tested empirically along with market-oriented factors. For measuring the price competitiveness, the real external value of the Deutsche Mark against the currencies of 18 industrial countries is used, as calculated and published by the Bundesbank.[41] A broadly defined indicator on the basis of unit labour costs in the corporate sector as a whole or on the basis of the price indices of total expenditure is preferred, which can be understood as constituting a comprehensive gauge of the price and cost trends in a country compared with its main competitors on the world market. Various empirical analyses have found[42] that a broader indicator of international competitiveness is to be preferred to the more narrowly defined real external value of the Deutsche Mark based on unit labour costs in the manufacturing sector. For our investigation a broadly defined indicator also seems to be more sensible because we want to test the influence of (exchange-rate-adjusted) relative price and cost trends on aggregate direct investment, of which only about half is accounted for by direct investment of the manufacturing sector.

3.4. International differences in taxation

Besides wage costs, reference is repeatedly made in the locational debate to the high tax burden on enterprises in Germany. In their locational decisions, multinational enterprises must also take account of the different taxation in the potential target countries. International tax comparisons are very difficult, however. Simply comparing nominal tax rates is misleading as the tax accounting regulations (depreciation rates, options for forming provisions, valuation, etc.) and the tax recording and enforcement practices must be included in the consideration. The return on an investment abroad, moreover, depends not only on the tax system in the country concerned but also on the interaction of the tax systems in the investor and target countries and on the form of financing and type of investment.[43] One of the few comprehensive studies of the effective tax burden on profits from international direct investment of enterprises located in the industrial countries with reference to alternative forms of finance was carried out by the OECD for 1991.[44] Table 11 briefly summarises the results of this study for enterprises from the G-5 countries.[45] The

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[41] For the informative value of the real external value of the Deutsche Mark as an indicator of Germany's international competitiveness, see Deutsche Bundesbank (1994). For further details on the method of calculation of the nominal and real external values of the Deutsche Mark against the currencies of 18 industrial countries, see Deutsche Bundesbank (1989).

[42] See, for example, Deutsche Bundesbank (1994) and Feldmann (1994).

[43] See OECD (1991), p. 123.

[44] OECD (1991), especially chapter 5, pp. 123-161.

[45] The figures in the table are to be interpreted as follows. If, for instance, a US enterprise wishes to expand a subsidiary in Germany through retained earnings of the subsidiary, it must generate a pre-tax return of 9.5 % in Germany in order to obtain a post-tax return of 5 % for ist shareholders. If, by contrast, the

Table 11

International differences in the effective taxation of income from international direct investment for alternative forms of finance

- Required real pre-tax return for a real post-tax return of 5 % in the case of alternative financing of a subsidiary abroad -

Investment by the parent company domiciled in ...	Investment in a subsidiary in ...				
	France	Germany	Japan	United Kingdom	United States
Financing from retained earnings (of the subsidiary)					
France	-	9.5	9.0	7.7	7.6
Germany	7.3	-	9.0	7.7	7.6
Japan	7.3	9.5	-	7.7	7.6
United Kingdom	7.3	9.5	9.0	-	7.6
United States	7.3	9.5	9.0	7.7	-
Financing through capital interests (of the foreign parent company)					
France	-	3.8	8.7	6.0	6.5
Germany	6.8	-	7.7	4.6	6.5
Japan	8.4	5.7	-	8.9	7.8
United Kingdom	8.2	5.9	8.6	-	6.4
United States	7.8	5.5	8.4	6.9	-
Financing through credit (from the parent company)					
France	-	2.3	4.3	5.9	5.1
Germany	10.3	-	8.2	9.1	9.5
Japan	8.4	5,3	-	8.9	7.8
United Kingdom	6.2	2,7	4.4	-	5.2
United States	6.8	3.9	5.6	6.8	-

Sources: OECD (1991) and Köddermann (1996).

expansion of the subsidiary in Germany is financed by a loan from the parent company, a post-tax return of 5 % can be achieved with a pre-tax return of only 3.9 %.

data for Germany show a mixed picture. Financing a subsidiary in Germany by retained earnings is very unattractive for investors from all countries as the German corporation tax rates are very high by international standards. This disadvantage is greatly relativised, however, if financing is effected by a capital interest of the foreign parent company in the subsidiary in Germany and, owing to the deductibility of interest on borrowed funds when determining the taxation base, it even turns into an advantage if financing is made in the form of proprietors' loans.[46]

In order to measure the influence of international differences in taxation on international direct investment flows empirically, an indicator would have to be developed which records the effective tax burden on multinational enterprises in various countries compared with Germany not only at a given point of time but also over time. Such an indicator is not available, however. A tax variable will therefore not be included in the empirical analyses. The influence of taxation on direct investment is included in the following empirical analysis at least partly and indirectly by the effects on growth and the overall economic costs of an economy. A high tax burden and an inefficient system of corporate taxation tend to curb economic growth. Furthermore, by raising relative costs and prices, a growing tax burden on enterprises may lead to a deterioration of the price competitiveness of a business location.[47]

3.5. Corporate structure and financial markets

In addition to the above-mentioned factors, the corporate structure (size and legal form of the enterprise) and the financial system in a potential target country affect the inflow of direct investment. If a multinational enterprise wishes to tap a new market, it has initially the choice of establishing a branch of its own in the potential target region or of acquiring a participating interest in an existing foreign enterprise. In many cases, the purchase of a participating interest or the complete takeover of an existing enterprise can be accomplished at lower cost and more rapidly than the establishment of a new enterprise. As already mentioned, an estimated four-fifths of new direct investment worldwide is accounted for by participating interests or mergers with and acquisitions of existing enterprises. It is therefore decisive whether the investing enterprise can find a suitable firm which it can purchase in the target country or target region.

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[46] As was explained in greater detail in the statistical part of this paper in section 2.3., the relative advantage of credit financing is probably one of the reasons why lending plays a greater role in the case of foreign direct investment in Germany.

[47] A number of more recent contributions on the link between tax policy and Germany's quality as a business location can be found in Siebert (1996). In a comprehensive analysis of the effects of international taxation differences, Weichenrieder (1996) came to the conclusion that, owing to an extremely high degree of flexibility with regard to tax accounting, multinational enterprises are able to avoid a large part of the tax burden in "high-tax countries".

Table 12

Market value and number of listed domestic enterprises

- Market value in US$ billion, number in brackets -

	1985	1987	1989	1991	1993	1995
Germany	178.3 (451)	218.4 (507)	366.2 (628)	370.6 (665)	460.8 (664)	577.4 (678)
France	79.1 (489)	155.6 (481)	337.6 (462)	347.4 (839)	455.5 (726)	500.0 (710)
United Kingdom	353.5 (2.116)	679.7 (2.101)	814.3 (1.758)	974.9 (2.027)	1.150.6 (1.927)	1.346.6 (1.971)

Source: International Federation of Stock Exchanges.

Owing to the specific corporate structure and special features of the German system of corporate financing, the acquisition of a participating interest in Germany is no doubt often more difficult than in some other industrial countries, particularly the Anglo-Saxon states. At the end of 1995 only 678 domestic enterprises were listed on the stock exchange in Germany, compared with 1,971 enterprises in the United Kingdom (see table 12). Although, in absolute terms, the German equities market is the fourth largest in the world, trailing far behind the United States, Japan and the United Kingdom, stock market capitalisation in Germany is comparatively small relative to the country's economic potential. At the end of 1996 the ratio of stock market capitalisation of domestic enterprises to nominal GDP was 27 %, compared with figures of sometimes well over 100 % in the United States, the United Kingdom, Switzerland and Sweden.[48] Owing to the smaller number of listed enterprises, it is therefore more difficult in Germany than in many other countries to obtain a participating interest in an enterprise or to acquire it outright. In addition, shareholdings in Germany are relatively heavily concentrated, which renders the purchase of major share packages and "hostile takeovers" more difficult.[49] But as we have seen, in the case of direct investment abroad, major participating interests of more than

[48] See Deutsche Bundesbank (1997), p. 28.
[49] See Wilhelm (1996), p. 38 and Edwards/Fischer (1994), p. 190 ff.

50 % are preferred in order to exert an effective influence on the management of the enterprise.[50]

One of the reasons for the shallowness of the German equities market is the corporate size structure in the German economy, where small and medium-sized enterprises carry much greater weight than in other countries. Presumably it is therefore particularly difficult and expensive for non-residents to "buy their way" into the broad stratum of medium-sized enterprises in Germany, many of which have been family-owned for decades. Potential non-resident investors must therefore expect lengthy and expensive negotiations with the proprietors.[51]

Table 13

Privatisation in Germany, France and the United Kingdom

- in US$ billion -

	1985	1986	1987	1988	1989	1990
Germany	-	-	-	-	0.9	-
France	-	1.0	5.6	0.0	-	1.3
United Kingdom	3.2	8.9	17.6	4.5	8.1	10.2
	1991	1992	1993	1994	1995	1985-95
Germany	1.3	-	-	0.5	-	2.7
France	0.4	1.4	8.3	11.8	4.5	34.3
United Kingdom	19.0	0.0	8.6	-	4.7	84.8

Source: Morgan Stanley, Privatisation: The Second Tranche, May 1996.

[50] See section 2.2..
[51] See Klodt/Maurer (1996), p. 27 f.

Privatisations offer relatively favourable opportunities for a foreign enterprise to acquire participating interests in a potential target country for direct investment. If the flotation of Deutsche Telekom shares in 1996 is disregarded, privatisation in Germany in the past ten years was not nearly as extensive as in some European neighbouring countries where the nationally owned sector had sometimes been much larger than in Germany. In the United Kingdom and France, for example, privatisations of state enterprises were carried out on the stock market between 1985 and 1995 to the volume of US$ 85 billion and US$ 34 ½ billion, respectively, compared with only US$ 2 ½ billion in Germany (table 13). Non-resident investors played a principal role in the majority of privatisations in Europe. In the case of international placements, for instance, an average of about 43 % of institutional demand was accounted for by foreign buyers.[52]

In summary it can be said that Germany's specific corporate and financing structures are not exactly conducive to the "entry" of foreign enterprises into Germany, compared with other countries. The influence of different national structures of the corporate and financial sector on international direct investment is very difficult to quantify, however. This would require a suitable indicator which weighs and aggregates the significance of the different features of the corporate and financial sector. Owing to the limited scope of this paper, this must be dispensed with. The following empirical analysis therefore primarily tests the influence of the aforementioned market and cost-oriented factors, which can be quantified more accurately, on international direct investment.

4. Empirical analyses to explain international direct investment for Germany

In the empirical section of the present paper various econometric estimation methods are used to examine the extent to which German direct investment abroad, and foreign direct investment in Germany depend on the market and cost-oriented locational factors derived in the preceding theoretical considerations. First of all, in section 4.1., the influence of relative market growth and price competitiveness of Germany on foreign direct investment in this country will be tested in a cross-country time series analysis. As the remarks in chapter 2 of this paper about the internationally divergent recording practices have shown, it is more sensible to use the balance of payments data of the investor countries (instead of the target countries) in analysing the relative attractiveness of a location for foreign direct investment. On the "export side", by contrast, the German flow and stock data provide a more informative picture of the trend and regional distribution of German direct investment abroad. In section 4.2. an attempt is therefore made to explain the regional distribution of German direct investment stocks in 40 countries by sales-oriented locational factors

[52] See Morgan Stanley (1996), p. 5.

(market size in the potential target country and German exports) in a cross-country analysis. In section 4.3., finally, the long-term link and the short-term dynamics between German direct investment flows and exports as well as Germany's price competitiveness will be analysed with the aid of an error correction model.

4.1. Cross-country time series analysis of the determinants of foreign direct investment in Germany

First of all, the determinants of foreign direct investment in Germany will be tested. Foreign balance of payments data concerning direct investment in Germany are available for a sizeable number of countries only in the form of annual data from the beginning of the eighties. A sufficient number of observations for a meaningful estimate are obtained, however, 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. In the period under review, these 14 countries accounted for 95 % of the direct investment abroad of OECD countries (excluding Germany), and they represent just over four-fifths of foreign investors 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.

As explained in greater detail in the theoretical statements in chapter 3, two hypotheses, in particular, are to be tested by this estimation approach. Initially, it will be examined 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 the direct investment in other industrial countries whenever the German market grows more rapidly than the markets of its potential competitors. In that case, foreign enterprises would have an incentive to invest more in Germany so as to participate direct in the higher rate of market growth by producing 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 faster economic growth.

Secondly, this simple estimate is used to test what effect a change in Germany's price competitiveness has on direct investment flowing into Germany. Theoretically, 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 becomes more difficult for foreign enterprises to export

their products made in Germany to their home country or to third countries, whereas it becomes easier to serve the German market by exports.

The following approach was chosen for the estimate:

$$(1)\quad DIG_{i,t} = a_{1i} + a_2\, GDPG_t + a_3\, REVG_t + \vartheta_{i,t},$$
$$(>0) \qquad (<0)$$

$DIG_{i,t}$ – share of direct investment of country i in Germany in total direct investment of 14 OECD countries (in %),

$GDPG_t$ – real gross domestic product (GDP) in Germany relative to real GDP of the OECD countries (excluding Germany), defined as an index,

$REVG_t$ – real external value of the Deutsche Mark against the currencies of 18 industrial countries,

$\vartheta_{i,t}$ – disturbance term.

Thus for each of the 14 OECD countries (i=1,2,...,14) an equation is estimated with a country-specific constant (a_{1i}) and two coefficients which are identical for all countries. The indicators given in brackets below the variables indicate the plus or minus sign to be expected for the coefficients to be estimated on the basis of theoretical considerations.

Since direct investment and real GDP are not stationary variables, they are defined not in absolute terms but in relative terms. The dependent variable $DIG_{i,t}$ thus stands for the direct investment of country i in Germany in the period t in relation to total direct investment abroad of the 14 OECD countries considered.[53] The trend in direct investment (as defined here) in Germany of 14 investor countries can be seen from chart 3. Aggregating the sums of 14 investor countries yields Germany's percentage share in total foreign direct investment of the OECD countries in period t. The relative significance of Germany as a recipient country of direct investment from these countries is shown in the upper part of chart 4. In the period from 1984 to 1994 under review, Germany's share fluctuated between ½ % and 10 %.

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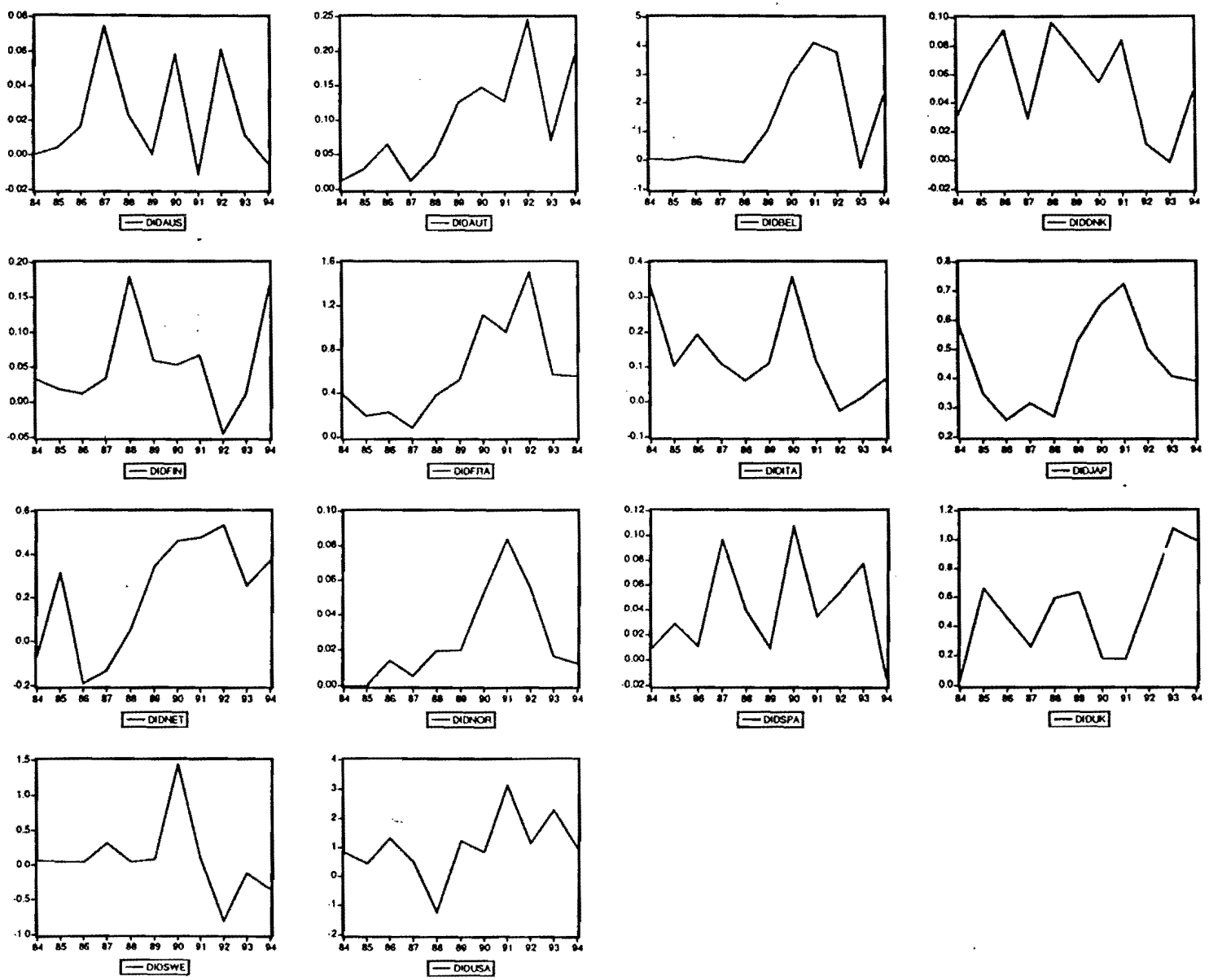
[53] The direct investment by country i in Germany was related to total foreign direct investment of 14 OECD countries and not to total direct investment of the country i because the balance of the outflowing direct investment of some countries is negative in individual years and therefore no meaningful relation can be formed. In addition, the share of direct investment in Germany of individual smaller countries is subject to major fluctuations that are difficult to interpret economically owing to some large-scale transactions, and these fluctuations are somewhat smoothed by the approach chosen. Since the direct investment of the countries analysed is negative in individual years, i.e. direct investment in Germany was run down on balance, the variables cannot be expressed as logarithms. A similar estimation approach was chosen by Lansbury/Pain/Smidkova (1996) for the direct investment of the OECD countries in the east European countries in transition.

Direct investment of 14 OECD countries in Germany*

(1984-1994)



* Percentage share of direct investment in Germany of country i in the total direct investment abroad of 14 OECD countries.

The independent variable $GDPG_t$ denotes Germany's real GDP relative to the real GDP of the OECD countries excluding Germany, defined as an index (base: 1984=100).[52] A rising index means that Germany grew faster than the average of the OECD countries. Between 1990 and 1991, for example, the index rose from 98.9 to 103.0, which shows that growth in Germany in that period was 4.2 percentage points higher than the OECD average excluding Germany (see the middle part of chart 4). The second independent variable $REVG_t$ denotes the real external value of the Deutsche Mark against the currencies of 18 industrial countries. As already described (section 3.3.), alternatively the more broadly defined weighted real external values based on unit labour costs in the economy as a whole and on the price indices of total expenditure were used for the estimates.[53]

The estimated country-specific constants are symbolised by a_{1i}. They capture those effects that differ from country to country and that were not included in the two explanatory variables on the independent variable and which are constant over time. All other influences are included in the disturbance term $\vartheta_{i,t}$. The parameters a_2 and a_3 are the coefficients of the independent variables to be estimated.[54] The suffix i = 1, 2, ..., 14 stands for the individual investor countries from the OECD region (Australia, Austria, Belgium, Denmark, Finland, France, Italy, Japan, Netherlands, Norway, Spain, Sweden, United Kingdom and United States).

For the entire estimation period from 1984 to 1994 a significantly positive effect of relative market growth on foreign direct investment in Germany was found. By contrast, the influence of the real external value of the Deutsche Mark proved to be insignificant throughout the estimation period. This can probably be explained by the extreme US dollar exchange rate fluctuations in the middle of the eighties which led to sharp variations in the real external value of the Deutsche Mark and which market participants did not necessarily

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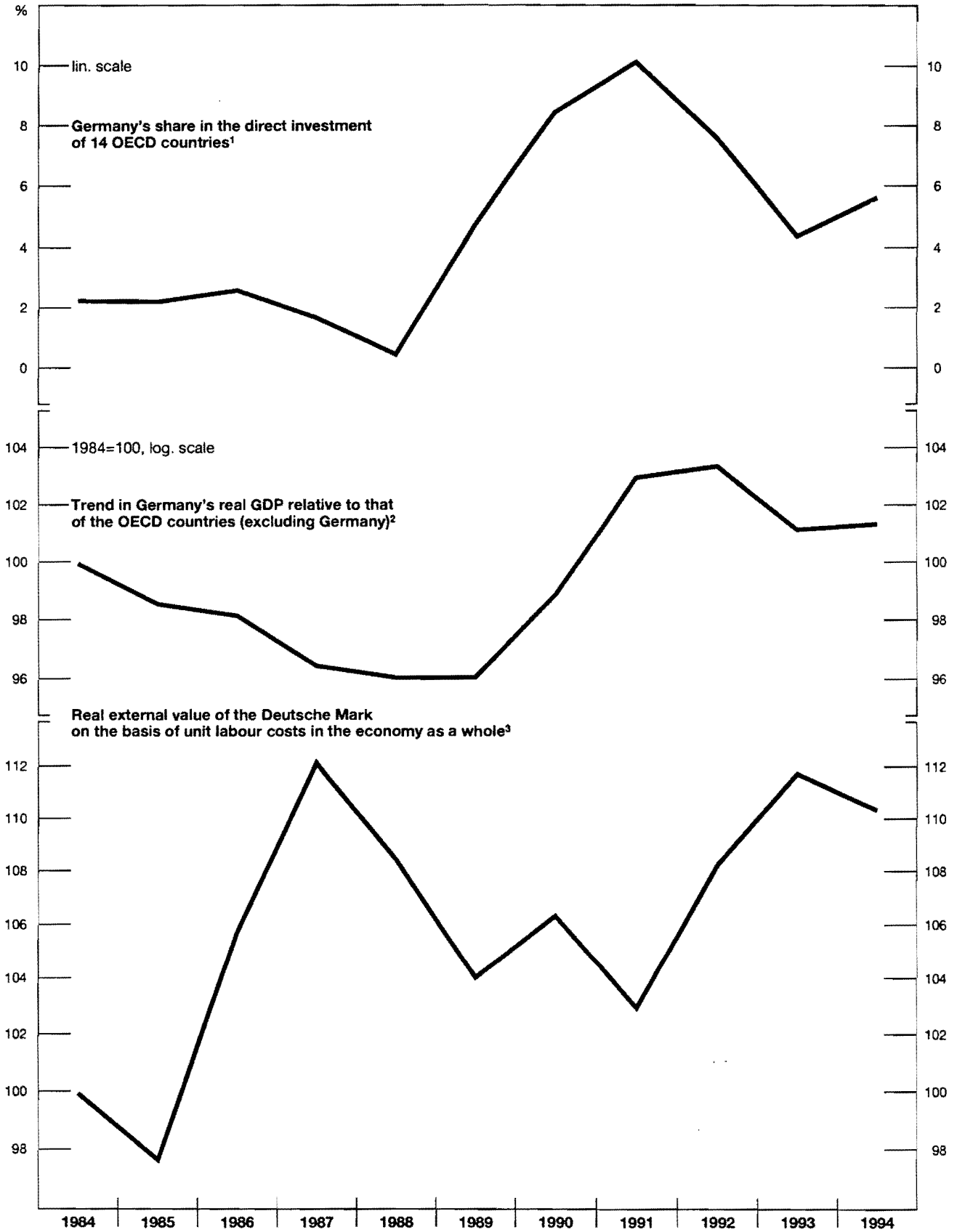
[52] The data on real GDP growth were taken from the OECD Economic Outlook, June 1996; the growth rate of Germany's real GDP relates to western Germany up to 1991 and to Germany as a whole from 1992. The unification-related break in Germany's real GDP was eliminated by using growth rates.

[53] The trend in the real external value of the Deutsche Mark based on unit labour costs in the economy as a whole is shown in the lower part of chart 4. A more narrowly defined indicator based on unit labour costs in the manufacturing sector does not appear meaningful for the estimates and did not prove to be significant in a trial calculation.

[54] For the estimation problems entailed in using combined time series and cross-country data, see, for instance, Judge/Hill/Griffiths/Lütkepohl/Lee (1982), chapter 16.

Foreign direct investment in Germany as a function of Germany's relative growth and price competitiveness



1 Australia, Austria, Belgium, Denmark, Finland, France, Italy, Japan, Norway, Netherlands, Spain, Sweden, United Kingdom, United States.- 2 A rise in the curve means that Germany grew faster than the OECD average.- 3 A rise in the curve denotes a rael appreciation of the Deutsche Mark against the currencies of 18 industrial countries.

regard as signalling a permanent change in Germany's price competitiveness on the same scale. If an estimation period from 1987 is chosen, when the trend in the US dollar exchange rate "normalised" following the preceding sharp volatility, significant influences of the two tested variables on foreign direct investment in Germany are found; they are summarised in table 14.

Relative market growth and real external value of the Deutsche Mark as determinants of foreign direct investment in Germany* **Table 14**

Estimation: $DIG_{i,t} = a_{1i} + a_2\ BIPG_t + a_3\ REVD_t + \vartheta_{i,t}$				
Estimation period: 1987-94, 112 observations, 96 degrees of freedom				
Estimate with:	a_2	a_3	R^2	DW
REVD = real external value on the basis of unit labour costs in the economy as a whole	0.020 (3.89)	-0.021 (4.09)	0.70	1.54
REVD = real external value on the basis of the price indices of total expenditure	0.028 (4.27)	-0.019 (-2.80)	0.66	1.52

* t values in brackets; the estimated constants a_{1i} for the individual countries are not given here.

The estimated coefficients for relative market growth in Germany and the weighted real external value of the Deutsche Mark are significant and have the expected signs. The estimations have a relatively good fit if it is remembered that even the annual figures for direct investment of smaller OECD countries in Germany are subject to considerable fluctuations caused by large-scale transactions. Accordingly, in the period under review the direct investment by the OECD countries was positively dependent on the trend in real GDP in Germany compared with the OECD average and negatively dependent on the real external value of the Deutsche Mark. As regards the fit of the estimates, the real external value based on unit labour costs in the economy as a whole fares slightly better than the real external value of the Deutsche Mark based on the price deflators of total expenditure. If growth in Germany is 1 percentage point higher than in its potential "rivals" for foreign direct investment, the direct investment in Germany of each of the OECD countries

analysed (other things being equal) rises by 0.020 percentage points in purely arithmetical terms relative to the total direct investment of the 14 OECD countries abroad. This does not appear to be much at first sight. If the 14 investor countries are aggregated, however, this means an increase in direct investment in Germany of roughly DM 1 billion, given total direct investment of the OECD countries abroad of around US$ 200 billion. Conversely, the direct investment of the individual OECD countries in Germany relative to the total direct investment of these countries decreases by 0.021 percentage points if the real external value of the Deutsche Mark based on unit labour costs in the economy as a whole rise by 1 percentage point. Overall, a 1 % real appreciation of the Deutsche Mark results in a decline in foreign direct investment in Germany of about DM 1 billion in purely arithmetical terms under these assumptions.

The unification boom, during which Germany recorded markedly higher economic growth than other industrial countries for some years, and the distinct real depreciation of the Deutsche Mark between 1987 and 1991 therefore explain the sharp increase in the direct investment of the OECD countries in Germany in the late eighties and early nineties (chart 4). The deterioration in Germany's international competitiveness as a result of rising wage costs and the appreciation of the Deutsche Mark as well as the weaker economic growth in Germany, on the other hand, markedly curbed direct investment from the industrial countries in Germany in 1992 and 1993.

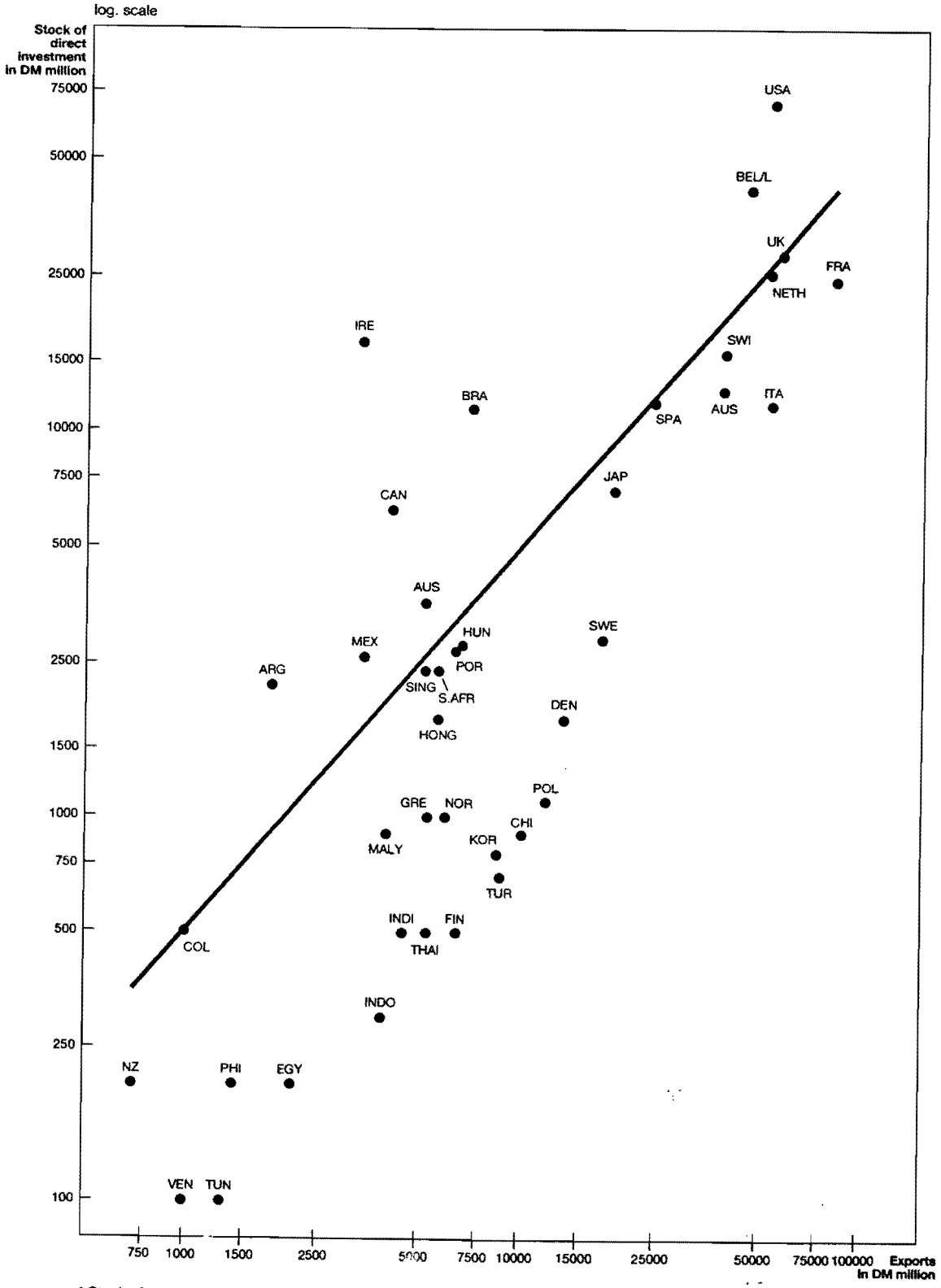
4.2. Cross-country analysis of the determinants of the regional distribution of the stock of German direct investment in 40 countries

The German stock data and balance of payments data are used to explain German direct investment abroad. Initially, various determinants of the regional distribution of German direct investment abroad will be tested by using stock data, which are only available as annual figures, in a cross-country estimate. In the next section, a cointegration analysis is carried out using the quarterly balance of payments data. In order to establish whether the significance of the individual explanatory variables has changed in the course of the past few years, the cross-country analysis is made for three points in time, namely the years 1984, 1989 and 1994. The primary German direct investment stocks in 40 countries are used as the data material. In all these countries, primary German corporate assets totalled at least DM 100 million in 1994, and overall these countries accounted for 96 % of the stock of primary German direct investment abroad.[55]

[55] The data were taken from the Bundesbank's statistics on "International capital links" (Appendix to the Statistical Supplement 3 to the Monthly Report of May 1996). For the analysis only the primary stocks of German direct investment abroad were used and not the consolidated primary and secondary (through dependent holding companies abroad) direct investment because the latter have only been available since 1989 and therefore a consistent comparison for the years 1984, 1989 and 1994 is not possible. The

Chart 5

Link between German direct investment and exports in 40 countries (1994)*



* Stock of primary German direct investment in country i and German exports to country i.

regional structure of secondary German direct investment abroad normally does not diverge very sharply from that of primary direct investment. Some smaller offshore countries (Netherlands Antilles, Bermuda and the Cayman Islands) and some emerging countries in transition in eastern Europe, where German enterprises held direct investment of over DM 100 million in 1994, were disregarded because either no data or only non-consistent data are available for the independent variables used in the analysis.

Parallel to the inflow side, the extent to which German direct investment abroad is motivated by sales-oriented considerations was tested. In accordance with the theoretical deliberations in section 3.2., the dependence of German direct investment abroad on the market size in the target countries and, alternatively, on German exports was tested empirically. The close link between German direct investment and German exports becomes graphically apparent if the regional structure of German direct investment stocks in and of exports to 40 countries is examined (chart 5).[56] German direct investment is indeed particularly high in those countries which receive fairly large amounts of German exports. The first estimate is as follows:

$$(1)\quad \ln DI_{i,t} = c_{1,t} + c_{2,t} \ln Y_{i,t} + c_{3,t} \ln P_{i,t} + \mu_t$$

The dependent variable $DI_{i,t}$ symbolises the primary stock of German direct investment in country i at the end of the year t. The market size in the respective target country is measured by two variables as in the procedure used by Hufbauer, Lakdawalla and Malani (1994): the per capita income in country i ($Y_{i,t}$) and the population of country i in the year t ($P_{i,t}$).[57] $c_{1,t}$ is the estimated common constant and $c_{2,t}$ and $c_{3,t}$ are the common coefficients of the independent variables to be estimated, while μ_t denotes the error term.

In the alternative estimate the regional structure of German direct investment is explained by the structure of German exports; $Ex_{i,t}$ symbolises German exports to country i in the year t:

$$(2)\quad \ln DI_{i,t} = c_{1,t} + c_{2,t} \ln Ex_{i,t} + \mu$$

The results of the estimates are given in table 15.

The size of the contribution made by the variables tested in the two simple estimations to explaining the regional distribution of German direct investment stock, at about 60 %, is largely the same for the last two years analysed (1989 and 1994); this is fairly high if it is remembered that the country sample used contains some "outliers" such as Belgium/Luxembourg and Ireland in which the high level of German direct investment is likely to be motivated less by sales-oriented factors than by tax-saving considerations. In

[56] The link between direct investment stocks and export flows in a given year is examined in the chart and in the estimates. This approach seems possible since the regional structure of exports changed only little from year to year and on average in the past ten years did not diverge significantly from the individual years analysed.

[57] The data on the per capita income and the population of the individual countries were taken from the World Bank Report (for different years).

Determinants of the regional distribution of German direct investment abroad[0]

Estimation equation (1): $\ln DI_{i,t} = c_{1,t} + c_{2,t} \ln Y_{i,t} + c_{3,t} \ln P_{i,t} + \gamma_t$. [1)]

Year	Constant (c_1)	Per capita income (c_2)	Population (c_3)	Degrees of freedom	$\bar{R}^2$
1984	- 12.72 (- 6.24)	1.24 (6.02)	0.75 (4.53)	37	0.48
1989	- 13.98 (- 7.66)	1.37 (7.90)	0.73 (4.51)	37	0.61
1994	- 12.90 (- 7.39)	1.29 (8.10)	0.67 (4.68)	37	0.62

Estimation equation (2): $\ln DI_{i,t} = c_{1,t} + c_{2,t} \ln Ex_{i,t} + \gamma_t$. [1)]

Year	Constant (c_1)	Exports (c_2)	Degrees of freedom	$\bar{R}^2$
1984	-16.17 (- 8.37)	1.05 (8.31)	38	0.64
1989	-16.55 (- 7.54)	1.07 (7.58)	38	0.59
1994	- 17.04 (- 8.59)	1.13 (9.02)	38	0.67

0 Stock of primary German direct investment in 40 countries in 1984, 1989 and 1994.-

1 t values in brackets.

estimation (1), which explains the regional distribution of German direct investment by the market size in the target countries, the coefficients of both variables are significantly positive and fairly stable over the period under review. The per capita income, which reflects the purchasing power or the prosperity of the countries analysed, seems to exert a distinctly greater attraction on German direct investment than does the size of the population. German enterprises are mainly represented in relatively rich countries. By contrast, the population, and thus the future market potential, seems to play a somewhat smaller role as an explanatory variable for German direct investment abroad. German direct investment in the high-population countries of South-East Asia that have a relatively low per capita income but excellent growth prospects (such as China, Indonesia, Thailand and India) is comparatively lower than in the rich countries with a smaller population.

With an adjusted R^2 of 67 % in 1994, estimation (2) offers a slightly better fit for the regional distribution of German direct investment than equation (1). As assumed, the regional distribution of German direct investment stocks abroad is largely similar to the structure of German exports. The estimated parameter for exports is significant in all three years under review and shows a slightly rising trend. In purely arithmetical terms, in 1994 an increase of 1 % in exports to country i was accompanied by a rise of 1.13 % in German direct investment in that country. The good estimation result for exports as a determinant of direct investment can probably be explained by the fact that exports are a good indicator of several sales-relevant locational qualities of the potential target countries. A relatively prosperous country with a large market and a high growth (potential) is very attractive for German enterprises. At the same time, the country in question is likely to import a relatively large volume of high-quality goods, a fact from which Germany, as the second largest exporter in the world, is bound to benefit. Rising exports and increasing commitments by German enterprises in a large and growing market therefore go hand in hand.

As an interim conclusion it can be said that German direct investment is apparently largely determined by the trend in foreign markets and German exports which are, of course, not unaffected by the (price) competitiveness of German exporters. Besides sales factors, cost factors are likely to directly influence the level of German direct investment abroad. It was not possible, however, to take explicit account of the direct cost situation in this simple cross-country analysis since no indicator is available which adequately covers the absolute cost level in the individual countries compared with Germany, taking account of the different rates of productivity in the years analysed. To what extent not only sales-oriented motives but also changes in the price competitiveness of Germany as a business location influence the level of German direct investment abroad can be tested, however, by means

of an error correction model using the real external value of the Deutsche Mark and German exports as variables.

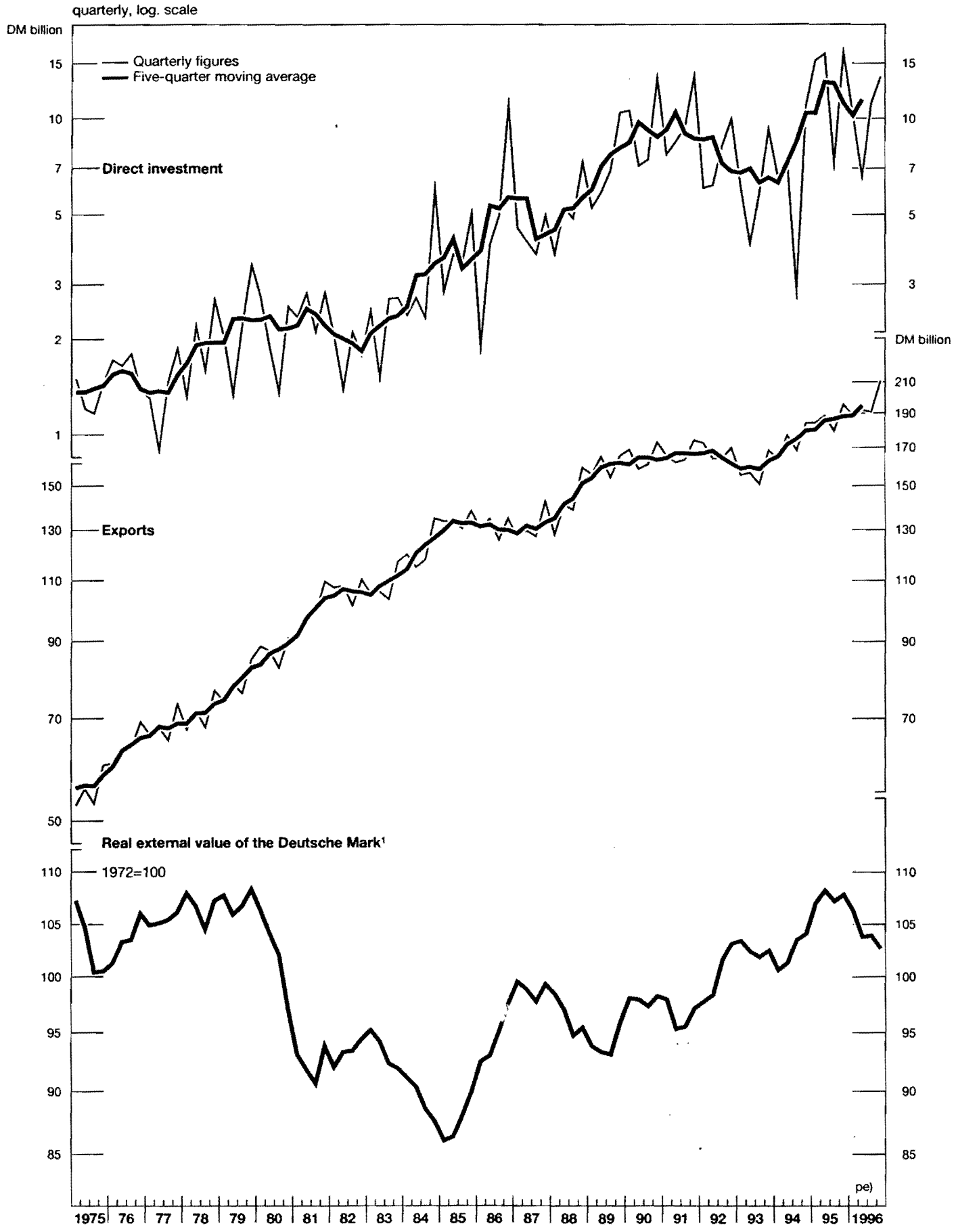
4.3. Explanation of German direct investment abroad by means of an error correction model

In the following, the trend in German direct investment abroad will be explained by means of an error correction model. Such a model is particularly suitable for testing the long-term link between direct investment abroad and exports as well as Germany's price competitiveness, derived from the preceding considerations and initial empirical results, and for eliciting additional information on the short-run adjustment dynamics to the longer-run equilibrium. This approach is based on the two-step procedure developed by Engle and Granger (1987). First the required degree of integration of the time series used is examined; then the long-run relationship of the variables (in level form) is estimated in a cointegration analysis. In a next step, the existence of a cointegration relationship is tested by means of the error correction equation which uses the variables in a differentiated form and incorporates the residuals of the long-run regression with a one-quarter lag as an "adjustment pressure variable" (error correction term).

The logarithmic quarterly data on German direct investment abroad from the balance of payments statistics for the period from the first quarter of 1975 to the third quarter of 1996 are used for the estimate. Direct investment abroad (di) is explained by the trend in German exports (ex = exports of goods and, alternatively, exgs = exports of goods and services) and the real external value of the Deutsche Mark (rev) based on the price indices of total expenditure as an indicator of the price competitiveness of Germany as a business location. It is therefore assumed that exports determine direct investment and not vice versa. As discussed in the theoretical part in section 3.2., there may also be a causal connection in that increasing direct investment abroad results in rising exports.[58] As an alternative to the real external value based on the price indices of total expenditure, estimates using a different broader indicator (revlc=unit labour costs in the economy as a whole) were made; the results will be briefly described. Chart 6 shows that German direct investment abroad is

[58] The link between exports and direct investment and the influence of third variables on the two figures can also be analysed and tested without *a priori* constraints with the aid of a vector-autoregressive model. Such a model was used, for example, by Jungmittag (1996) who empirically tested the link between German direct investment in and German exports to four target countries. He came to the conclusion that there is a complementary link between German direct investment in and exports to the United States and a substitutional link between direct investment in and exports to the United Kingdom and France.

German direct investment abroad, exports and real external value



1 Weighted real external value of the Deutsche Mark against the currencies of 18 industrial countries (external value on the basis of the price indices of total expenditure; weighting according to Bundesbank's calculations of the external value).

subject to major fluctuations from quarter to quarter, *inter alia* on account of large-scale transactions, and also to a specific seasonal pattern, with rising direct investment in the last quarter of each year. For that reason, additional seasonal dummies were included in the long-run equation and tested.

Table 16

Stationarity tests for direct investment, exports and the real external value of the Deutsche Mark[1]

1st quarter of 1975 to 3rd quarter of 1996

Variable	Specification[2]	Lag	t value
Level			
di	C, T	4	- 2.76 ***
ex	C, T	4	- 2.10 **
exgs	C, T	4	- 2.06 **
rev	C	1	- 1.84 *
revlc	C	1	- 2.30 **
First difference			
Δ di	N	0	- 14.1 ***
Δ ex	N	0	-15.4 ***
Δ exgs	N	0	-14.4 ***
Δ rev	N	0	-6.6 ***
Δ revlc	N	0	-7.3 ***

1 Comparison of the t values with the critical values of J.G. MacKinnon, Critical Values for Cointegration Tests, 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 determinist trend.

As may be seen from table 16, all the variables used in the estimate are integrated of order 1, i.e. they are difference-stationary. The basic prerequisite for using the procedures carried out here are thus met. The results of the estimates for the long-run cointegration relationship and the short-run adjustment dynamics are given in table 17. The assumed long-run relationship between German direct investment abroad and exports, as well as its link with Germany's price competitiveness was confirmed by the estimate. On a long-term average of the past 20 years, an increase in exports of 1 % was associated, other things being equal, with a rise in direct investment abroad of almost 2 %. The influence exerted

by exports was strengthened by a deterioration in Germany's price competitiveness relative to other countries. A real appreciation of the Deutsche Mark of 1 % resulted, other things being equal, in an increase in German direct investment of 2 ½ % on a long-term average. The effects described are virtually identical if exports of goods alone (ex) or exports of goods and services (exgs) are included in the estimations as an explanatory variable. If, alternatively to the real external value based on the price indices of total expenditure (rev), the real external value based on unit labour costs in the economy as a whole (revlc) is used, there is hardly any change in the outcome. Only an estimate using the real external value based on the unit labour costs in the manufacturing sector did not yield any significant results in the short-run regression. This is probably a reflection of the fact that less than half of total German direct investment abroad is accounted for by direct investment of the manufacturing sector. As expected, a seasonal dummy for the fourth quarter was significant. In the last quarter, direct investment on a long-term average was roughly one-quarter higher than in the other three quarters of each year. The fit of the long-run equation was relatively great, with an adjusted R^2 of 0.84.

In specifying the error correction equation, initially the same-period values and up to four lags of the endogenous variable (direct investment) and the exogenous variables (exports and real external value) were considered.[59] In the ensuing selection process the non-significant coefficients (error probability > 5 %) were successively set at zero.[60] As may be seen from table 17, the explanatory contribution of the "short-run equation", with an adjusted R^2 of 45 %, is much smaller, as expected, than that of the long-run equation owing to sharp quarterly fluctuations in direct investment. The short-run adjustment processes are likewise explained by the trends in exports and the real external value as well as the error correction term (ect). The coefficient of the error correction term is negative and significant at the 1 % level, with the result that the coefficients of the cointegration relationship have an effect over the long term.[61] The influence of the export variable and the real external value are significantly positive, the corresponding elasticity of the real external value being somewhat smaller over the short term than over the long term. It is about 2 % for the real external value and 1 ¾ % for exports.

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[59] The error correction equation is defined in differences vis-à-vis the prior-year quarter.

[60] See Henry/Richard (1983).

[61] Since the t value of the error correction term in the short-run equation is above 7.0, the null hypothesis of non-cointegration may be rejected with a significance level of 1 %. See Kremers/Ericsson/Dolado (1992) and MacKinnon (1991), table 1, p. 275.

Table 17

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

- Estimation period: 1st quarter of 1975 to 3rd quarter of 1996 -

Long-run equation

$$di_t = a_o + a_1 ex_t + a_2 rev_t + a_3 \, seas\,(4) + \vartheta_t$$

Equation with ...	a_o	a_1	a_2	a_3	$\overline{R^2}$	DW
ex = Exports of goods	-24.58 (- 8.50)	1.85 (20.83)	2.44 (4.55)	0.24 (3.18)	0.84	1.40
exgs = Exports of goods and services	-25.21 (8.59)	1.86 (20.61)	2.48 (4.59)	0.24 (3.24)	0.84	1.36

Error correction equation

$$\Delta_4 \, di_t = b_1 \, \Delta_4 ex_t + b_2 \, \Delta_4 rev_t + b_3 \, ect_{t-4} + \varphi_t$$

Equation with ...	b_1	b_2	b_3	$\overline{R^2}$	DW	
ex = Exports of goods	1.73 (4.54)	1.98 (2.62)	-0.84 (- 7.70)	0.46	1.45	
exgs = Exports of goods and services	1.80 (4.58)	2.04 (2.68)	- 0.82 (- 7.55)	0.45	1.42	

The results presented therefore support the hypothesis of a close link between German direct investment abroad and German exports, as was also demonstrated by means of the cross-country analysis of the regional distribution of German direct investment stocks abroad. In addition, it was possible to show by means of the cointegration approach that

deteriorations in Germany's price competitiveness - to the extent that they are reflected in the indicator used here, i.e. the real external value of the Deutsche Mark - lead to an additional shift abroad of German enterprises' activities. This result is consistent with the results of the time series and cross-country analysis of the determinants of foreign direct investment in Germany reported in section 4.1.; according to these, higher cost in Germany compared with other industrial countries curbed foreign corporate commitments in Germany in the period under review.

5. Direct investment and Germany as a business location: summary and implications for economic policy

International direct investment plays a major role in the debate on Germany as a business location. As a result, the present paper initially took a somewhat closer look at the informative value of direct investment data, the statistical recording problems and particularly the problems of international comparisons. It was found that the balance of payments data on direct investment permit only limited inferences regarding the quality of a country as an investment and production location.

International comparisons of direct investment flows, which are often made to assess various locations, moreover, must be interpreted with the utmost caution as the national recording methods still differ greatly. In the case of Germany, the different recording practice has the effect that direct investment flows from abroad are understated in the balance of payments compared with other countries and considered over an extended period. The foreign data and the trend in foreign direct investment stocks in Germany show that, particularly from 1989 to 1991, Germany was able to attract much more direct investment than is reflected in the flow figures of the German balance of payments statistics. Subsequently, investment by foreign enterprises in Germany slowed down markedly again, however. In contrast to the inflow side, the various data sources on the outflow side provide a more consistent picture of a high level of investment sustained by German enterprises abroad for many years.

The high German direct investment abroad and the lower inflow into Germany have a number of causes which are often difficult to test empirically in detail since, in many cases, there are no suitable indicators to measure the motives and locational factors which play a role in the direct investment decisions of multinational enterprises. The empirical analysis in the present paper was therefore limited to the influence of market and cost-oriented locational factors which feature strongly in corporate surveys and in the economic policy debate and for which relatively reliable, "objective" indicators could be derived.

Empirical studies have shown that German direct investment abroad is made, above all, for reasons of sales strategy. German enterprises invest abroad to secure or extend existing markets or to tap new ones. German direct investment abroad thus moves parallel to exports and, taken by itself, is not a clear indication of locational weakness. The pressure to expand abroad exerted by strategic sales motives is intensified, however, by rising prices and costs in Germany. During periods of a distinct deterioration in Germany's price competitiveness - such as between 1992 and 1995 - German enterprises increasingly shifted their production locations to other countries.

Mirroring the reaction of domestic enterprises, foreign firms likewise respond to relative changes in sales and cost trends. In a cross-country time series analysis, it was shown that foreign direct investment in Germany is influenced positively by a growth advantage of the German economy and negatively by a deterioration in Germany's relative price competitiveness - as measured by the real external value of the Deutsche Mark. Between 1989 and 1991, when economic growth in Germany was stronger than in other industrial countries and the relative cost situation was more favourable, foreign direct investment in Germany rose perceptibly compared with other industrial nations.

Hence, the increasingly negative balance of international direct investment in the past few years is probably attributable essentially to the comparatively weak economic growth in Germany and the relative increase in the German economy's locational costs. A reversal of this trend can only be expected if the forces of growth in Germany can be strengthened again and if the price and cost trends can be kept in check. This might lead to a gradual rise in foreign corporate investment in Germany and slow down cost-induced shifts of domestic production to other countries.

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