

# What Determines the Use of Holding Companies and Ownership Chains?\*

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## Abstract

The paper investigates the role of holding companies and conduit entities in German inbound and outbound FDI. It identifies the relevant conduit countries that act as stepping stones. Several tax and non-tax factors for the set-up of indirect structures are empirically identified. Withholding taxes, credit systems in capital exporting countries and the possibility of group consolidation are shown to be empirically important for the design of ownership chains in foreign direct investment.

**Keywords:** Holding company, FDI, taxation, treaty shopping

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## 1. Introduction

The pervasive economic model of FDI is one, where a parent company in one country holds a production or sales company in another country. Despite this simplicity, this framework has been successfully used to analyze a great number of phenomena and policy instruments.<sup>1</sup> At the same time, real-life investment strategies are often much more involved and do not only imply the existence of several foreign subsidiaries but often imply quite complicate ownership chains. A frequent instrument here is the set-up of holding companies. A first type of holding company may be termed a "country holding". A country holding brings under one umbrella a subset or all operations that a multinational pursues in one country. A second possibility is the set up of holding companies in the home country of the parent. Sometimes multinationals seem to establish separate holding companies just to control a single foreign corporation.<sup>2</sup> And, finally, holding companies may be located in third countries, i.e. neither in the home country of the parent nor in the country of the controlled subsidiary. Such companies in third countries are sometimes dubbed as conduit entities (see Mintz 2004).

Clearly, all three types of holding companies may be motivated by efforts to organize foreign activities in an economically efficient and sensible way and may also make sense in the absence of taxation. In particular when it comes to the third type of constructing an ownership chain, however, taxes allegedly are a prime motive. To give a simple example, imagine a parent firm in country A that wishes to set up a subsidiary in country B. Assume there is a large withholding tax rate of 25% applicable on any dividend paid from a subsidiary in B to a parent firm in A. Then an obvious tax strategy is to look for a third

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<sup>1</sup> Investment and taxation decisions within such a microeconomic framework have been analyzed by Alworth (1988), Hines (1994), Leechor and Mintz (1993), Sinn (1993), Weichenrieder (1998), and others. For an overview of the "taxing task of taxing multinationals" see Gresik (2001).

<sup>2</sup> A possible advantage of setting up a separate holding company to own a foreign affiliate may be that it allows selling the firm without any implications brought by foreign legal or tax codes. Instead of selling the foreign firm, the multinational can sell the domestic corporate shell that owns the affiliate.

country that has a more favorable tax treaty with B. Assume companies in country C can receive dividends that are exempted from the withholding tax from a firm in country B and at the same time country C does exempt dividends paid to a controlling firm in A. In this case, the setup of a conduit entity in C is an instrument to avoid the withholding tax. The strategy to channel cash flows through jurisdictions that have favorable tax treaties has been dubbed "treaty shopping" and holding companies are obvious instruments to shop for the most favorable tax treaties.

Even in the case of conduit entities in third countries it is far from clear that the shape of the ownership chain is purely tax motivated. For example, the quality of the legal and corporate codes in different countries may make it a wise decision to not establish a country holding there but to move it to some other, more reliable, environment. Conversely, even a country holding may be tax motivated. One reason for such a motivation may be profit and loss consolidation. If consolidation between two corporations is allowed, the losses of one corporation may be used to reduce the taxable profits of the other corporation. While almost all countries disallow profit and loss consolidation across borders, many countries may allow consolidation between domestic companies. In this case a country holding is a simple device to carry out such a consolidation for tax purposes.

In this paper I want to empirically investigate the tax and some non-tax motives of establishing conduit entities in third countries as well as the motives for establishing country holdings. I will give some descriptive evidence for the increasing role of holding companies and ownership chains, making use of German micro FDI data and will show some explorative regressions that show the significance of tax factors behind ownership chains. The analysis of the German data suggests that tax factors are indeed important for ownership chains in international investment. If taxes on dividends from a destination country to a home country of the investor are high, then the probability that the foreign affiliate is held via a conduit entity in a third country is significantly higher than in a case where withholding taxes on dividends are absent. To the best of my knowledge, this is the first

econometric evidence for the scope of treaty shopping. It becomes also evident from the data that the possibility to consolidate foreign profits abroad influences the decision to set up country holdings. The paper looks also on the financial structure of foreign affiliates. Since holding companies are often located in countries that lightly tax interest income received by holding companies, a plausible hypothesis is that firms that are held via tax favored holding companies may be induced to use more debt than other firms. The Netherlands, for example have a special tax regime<sup>3</sup> that leads to a reduced tax on interest income received from foreign subsidiaries. In Switzerland, the income of holding company is exempted from cantonal taxes, leaving only a moderate federal tax level of some 8%. Yet, from analyzing the financial structures of subsidiaries held via conduit entities, I find only mixed evidence that the existence of a conduit company changes the overall debt ratio of a dependent subsidiary. While in the case of German outbound investment in manufacturing the introduction of a foreign holding company seems to go along with a better equity base, the evidence on the inbound side points to a larger leverage following the establishment of a Swiss or Dutch Conduit entity.

The remainder of the paper is organized as follows. Section 2 will give a detailed overview of the structure of ownership chains as it can be distilled from German FDI data. Thereby, Section 2.1. takes on the outbound side of German FDI and describes the typical length of ownership chains, describes the increasing importance of intermediate corporations and identifies the most important stepping stone countries that host German holding companies. Section 2.2. will illustrate stylized facts for the inbound side. In Section 3 I will discuss possible factors that may influence the decision for routing direct investment through holding companies and will perform the econometric identification, before Section 4 will conclude.

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<sup>3</sup> The regime will expire in 2010 following strong pressures from EU-partner countries.

## **2. The Increasing Importance of Holding Companies**

### **2.1. Ownership Chains in German Outbound Investment**

The use of conduit entities seems on the rise. If we look at macroeconomic figures this is suggested in the parallel increase in FDI imports and exports of some small host countries like Luxemburg, the Netherlands, or Belgium (see Mintz 2004). The special role of several smaller countries for performing financial services is also present when we look at German multinationals. Table 1 presents three different measures of FDI in top host countries. In the first three columns, countries are ranked according to the aggregated balance sheet totals of German-owned firms. To the right, recipient countries of German FDI are ranked according to how much total fixed investment (plus intangibles) and how many jobs they are hosting. Three smaller countries that appear high in the first ranking are Luxembourg, the Netherlands and Ireland. While German-owned companies in these countries account for a huge sum of total assets they neither reflect a large part of German-owned fixed investment or jobs. While the Netherlands, for example, account for 9% of balance sheet total in German-owned firms abroad, they make up for less than 3% if FDI is measured by fixed assets or jobs.

As mentioned above, there is evidence from macro data that some countries, judged from the simultaneously high imports and exports of FDI, act as conduit countries and this becomes also apparent from the aggregated German data presented in Table 1. There is little information in usual FDI macro data on how preferred ownership chains look like in practice and how important conduit structures really are compared to direct financing structures.<sup>4</sup> The usual data on FDI as provided by the International Monetary Fund or the Organization

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<sup>4</sup> A partly exception is a very recent paper by Desai, Foley, and Hines (2003) that uses U.S. micro data. Their paper focuses on the increased competition between host countries when multinationals can use conduit entities in exemption countries.

of Economic Cooperation and Development cannot reveal how investors structure their foreign investments

*Table 1: A Ranking of Destination Countries for German FDI (2002)*

Rank	Total Assets		Rank	Fixed Assets and Intangibles		Rank	Jobs	
1	USA	34.8%	1	USA	43.2%	1	USA	18.0%
2	UK	9.8%	2	UK	10.2%	2	F	8.0%
3	NL	9.0%	3	F	4.4%	3	UK	7.3%
4	LUX	8.6%	4	A	3.2%	4	A	5.6%
5	A	6.3%	5	E	3.1%	5	E	4.8%
6	F	4.2%	6	CZ	3.0%	6	CZ	4.7%
7	IRL	4.1%	7	NL	2.7%	7	PL	4.4%
8	I	2.6%	8	I	2.6%	8	I	3.6%
9	CH	1.9%	9	PL	2.2%	9	BR	3.6%
10	B	1.9%	10	H	1.9%	10	H	3.3%
11	E	1.7%	11	CH	1.9%	11	NL	2.9%
11	J	1.3%	11	J	1.9%	11	VRC	2.3%
13	ROK	0.9%	13	CDN	1.9%	13	CH	2.1%
14	AUS	0.9%	14	MEX	1.7%	14	MEX	2.1%
15	NZ	0.9%	15	B	1.4%	15	B	1.9%
						...		
			16	LUX	1.3%	39	IRL	0.4%
			...			...		
			34	IRL	0.3%	42	LUX	0.3%

**Source:** Bundesbank FDI database.

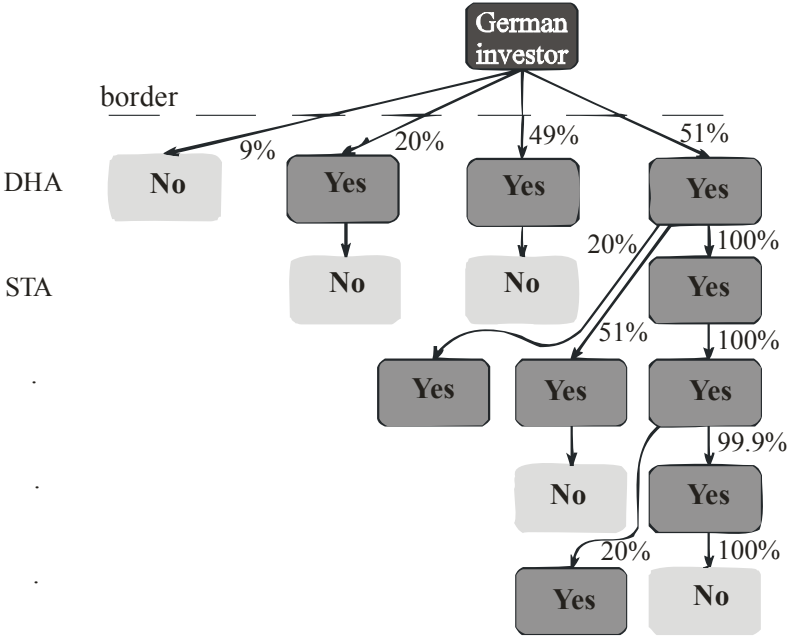
**Annotation:** Country shares are calculated from non-consolidated firm data. Values are weighted by the ownership fraction of German investors. Country abbreviations: A: Austria; B: Belgium; BR: Brazil; CDN: Canada; CH: Switzerland; CZ: Czech Republic; E: Spain; F: France; H: Hungary; I: Italy; IRL: Ireland; J: Japan; LUX: Luxemburg; MEX: Mexico; NL: Netherlands; PL: Poland; ROK: South Korea; UK: United Kingdom without overseas territories; USA: United States; VCR: China

We start to fill this gap by first looking at evidence from German outbound investment. German investors are not only legally obliged to report to the Deutsche Bundesbank on their immediate foreign participations. Beyond that, they are also required to provide information on affiliates that are held via intermediate companies. Information on directly held affiliate (DHA) must be provided if the stake of the German investor accounts for 10% or more of the equity of the DHA.<sup>5</sup> If a DHA, at a second tier, owns another foreign affiliate (let us call it a second-tier affiliate, or STA), then information on the STA must be

<sup>5</sup> This participation threshold was 20% in years before 1999.

provided if the DHA is a majority holding of the German parent and the ownership stake of the DHA in the STA is 10% or larger. An information requirement for the third and further tiers is only present if the ownership chain between the DHA and the second but last tier always consists of 100% holdings. Figure 1 illustrates.

Figure 1: Reporting requirement: ownership fraction



Source: Lipponer (2003).

Reporting requirements do not only include a minimum participation but also a certain minimum size measured by balance sheet total. Table 2 summarizes how these thresholds have developed since 1989.

Table 2: Thresholds for Reporting Requirements

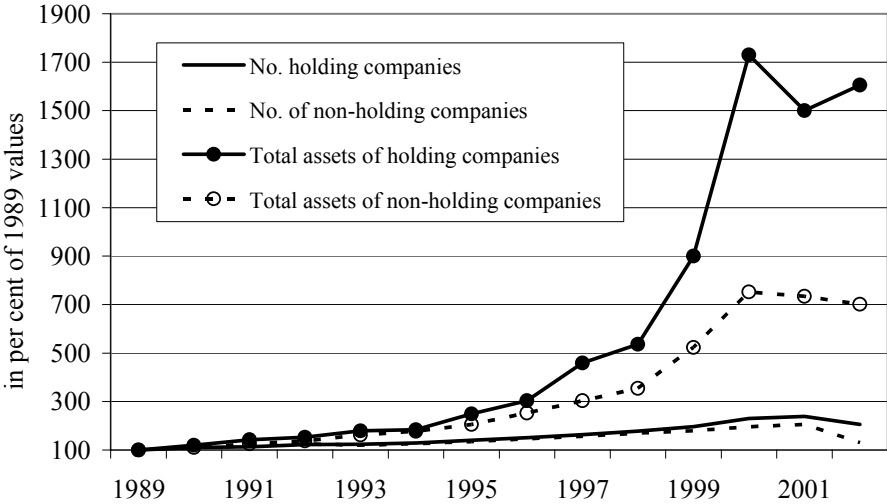
Reporting Period	Participation	Threshold for balance sheet total
From 1989	>20%	DM 500,000
From 1993	>20%	DM 1,000,000
From 1999	≥10%, <50%	DM 10,000,000
	≥50	DM 1,000,000
From 2002	≥10%	€ 3,000,000

Source: Lipponer (2003).

Annotation: 1 DM = 0.5113 €.

The micro data on German outbound FDI confirm the increased importance of holding companies. While the numbers of holding companies and other German-owned firms have grown in similar proportions, there is a considerable difference when we consider asset values. As depicted by Figure 2, total assets of German-owned holding companies have increased by 1400 per cent from 1989 to 2001, while combined total assets of all other German-owned companies recorded in the Bundesbank FDI data base have grown only by 634%. The fall in asset values of all types of foreign investments after 2000 may be partly due to the bursting of the new economy bubble, but is also connected to the increased value of the Euro with respect to the U.S. dollar.<sup>6</sup> Another reason lies in the relaxed reporting requirement for FDI (cf. Table 2), but this was more important for the number of reporting firms and less important for total reported assets.

Figure 2: The Number and Total Assets of German-owned Holding Companies



**Source:** Bundesbank FDI database.  
**Annotation:** The figures for total assets consist of the sum of non-consolidated values of balance sheet total as reported by investors to the Deutsche Bundesbank.

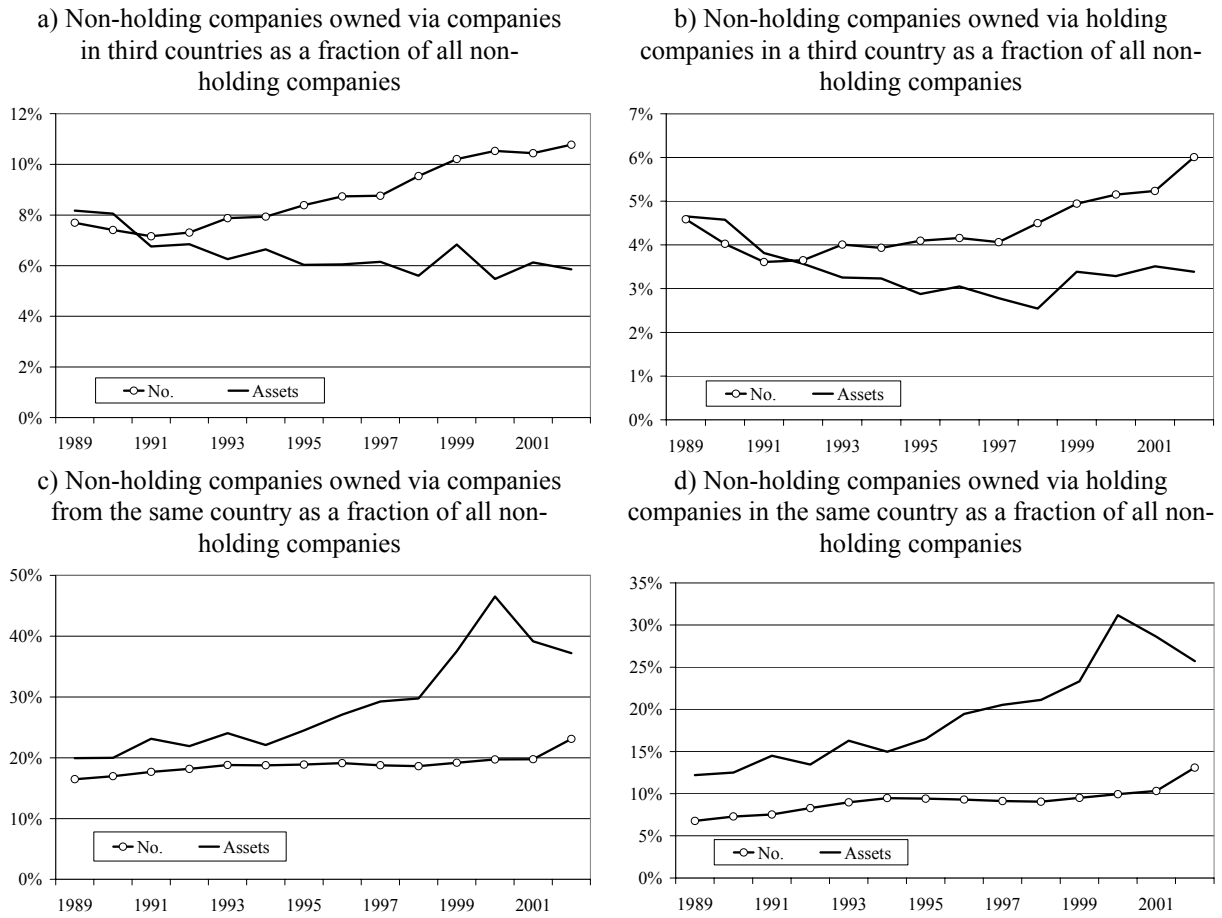
<sup>6</sup> The balance sheets of German-owned foreign subsidiaries are set up in local currencies and transformed into Euro values using the relevant exchange rate.

While Figure 2 indicates an increasing relevance of holding companies for conducting German FDI abroad, it gives no information on whether this increased relevance is due to country holdings or conduit entities in third countries, i.e. outside the final destination country. Therefore, Figure 3 gives an additional breakdown. Since ownership chains can also be built by using industrial firms the figure gives also information on ownership by companies that are *not* classified as pure holding companies ("non-holding companies"). The four panels of Figure 3 consider the ownership structure of all German-owned subsidiaries that are not classified as holding companies and look at a possible involvement of intermediate companies in the ownership chain. Panel a) shows the fraction of non-holding companies that are owned by a German-owned intermediate firm in a third country. The marked line refers to the number of those firms as a fraction of all German-owned non-holding companies; the other line shows the aggregated (non-consolidated) balance sheet total of those firms as a fraction of all German-owned non-holding companies abroad. Overall, the fraction of firms held via a third country is moderate. While the fraction of non-holding companies that are held via a corporation in a third country has risen over the 1990s, it is still less than 11%. If measured by balance sheet total, the relative importance of those firms has even decreased and was only 6% in 2002. Panel b) of Figure 3 gives similar information but restricts attention to those intermediate companies that are explicitly labeled as holding companies in the Bundesbank database.<sup>7</sup> In terms of total assets of the dependent subsidiaries, those held via explicit holding companies account for two-thirds of the values reported in Panel a). A comparison between Panel a) and Panel c) shows that indirect ownership is to a much larger extent achieved by using an intermediate company located in the country of the dependent subsidiary than by using an intermediate subsidiary in a third country. Comparing Panel c) and Panel d) shows that often ownership links are constructed by using "ordinary" companies instead of pure holding companies, as it was visible from a comparison of a) and b).

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<sup>7</sup> Industry classifications are provided by the multinationals in their yearly reports to the Deutsche Bundesbank.

Figure 3: The Relative Importance of Ownership Chains



Source: Bundesbank FDI database.

Taken together, the evidence from Figures 2 and 3 shows an increasing use of holding companies and indirect ownership structures. But when we concentrate on the importance of conduit entities that are located in third countries the evidence is mixed. Ownership chains that use a third country increased in relative importance on the basis of a simple head count but not in relative value terms.

In a next step we want to take a look at how complicated ownership chains may get. A virtue of the Bundesbank FDI data base is that it allows tracing ownership chains even in the case where multiple intermediate companies are used as long as the reporting requirements as summarized in Figure 1 and Table 2 are met. Table 3 gives information on the length of ownership chains by looking at all German-owned firms in the Bundesbank database that are not labeled as holding companies. In 2001, we find a total of 29,467 firms

(dropping foreign branches and FDI owned by non-incorporated German investors).<sup>8</sup> Some 70% of these firms were owned directly by a German corporation, while in some 30% of the cases the German investor held the participation via at least one other foreign firm. In most of these indirect participations only one intermediate firm was used. While there are cases in which ownership chains imply the use of five or more foreign intermediate corporations, these cases amount to less than one per cent of all firms. A comparison of the columns for 2001 and 1989 shows that during the 1990s ownership chains have become longer for some fraction of the firms.

*Table 3: The Length of Ownership Chains*

	2001		1989	
	Total	Fraction	Total	Fraction
Directly owned by German firm	20569	69.8%	10878	75.8%
One intermediate firm	6087	20.7%	2810	19.6%
Two intermediate firms	1700	5.8%	488	3.4%
Three intermediate firms	599	2.0%	96	0.7%
Four intermediate firms	255	0.9%	60	0.4%
Five intermediate firms	87	0.3%	7	0.0%
Six or more intermediate firms	170	0.6%	6	0.0%
<b>Total no. of non-holding companies</b>	<b>29467</b>	<b>100.0%</b>	<b>14345</b>	<b>100.0%</b>

**Annotation:** The table gives information on the number of all directly and indirectly held companies (excluding branches) in the Bundesbank database of German outbound FDI that are *not* classified as a holding company. The ownership chain of the respective company, however, is of course allowed to contain holding companies.

Table 3 does not differentiate between ownership chains that use firms in the country of the dependent subsidiary and those that employ intermediate companies in third countries (i.e. conduit entities). Additional information is therefore given in Table 4. Like Table 3, it considers all German-owned subsidiaries that are not labeled as holding companies. For those firms it reports how often the ownership chain between the foreign subsidiary and the German parent crosses a border. In the year 2001, some 88% of the foreign affiliates had only one cross-border chain. Clearly, the firms that are directly owned by a German parent

<sup>8</sup> Looking at 2001 data instead of more recent 2002 information increases the number of observed firms and reduces the risk that ownership chains are unobserved due to relaxed reporting requirements.

fall into this category. In addition, it contains all cases, in which the subsidiary is indirectly held but via a corporation in the same country. Conversely, the fraction of cases where at least one conduit entity in a third country is used is only some 13%. The occurrence of three or more cross border chains (i.e. two conduits in two different countries) is very rare and applies to little more than one percent of all subsidiaries considered, although this figure has increased during the 1990s.

*Table 4: The Relative Importance of Cross Border Chains*

No. of Cross Border Chains	2001		1989	
	Total	Fraction	Total	Fraction
1	25804	87.6%	13010	90.7%
2	3325	11.3%	1314	9.2%
3	284	1.0%	21	0.1%
4 or more	53	0.2%	0	0.0%

**Annotation:** The table gives information on the number of all directly and indirectly held companies (excluding branches) in the Bundesbank database of German outbound FDI that are *not* classified as a holding company. The ownership chain behind the respective company, however, is allowed to contain holding companies.

Next, let us have a closer look at the favorite conduit countries of German multinationals. Since the favorite conduit country may depend on the ultimate host country, Table 5 gives the respective information in a cross-classified table. For the year 2001, the cells report how many firms in a line country were held via an intermediate company in a column country. The second but last line reports the total figures based on the full set of recipient countries. Since we concentrate on conduit entities in third countries, cases in which a firm in country X is held via an intermediate firm in country X are not reported. The table explicitly lists 27 of the most important host countries for German FDI. Overall, the most important conduit country was the Netherlands, which acted as a stepping stone in 660 cases. Next is Switzerland (610), Austria (352), the U.S. (339), the U.K. (186), and France (172). The Netherlands and Switzerland do not only rank high among conduit countries for German outbound investment. Compared to other conduit countries, these two countries are also quite strongly used irrespective of the location of the dependent subsidiary. (Note that

in Table 5 countries are not ordered alphabetically but regionally.) While, for example, the U.S. is hardly used as a conduit country if the ultimate subsidiary is located in continental Europe, Swiss and Dutch conduit countries hold a rather balanced portfolio of American, Asian, and European subsidiaries. Other conduit countries are even more regional in their portfolio than the U.S. Austria heavily concentrates on holding companies engaged in Eastern Europe. France and Belgium are strongly oriented towards the Benelux area and nearby countries, and a similar regional orientation can be found for the Asian conduit countries Hong Kong and Singapore.

It should be mentioned that typical tax havens, like the Bermudas, Barbados, the Cayman Islands, or the Bahamas, play no significant role in hosting conduit entities for German outbound FDI. Since Germany has no double tax treaties with these countries, this may reflect the importance of such treaties for holding companies of multinationals.<sup>9</sup>

Table 6 repeats the exercise of cross-listing conduit countries and investment countries. Instead of listing the number of firms held via certain routings it returns the balance sheet total of the involved dependent firms. Hence, the number 963 in column "B", line "F" indicates that the aggregated balance sheet total of German-owned French affiliates that were held via Belgian corporations amounted to 963 million Euros in 2001. Using investment values rather than the number of firms changes the ranking of conduit countries. The U.S. is now the most important stepping stone for German ownership chains, followed by the Netherlands and Switzerland. These three countries lead by a wide margin.

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<sup>9</sup> The importance of double taxation treaties may go down in the future. While before 2001, Germany applied a credit system of taxation when a German parent received a dividend from a subsidiary in a non-treaty country and exempted only dividends from treaty countries, an exemption of the dividend applies uniformly since the tax reform of 2001.

Table 5: Placing the Stepping Stones (Outbound, Cases)

Investment in Country	Conduit Country															
	F	B	NL	LU	I	UK	IRL	DK	E	S	A	CH	USA	CDN	SGP	HK
F	.	16	47	13	--	10	0	--	--	6	6	44	5	--	0	0
B	17	.	71	6	0	--	0	--	0	--	0	20	--	0	0	0
NL	4	19	.	9	--	13	--	4	0	--	7	23	9	0	0	0
LUX	0	14	4	.	4	0	0	0	0	5	--	6	--	0	0	0
I	33	4	43	7	.	--	0	4	--	--	12	38	0	--	0	0
UK	15	--	52	6	--	.	--	4	0	4	10	29	24	0	--	0
IRL	--	--	8	6	0	16	.	--	--	4	--	6	6	0	0	0
P	7	--	6	0	--	0	0	0	25	--	--	8	--	0	0	0
E	19	--	27	9	9	8	0	--	.	--	--	30	0	--	0	0
S	--	4	14	--	0	4	0	17	0	.	0	10	0	0	0	0
A	--	--	21	--	--	--	0	0	0	--	.	37	--	0	0	0
CH	9	--	41	5	--	--	0	--	0	5	10	.	5	0	0	0
PL	--	4	18	--	--	--	0	--	0	--	21	14	--	0	0	0
CZ	--	--	30	--	0	--	0	--	--	--	65	11	0	0	0	0
H	--	0	10	--	--	0	0	0	0	0	67	12	0	0	0	0
RUS	--	0	--	--	0	--	0	0	0	--	6	--	0	0	0	0
USA	11	4	17	4	--	25	--	--	4	5	8	36	.	11	0	0
CDN	5	--	12	--	0	8	0	0	0	0	0	12	68	.	0	0
MEX	--	4	7	--	--	--	0	0	--	--	--	6	49	4	0	0
BR	4	4	11	--	--	0	0	0	8	--	--	19	18	--	0	0
SGP	--	0	9	--	0	--	0	5	0	0	--	13	4	0	.	--
VRC	--	--	8	0	--	--	0	0	0	0	--	13	6	0	14	41
ROK	0	0	9	--	0	--	0	--	0	0	0	6	--	--	4	--
J	--	--	13	--	--	0	0	--	0	0	0	12	7	0	--	--
HK	0	--	24	4	0	4	0	--	0	--	--	15	8	0	16	.
AUS	0	--	10	4	--	11	0	--	--	--	4	13	10	0	--	0
NZ	0	0	--	0	0	--	0	--	0	0	0	--	4	0	0	0
Total	172	102	660	114	40	186	7	82	61	146	352	610	339	31	88	64
Rank	6	9	1	8	14	5	16	11	13	7	3	2	4	15	10	12

**Annotation:** The table indicates how many German-owned companies in a line country are owned by an intermediate firm in the respective column country. Cases in which the dependent firm and the intermediate firm are located in the same country are not reported. "--" stands for one to three cases. To guarantee anonymity these cases are not reported. All figures refer to the year 2001. Country abbreviations: A: Austria; AUS: Australia; B: Belgium; BR: Brazil; CDN: Canada; CH: Switzerland; CZ: Czech Republic; DK: Denmark; E: Spain; F: France; H: Hungary; HK: Hong Kong; I: Italy; IRL: Ireland; J: Japan; LUX: Luxembourg; MEX: Mexico; NL: Netherlands; NZ: New Zealand; P: Portugal; PL: Poland; ROK: South Korea; RUS: Russia; S: Sweden; SGP: Singapore; UK: United Kingdom without overseas territories; USA: United States; VCR: China

Table 6: Placing the Stepping Stones (Outbound, Values)

Investment in Country	Conduit Country															
	F	B	NL	LU	I	UK	IRL	DK	E	S	A	CH	USA	CDN	SGP	HK
F	.	963	6136	323	--	146	0	--	--	299	48	2026	11146	--	0	0
B	230	.	1771	34	0	--	0	--	0	--	0	235	--	0	0	0
NL	2001	3112	.	119	--	869	--	6	0	--	111	360	259	0	0	0
LUX	0	465	1083	.	51	0	0	0	0	325	--	33	--	0	0	0
I	1106	67	3943	157	.	--	0	19	--	--	397	1396	0	--	0	0
UK	374	--	7669	1031	--	.	--	46	0	44	2428	580	2971	0	--	0
IRL	--	--	269	7618	0	103	.	--	--	538	--	5109	368	0	0	0
P	171	--	336	0	--	0	0	0	193	--	--	170	--	0	0	0
E	454	--	1363	119	214	110	0	--	.	--	--	1196	0	--	0	0
S	--	94	1638	--	0	314	0	617	0	.	0	170	0	0	0	0
A	--	--	1637	--	--	--	0	0	0	--	.	610	--	0	0	0
CH	218	--	2751	235	--	--	0	--	0	113	76	.	11862	0	0	0
PL	--	35	1263	--	--	--	0	--	0	--	12578	80	--	0	0	0
CZ	--	--	2978	--	0	--	0	--	--	--	5369	71	0	0	0	0
H	--	0	80	--	--	0	0	0	0	0	2931	92	0	0	0	0
RUS	--	0	--	--	0	--	0	0	0	--	129	--	0	0	0	0
USA	826	34	3735	95	--	2914	--	--	149	270	1777	26638	.	1111	0	0
CDN	18	--	778	--	0	17	0	0	0	0	0	129	14572	.	0	0
MEX	--	62	478	--	--	--	0	0	--	--	--	125	6749	807	0	0
BR	41	24	160	--	--	0	0	0	256	--	--	2494	934	--	0	0
SGP	--	0	1041	--	0	--	0	34	0	0	--	87	977	0	.	--
VRC	--	--	157	0	--	--	0	0	0	0	--	223	524	0	142	446
ROK	0	0	230	--	0	--	0	--	0	0	0	74	--	--	16	--
J	--	--	1713	--	--	0	0	--	0	0	0	2884	2053	0	--	--
HK	0	--	719	10	0	53	0	--	0	--	--	177	164	0	154	.
AUS	0	--	1196	29	--	54	0	--	--	--	432	320	221	0	--	0
NZ	0	0	--	0	0	--	0	--	0	0	0	--	3658	0	0	0
Total (bill. €)	6.1	5.5	54.7	10.0	0.8	13.1	2.1	2.6	0.7	5.7	34.4	46.6	73.1	4.0	2.7	0.6
Rank	7	9	2	6	14	5	13	12	15	8	4	3	1	10	11	16

**Annotation:** The table indicates the aggregated balance sheet total (in millions of Euros) of German-owned companies in a line country that are owned via an intermediate corporation in the respective column country. Cases in which the dependent firm and the intermediate firm are located in the same country are not reported. "--" denotes cases with values for one, two, or three firms. To guarantee anonymity these cases are not reported. Total amounts in the second but last line do also include investments in countries that are not listed in a separate line. All figures refer to the year 2001. For country abbreviations, see Table 5.

Table 5 and Table 6 give only the 2001 snapshot of ownership chains. The ranking of conduit countries for German outbound investment has somewhat changed during the 1990s. While Switzerland was the leading host for conduit entities in the beginning of the 1990s, it was overtaken by the Netherlands towards the end of the decade as shown by Figure 4. The figure measures the importance of conduit countries by counting the German-owned subsidiaries that are held via a corporation in one of the listed conduit countries. The left panel allows for all types of conduit companies. The right panel restricts attention to conduit companies that are dubbed as holding companies. Table 7 elaborates on the diminishing role of Swiss holdings companies by looking at their role as conduit entities for subsidiaries in EU-15 countries and other countries. From Panel A, 45% of the German non-EU subsidiaries that were held via a holding company in a third country in 1989 indeed were held via a Swiss conduit entity. The comparable figure for 2002 is 13%, which implies a loss of "market share" of 31 percentage points. This loss almost exactly matches the gain of the Netherlands. When we look at the Swiss market share for EU-subsidaries the loss is much more pronounced and amounts to 48 percentage points. Panel B uses total assets rather than number of subsidiaries but comes up with the same result: the Swiss losses in market share were larger in the EU than outside of it.

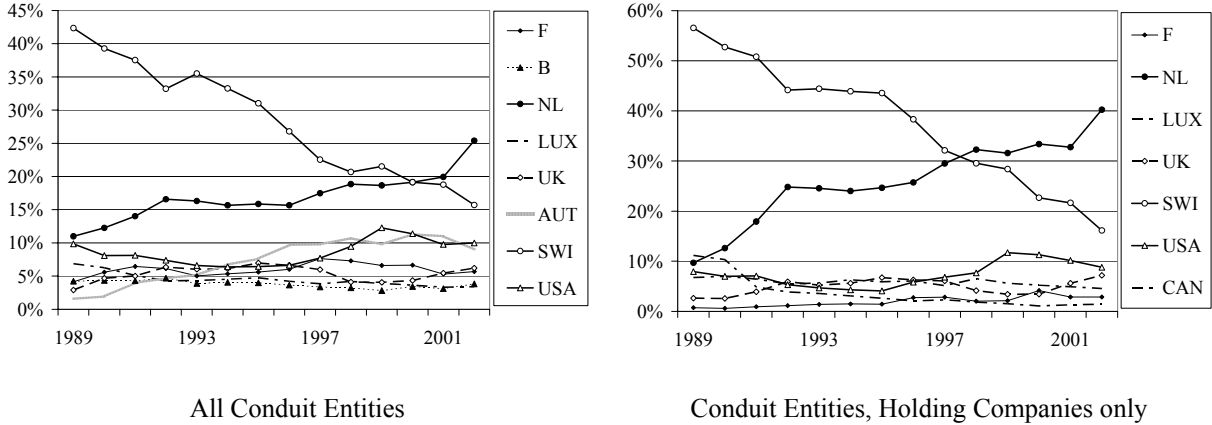
From a tax perspective, there are two possible rationalizations for this trend. First, the EU parent-subsidiary directive (90/435/EEC), agreed on in 1990 and effective from 1992, provides for zero withholding taxes on dividends within the EU if the investing company holds 25% or more of the dependent corporation. Therefore, dividends paid from an EU corporation to a Dutch holding company are exempt from withholding taxes in the host country of the EU corporation, while this is not necessarily the case if the holding company is located in Switzerland, i.e. outside the EU. Indeed, the directive triggered a huge interest in comparisons of holding countries within the EU.<sup>10</sup>

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<sup>10</sup> Examples of studies that conduct such comparisons are Hintzen (1997), Bremer (1996), or Schänzle (2000).

The observed pattern is likely to reflect the fact that Swiss conduit entities did not profit from the parent-subsubsidiary directive of the EU and its abolishment of withholding taxes. I will return to the role of withholding taxes as a motive for setting up conduit entities in Section 3.

Figure 4: The Rise and Decline of Conduit Countries for German Outbound Investment



**Source:** Bundesbank FDI database.  
**Annotation:** The left panel shows the fraction of German-owned subsidiaries that are held via a corporation in one of the listed conduit countries. To be counted, the country of the subsidiary must be different from the country of the intermediate company. The right panel performs the same exercise but restricts the attention to cases in which the intermediate firm is labeled as a holding company.

A second possible reason for the rise of the Netherlands as a conduit country is a special tax provision that became effective in 1997. From that year, holding companies may set up a tax free provision that equals 80% of their interest income. While the statutory Dutch corporate tax rate in 1997 was 35%, this reduced the effective rate for interest income to 7%. Due to pressure from the EU, which deemed this provision an element of "unfair" tax competition, the tax reduction will become unavailable from 2010. We will return to this possible motive of setting up a Dutch holding company in Section 3.

Table 7: The Diminishing Importance of Swiss Holding Companies for EU-Subsidiaries

	(1)	(2)	(2) - (1) percentage points
	1989	2002	
Panel (A): Based on corporations owned via a holding company in NL or CH			
<i>The importance for non-EU Subsidiaries</i>			
Netherlands	7%	39%	32
Switzerland	45%	13%	-31
<i>The Importance for EU Subsidiaries</i>			
Netherlands	12%	42%	30
Switzerland	68%	20%	-48
Panel (B): Based on total assets owned via a holding company in NL or CH			
<i>The Importance for non-EU Subsidiaries</i>			
Netherlands	12%	27%	15
Switzerland	55%	9%	-47
<i>The Importance for EU Subsidiaries</i>			
Netherlands	23%	46%	23
Switzerland	60%	5%	-55

**Source:** Bundesbank FDI database.

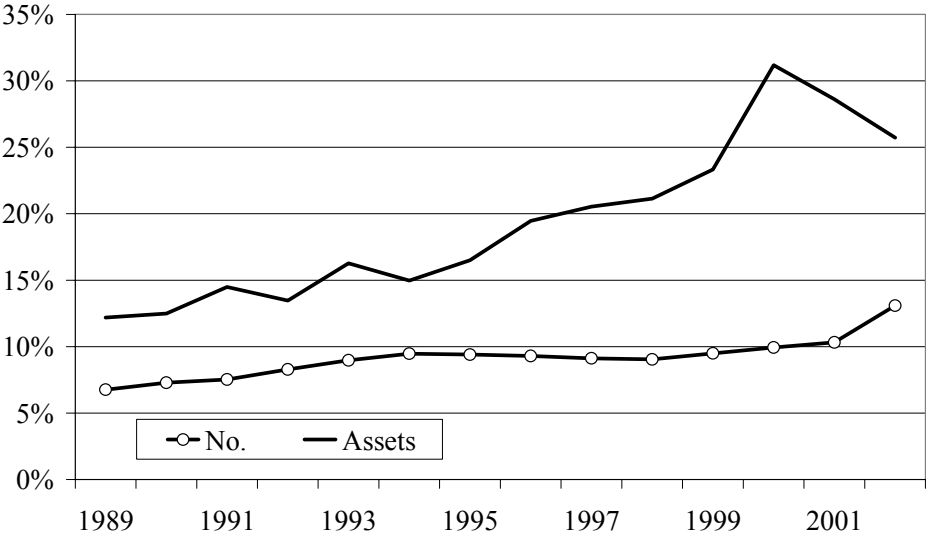
**Annotation:** The table reports what fractions of the EU/non-EU subsidiaries that were held via a holding company in a third country, were held by a Swiss (Dutch) holding company. Hence, the entry "7%" in the first cell implies that from the total of German-owned subsidiaries, which were held via a holding company in a third country and located outside the EU, 7% were held via a Dutch holding company. For the purpose of this table, the EU includes the EU15 less Germany.

## 2.2. Ownership Chains in German Inbound FDI

The Deutsche Bundesbank data contain also balance sheet information on inward FDI, i.e. foreign owned firms in Germany. The information on ownership chains is less detailed than that on the outbound side. Subsidiaries of foreign investors are required to name the country of a foreign direct investor. If this investor is owned by another direct investor, then the German affiliate is also required to name the country at this upper-level tier. Observation of further links in the ownership chain is impossible, though.

Figure 5 shows the relative importance of those affiliates, whose (largest) foreign owner is in turn owned by an investor from a third country. The marked line shows the fraction of foreign-owned German subsidiaries that report that their foreign owner is itself owned by an investor in a third country. The simple line gives the relative importance by comparing total assets of those subsidiaries with the total assets of all subsidiaries. Like the data for outbound FDI, Figure 5 indicates an increasing importance of ownership chains. Indeed, while on the outbound side the relative importance of subsidiaries held via a third country increase only on the basis of a simple count measure, for German inbound FDI this holds also in value terms.

*Figure 5: The Relative Importance of Ownership Chains (Inbound)*



**Source:** Bundesbank FDI database.

**Annotation:** The figure is based on subsidiaries in Germany that are directly held by a foreign investor and ignores subsidiaries that are held via a German intermediate corporation.

Table 8 and Table 9 give a picture of important conduit countries for German inward FDI. Table 8 gives the simple head count where – depending on the 'ultimate' investor – the conduit companies for holding German subsidiaries are located. The word ultimate is to be taken with some caution as it is conceivable that this firm in turn is dominated by another corporation from a fourth country. While the table concentrates on the most important conduit and investor countries, the figures for the line "Total" include also investor countries

that are not listed. Even more so than in the case of German outbound investment, the Netherlands are dominating as a conduit country when we look at the head count. While in 2001 there were 454 German subsidiaries held via a Dutch intermediate company, the relevant number for the UK, which comes second, is only a third of this. With a total of 1081 German subsidiaries that were held by conduit entities in a third country, the Netherlands were involved in 42% of all inbound ownership chains that use a third country. Like in the case of German outbound investment, holding companies in offshore tax haven countries play a rather limited role and do not rank among the top conduit countries in Table 8.

*Table 8: Placing the Stepping Stones (Inbound, Cases)*

Investment from Country	Conduit Country												
	F	B	NL	LUX	I	UK	IRL	DK	E	S	A	CH	USA
D	7	--	11	5	--	4	--	--	--	0	8	17	7
F	.	9	19	--	--	--	0	0	--	--	--	7	--
B	--	.	12	--	0	0	0	--	0	--	0	0	0
NL	8	--	.	--	--	6	--	--	--	0	--	--	--
I	4	0	19	7	.	0	--	0	0	--	0	--	0
UK	11	5	113	19	0	.	--	0	0	--	--	4	9
S	0	0	18	0	0	--	0	4	0	.	0	--	0
FIN	0	0	4	0	0	0	0	--	0	9	0	0	--
CH	--	0	15	8	--	4	0	--	--	4	--	.	--
ZA	0	0	5	0	0	--	0	0	0	0	--	0	--
USA	20	17	142	21	8	76	8	12	7	--	5	27	.
CDN	--	--	9	--	0	4	--	0	0	0	--	--	--
IL	0	--	8	0	0	--	0	0	0	0	0	--	0
J	--	11	37	--	--	41	0	0	--	0	--	--	10
AUS	0	0	5	0	0	4	0	0	0	0	0	--	--
Total	62	60	454	68	16	156	17	28	13	21	29	76	39
Rank	5	6	1	4	12	2	11	9	13	10	8	3	7

**Annotation:** The table indicates how many foreign-owned subsidiaries in Germany are owned by an intermediate firm in the respective column country if this intermediate company is owned by an investor in a line country. Cases in which the ultimate owner and the intermediate firm are located in the same country are not reported. "--" denotes cases with values for one, two, or three firms. All figures refer to the year 2001. The table ignores foreign-owned German subsidiaries that are held via a German intermediate company as this intermediate company would already be included. Country abbreviations: A: Austria; AUS: Australia; B: Belgium; BR: Brazil; CDN: Canada; CH: Switzerland; CZ: Czech Republic; D: Germany; DK: Denmark; E: Spain; F: France; H: Hungary; HK: Hong Kong; I: Italy; IL: Israel; IRL: Ireland; J: Japan; LUX: Luxemburg; MEX: Mexico; NL: Netherlands; NZ: New Zealand; P: Portugal; PL: Poland; ROK: South Korea; RUS: Russia; S:

Sweden; SGP: Singapore; UK: United Kingdom without overseas territories; USA: United States; VCR: China; ZA: South Africa.

*Table 9: Placing the Stepping Stones (Inbound, Values)*

Investment from Country	Conduit Country												
	F	B	NL	LUX	I	UK	IRL	DK	E	S	A	CH	USA
D	19	--	1753	46	--	261	--	--	--	0	525	3432	148
F	.	885	1093	--	--	--	0	0	--	--	--	66	--
B	--	.	490	--	0	0	0	--	0	--	0	0	0
NL	561	--	.	--	--	5215	--	--	--	0	--	--	--
I	70	0	995	136	.	0	--	0	0	--	0	--	0
UK	139	276	10072	123733	0	.	--	0	0	--	--	123	202
S	0	0	1051	0	0	--	0	36	0	.	0	--	0
FIN	0	0	9766	0	0	0	0	--	0	2703	0	0	--
CH	--	0	6289	88	--	167	0	--	--	33	--	.	--
ZA	0	0	789	0	0	--	0	0	0	0	--	0	--
USA	640	7465	22701	3321	694	8283	401	2376	361	--	150	3302	.
CDN	--	--	524	--	0	54	--	0	0	0	--	--	--
IL	0	--	466	0	0	--	0	0	0	0	0	--	0
J	--	408	2315	--	--	1587	0	0	--	0	--	--	247
AUS	0	0	419	0	0	102	0	0	0	0	0	--	--
Total (bill. €)	3.7	10.8	62.7	130.3	0.8	16.3	1.6	2.6	0.8	3.3	1.7	8.0	3.2
Rank	6	4	2	1	13	3	12	9	14	7	11	5	8

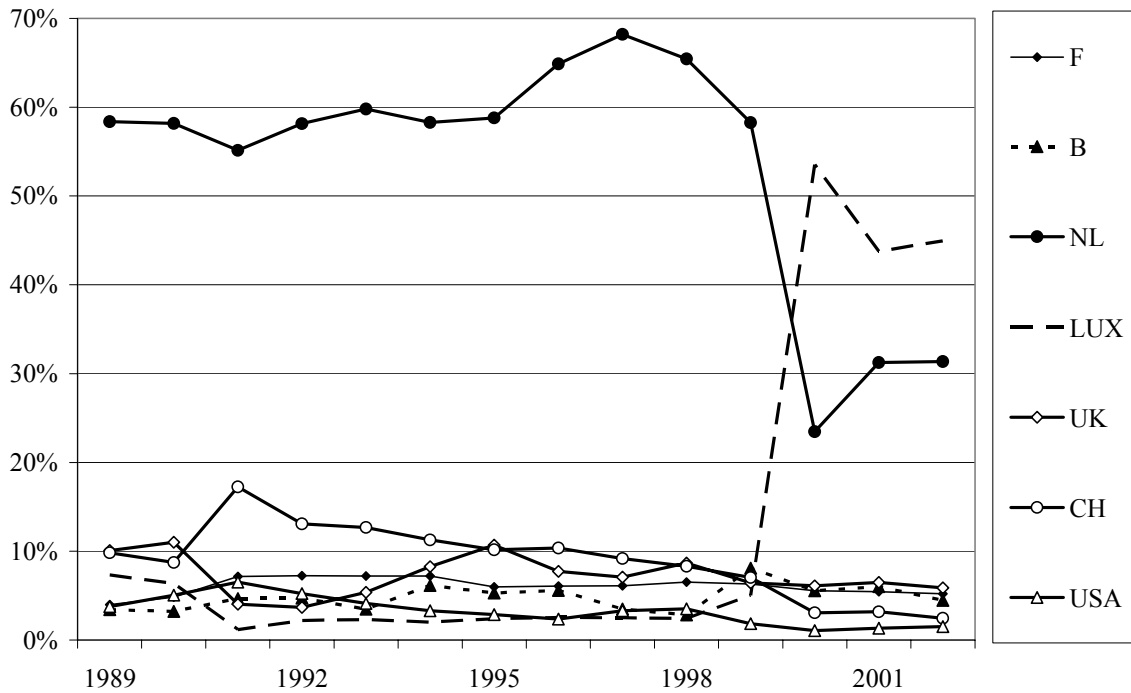
**Annotation:** The table indicates the aggregated balance sheet total (in millions of Euros) of foreign-owned subsidiaries in Germany that are held by an investor in a line country via a conduit company in a column country. Cases in which the dependent firm and the intermediate firm are located in the same country are not reported. "--" denotes cases with values for one, two, or three firms. To guarantee anonymity these cases are not reported. Total amounts in the second but last line do also include investments from countries that are not listed in a separate line. All figures refer to the year 2001. For country abbreviations, see Table 8.

When the importance of conduit countries is measured by the asset sizes of the dependent subsidiaries, the Netherlands come only second (cf. Table 9). They are outperformed by Luxembourg that acts as an important conduit country for some huge investments from the UK. An example for a particularly large investment is the takeover of a German-based mobile phone company in spring 2000 that was arranged using a Luxembourg holding company.<sup>11</sup> As in the simple head count, offshore jurisdictions play a minor role as stepping stones. An exception applies for the Cayman Islands that are ranked number 10 when the ranking is by total assets of the dependent German corporations.

<sup>11</sup> For more details see, e.g., Blasch and Weichenrieder (2005).

Figures for the Cayman Islands are not reported because no final investment country holds more than three German corporations via the Caymans.

Figure 6: "Market Shares" of Conduit Countries for German Inbound Investment



Source: Bundesbank FDI database.

Annotation: The figure reports the proportion of asset values that are held via a conduit entity in a particular country, divided by the asset values of all subsidiaries held via a third country. The figure is based on subsidiaries in Germany that are directly held by a foreign entity and ignores subsidiaries that are held via a German intermediate corporation.

Figure 6 depicts the market share of various important conduit countries over time, where the market share of a conduit country is defined as the balance sheet total that is held via this country divided by the aggregated balance sheet total of all German subsidiaries held via a third country. The graph makes clear that the position of Luxembourg as the number one conduit country for German-based subsidiaries indeed is a very recent one. It also nicely illustrates the outstanding role of the Netherlands. Like in the case of German outbound FDI, the role of Swiss intermediate companies has diminished since the implementation of the parent-subsidiary directive in the early 1990ies. Again, this is in line with the hypothesis that withholding taxes have a major impact on the choice of stepping

stones. While the parent-subsidiary directive eliminated the German withholding tax for Dutch dividend recipients, such a waiver, until 2002, did not apply for Swiss recipients. The German withholding tax on dividend payments to a qualified Swiss investor with a share of twenty percent or more was only recently abolished by a treaty revision in March 2002.

### **2.3 Summing up on the Descriptives**

The descriptive picture presented in this Section suggests that ownership chains and indirect financing structures have become more important during the 1990s. At the same time, direct financing structures are still the "normal" case. Considering German outbound investment, the increased use of indirect structures mainly comes from the use of intermediate companies and conduit entities that are located in the host country of the final subsidiary. Only some 10% of German-owned foreign firms are held via intermediate companies in third countries. While there is a large set of conduit countries that are used by German multinationals to conduct foreign investments abroad, the Netherlands and Switzerland stick out not only as leading conduit countries but also because they are globally used wherever the ultimate investment is located. This special role of Dutch and Swiss conduit entities makes it worthwhile to specifically look at economic effects that the introduction of a holding company in these countries has on multinationals' financial policies. I will return to this in Section 3.1.3.

Intermediate companies in third countries seem even more relevant when we look at German inward FDI. Weighted by firm size, in recent years more than 20 per cent of all inward FDI firms were held via a company located in a third country. On the inbound side, the Netherlands is by far the most important conduit country by head count, but has recently been taken over by Luxemburg if importance is measured by asset values.

### **3. Factors behind Indirect Financing Structures**

In the above discussion we have already mentioned several possible tax factors behind ownership chains in FDI. I will shortly review these and other possible factors in more detail before proceeding to an econometric analysis of some of these factors.

A first reason for indirect structures is treaty shopping. Firms may try to avoid withholding taxes on dividends that were applicable if a dividend is distributed directly from a subsidiary in a recipient country of FDI to the foreign investor. Routing the dividend through a third country with a better tax treaty with the recipient country may be tax efficient if this third country in turn collects no or very low dividend taxes on dividends. It should be expected that the incentives to work around high withholding tax rates is higher, the higher the profitability (after taxes and interest) of the subsidiary under consideration. Only if the profitability allows the payment of significant dividends the multinational may find it worthwhile to incur the cost of setting up conduit entities to avoid dividend taxes.

The incentives to set up a holding in a third country may also be related to the tax system used by the home country of the investor. If this country uses an exemption system, then repatriated dividends can be received tax free by the parent and reinvested abroad. Conversely, if the home country of the investor runs a credit system, repatriated dividends are taxable in the hand of the parent, though a tax credit for foreign taxes is generally granted. If this tax credit turns out to be insufficient to reduce home country taxation to zero, then repatriation of dividends and reinvestment abroad comes at a tax cost. This tax cost can be avoided if the parent sets up a foreign holding company in an exemption country with this holding company acting as a clearing house for the internal capital market of the multinational.<sup>12</sup>

Another potential reason for employing indirect ownership structures is the motive to implement tax efficient financing structures. As mentioned above, some conduit countries

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<sup>12</sup> For an extended discussion see Desai, Foley, and Hines (2003).

offer special tax regimes for interest income derived by holding companies. This may allow for a tax saving financing transformation: the parent gives equity to a holding company in a third country that forwards these sums as a loan to a subsidiary abroad. Unlike dividend payments, interest payments to the holding company are tax deductible for the dependent subsidiary. But if the holding company is tax exempt on its interest income, it may be possible to channel back to the parent the resulting income more or less tax free. For this to be possible, foreign dividends received by the parent should be tax exempt in the hand of the parent, as this is the case in many countries, including Germany, Canada, the Netherlands, Austria, and France.<sup>13</sup> The profitability of this transformation is higher, the higher the tax rate in the recipient country of the FDI. So at first sight, it looks as if these indirect financing schemes should be more attractive when the recipient country has a high corporate income tax rate. This argument overlooks, however, that third-party debt is a very similar shelter against high corporate taxes. If third-party debt is available for the subsidiary, the need to go into indirect financing schemes may be limited unless there are binding capital market restrictions to third-part debt.

In addition, tax-avoidance measures by the home country of the parent may render intra-debt financing unattractive. Many countries, including Germany, may consider interest income received by an affiliate in a low tax jurisdiction as passive income and tax the parent for this type of income even though it is derived by the affiliate abroad. Therefore, the attractiveness of the financial transformation scheme described above may depend on whether firms find their ways to work around tax-avoidance legislation. The tax efficiency of handing equity to a holding company that forwards the amounts as a loan may therefore also depend on the tax system of the parent company. If the home country of the parent uses a credit system of taxing foreign income of the parent, then the interest on the income company loan is still tax deductible at the foreign affiliate, but it will be taxed when it is repatriated via a dividend from the intermediate holding company.

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<sup>13</sup> In some of these countries the exemption applies to 95% of the dividend, only.

For some multinationals, a holding company in a third country may be a (possibly incomplete) substitute for a country holding. The decision to set up a country holding, which bundles the activities in one country, can in turn be expected to depend on whether the host country allows consolidation of losses and profits within an affiliated group. For once, if consolidation between several affiliates is allowed, this may require that one corporation acts as the owner of the others, like this is the case in Germany. But even if the profits and losses of two affiliated corporations can be consolidated without the use of an ownership chain, consolidation may be easier with a common umbrella company. If the set-up of a country holding and the set-up of a holding in a third country are substitutes, then the possibility of consolidation should reduce the use of the latter.

### **3.1. Conduit Entities and German Outbound Investment**

We start our econometric investigation by looking into the decision of German multinationals. As our left hand variable we introduce THIRD-COUNTRY. If a given German-owned subsidiary is held via an intermediate company in a third country this variable takes on the value one and it is zero, otherwise. A right hand variable of prime interest is WTR. It measures the withholding tax rate which applied on dividends that are directly paid from the host country of the subsidiary to a German parent. The higher this rate, the higher is the potential gain from channeling the dividend through a tax preferred conduit country. This gain may be expected to be even larger for profitable firms that pay large dividends. To test this hypothesis I construct an interacted variable WTR\*PROFIT, where PROFIT is a measure for the profitability of the subsidiary. It is derived by dividing profit after taxes and interest by balance sheet total. To make sure that the variable indeed takes up the interaction between the two variables WTR and PROFIT I also add PROFIT along with WTR\*PROFIT in the regression.

As discussed above, a high statutory corporate rate in the host country may induce a shift of debt into the affiliate by using indirect financing structures and third country holding companies. The measure of the statutory tax rate CT is using federal headline rates plus average local taxes. A last tax variable that I include is CONSOLIDATION. This variable takes on the value one if the host country of the German-owned subsidiary allows the consolidation between profits and losses across all group entities located in this country, and zero otherwise. The idea behind inclusion of the variable is that the possibility of group consolidation may give incentives to use a country-holding. This, in turn, may reduce the attractiveness to establish a conduit entity in a third country.<sup>14</sup>

Apart from tax factors I include several non-tax factors that may influence the decision for choosing a stepping stone. LN(GDP) captures the size of the economy of the host country. The larger this economy, the larger the a priori probability for the existence of a holding company in this country. GDPPC measures per capita income in the host country (purchase power indexed) as a proxy for the national development and the legal system. A multinational may find it more attractive to use a conduit company and incur the cost of setting it up if the subsidiary is large. Therefore, ASSETS, which measures the logarithm of the balance sheet total of the subsidiary, should be positively correlated with the endogenous variable. The overall debt asset ratio of a firm may also play a role. The included variable LEVERAGE\_IND for a given firm measures the average debt to asset ratio of all foreign subsidiaries in the same industry.<sup>15</sup> Finally I included the ratio of fixed to total assets (FIXED ASSETS) and the ratio of financial assets to total assets (FINANCIAL ASSETS), as well as the industry dummies BANKING, INSURANCE, MANUFACTURING, and HOLDING (for holding companies) as potentially important regressors.<sup>16</sup> Since the

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<sup>14</sup> Note that on the German outbound side there is no variation in the tax system of the parent company as Germany has been traditionally using the exemption system for dividends from treaty countries. Since 2001 it uses an exemption system for all dividends, including those from non-treaty countries.

<sup>15</sup> Since the decision to use a conduit country may be correlated with leverage the industry average avoids a possible endogeneity problem.

<sup>16</sup> In the Bundesbank data on balance sheets the item fixed assets contains also the book values of intangibles. Throughout the paper, manufacturing is broadly defined to include mining and utility companies.

endogenous variable is a zero-one variable I use a Logit-estimator. Because the tax variable of prime interest, WTR, is largely determined by double-taxation treaties (and the European parent-subsidiary directive) that are negotiated to apply for a longer horizon it shows very little variation over time. The estimation approach therefore uses a simple cross-section regression rather than a panel estimation technique. The year of the cross section is 2001.<sup>17</sup>

Table 10 contains some sample statistics for the left hand variable and the main tax variables. On average, roughly 10% of the sample subsidiaries were held via a third country. The average withholding tax rate was 3.2% with a maximum of 35%. Some 63% of German subsidiaries abroad are located in a country in which group consolidation is generally available.

*Table 10: Summary Statistics (Outbound)*

Variable	Obs	Mean	Std. Dev.	Min	Max
THIRD-COUNTRY	19417	0.0992	.2989266	0	1
WTR	19417	3.200	440.463	0	35
CT	19417	0.325	.0616342	0	0.42
CONSOLIDATION	19417	0.627	.4835666	0	1

Model (1) of Table 11 uses the full set of German-owned affiliates and model (2) uses manufacturing firms only. In both cases, WTR turns out to be positive as was expected but is not significant at conventional levels. Interacting profitability and the withholding rate shares the expected positive sign and is significant in both samples. Profitability itself is only significant in the subsample of manufacturing firms. The corporate income tax rate of the host country, CT, has a positive sign but is far from being statistically significant. A German-owned firm that is located in a country that allows group consolidation is less likely to be owned via a third country. This is in line with our expectation, but the respective variable, CONSOLIDATION, again is not significant.

<sup>17</sup> As mentioned before, the data set for 2002 has fewer observations than 2001 due to relaxed reporting requirements.

Table 11: Logit Models for Explaining Conduit Entities (Outbound)

	(1)	(2)
WTR	0.018 [0.11]	0.021 [0.16]
WTR*PROFIT	0.034 [0.00]***	0.060 [0.01]***
PROFIT	-0.014 [0.18]	-0.301 [0.00]***
CT	0.5554 [0.74]	1.191 [0.46]
CONSOLIDATION	-0.211 [0.35]	-0.217 [0.37]
LN(GDP)	-0.203 [0.01]***	-0.212 [0.00]***
GDPPC	-8.36E-06 [0.56]	1.18E-07 [0.99]
ASSETS	0.115 [0.00]***	0.222 [0.00]***
LEVERAGE_IND	-2.521 [0.00]***	-7.243 [0.00]***
FIXED ASSETS	-0.544 [0.00]***	-0.935 [0.00]***
FINANCIAL ASSETS	-0.117 [0.54]	-1.527 [0.00]***
BANKING	-0.273 [0.07]	
INSURANCE	-1.737 [0.00]***	
MANUFACTURING	-0.337 [0.00]***	
HOLDING	-0.714 [0.00]***	
Observations	19417	6789
No of host countries	61	60
Pseudo R <sup>2</sup>	2.9%	3.4%

**Annotation:** \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% level respectively. Numbers in brackets are robust p-values that have been corrected for heteroscedasticity and clustering within country cells. All observations are from the year 2001. Endogenous variable: THIRD-COUNTRY. A constant was used but is not reported.

The regression yields the expected and significant signs for country size and firm assets: the larger the host country, the lower is the probability that there is an intermediate firm outside this host country and the larger the subsidiary, the more likely it is held via an intermediate company in a third country. Given total assets, subsidiaries with a larger share

of financial assets are less likely to be held via a third country and this particularly holds for manufacturing firms. The results for GDPPC, LEVERAGE and FIXED ASSETS are mixed with diverging signs in the two subsamples.

The impact of withholding tax rates is also economically significant. In the full sample (model (1) of Table 11), the average predicted probability of being held via a third country is 9.2% if the withholding rate is zero. For firms facing a rate of 10% or more on repatriations to a German parent the empirical model predicts an average probability of 13.9%. If we concentrate on profitable firms, for which the models show a significantly larger effect, the relevant probabilities are 9.3% versus 14.6%.

The data set on German outbound FDI also allows a look into the factors behind the decision to hold a subsidiary via another corporation in the same country. Towards this end, I introduce the variable COUNTRYHOLDING that takes on the value one if a given foreign subsidiary is held via an intermediate corporation in the same country, and the value zero otherwise.<sup>18</sup> The average value of COUNTRYHOLDING in our set of foreign subsidiaries is 23.6%. If country holdings and conduit entities in a third country to some extent are substitutes we should expect that the signs for WTR and WTR\*PROFIT now reverse. Moreover, CONSOLIDATION should enter positively. For the sake of comparability, all other regressors from Table 11 are kept. The signs are as expected (see Table 12). WTR and WTR\*PROFIT are significantly negative in the full sample. For the manufacturing sample, the signs are the same but the interaction term is not significant. Like in Table 11, the host country's corporate tax rate is not significant. The variable CONSOLIDATION turns out highly significant in the full sample and significant at the 5 percent level in the manufacturing sample. The possibility of group consolidation has also an economically relevant impact on the decision to hold a subsidiary via an intermediate firm in the same

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<sup>18</sup> To be precise, the variable COUNTRYHOLDING does not require that the intermediate firm in the host country is a pure holding company.

country. While for the full sample the predicted average probability for a subsidiary is 11.9% if consolidation is not allowed, it is 30.5% if this is possible.

*Table 12: Logit Models for Explaining Country Holdings (Outbound)*

	(1)	(2)
WTR	-0.039 [0.02]**	-0.068 [0.00]***
WTR*PROFIT	-0.050 [0.02]**	-0.035 [0.12]
PROFIT	0.201 [0.06]*	0.076 [0.42]
CT	-0.776 [0.63]	-2.195 [0.18]
CONSOLIDATION	0.532 [0.00]***	0.312 [0.03]**
LN(GDP)	0.252 [0.00]***	0.333 [0.00]***
GDPPC	0.27E-04 [0.01]***	0.30E-04 [0.00]***
ASSETS	0.144 [0.00]***	0.145 [0.00]***
LEVERAGE_IND	-1.217 [0.04]**	-3.885 [0.00]***
FIXED ASSETS	0.413 [0.00]***	0.278 [0.20]
FINANCIAL ASSETS	0.300 [0.06]*	0.5348 [0.41]
BANKING	1.148 [0.00]***	
INSURANCE	0.005 [0.99]	
MANUFACTURING	0.057 [0.60]	
HOLDING	-0.703 [0.00]***	
Observations	19417	6789
No of host countries	61	60
Pseudo R <sup>2</sup>	10.6%	11.7%

**Annotation:** \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% level respectively. Numbers in brackets are robust p-values that have been corrected for heteroscedasticity and clustering within country cells. Endogenous variable: COUNTRYHOLDING. All observations are from the year 2001. A constant was used but is not reported.

## 3.2. Stepping Stones, Holding Companies and German Inbound Investment

As discussed above, one possibly important factor of the home country tax system of an investor is whether foreign dividends are exempt. If not, parent firms may use intermediate holdings abroad to avoid repatriation of dividends and to defer home country taxation. However, the samples of German-owned subsidiaries in the last section lack variation when it comes to the characteristics of the home country tax system: all German parents share the same. In a next step we therefore look at inbound German FDI.

Several new variables are introduced to take advantage of the sample of German inbound FDI. GERWTR now is the applicable German withholding rate on dividends if dividends from given subsidiary are *not* channeled via a third country but directly paid to the final investor. CREDIT is a dummy that takes on the value one if the home country of the ultimate firm recorded in the database uses a credit system of taxing foreign dividends received by a parent from its subsidiary and that is zero for exemption countries. I also added the corporate tax rate applicable in the country of the ultimate owner, but allowed its impact to differ for credit and exemption countries. This leads to two variables, CT\*CREDIT and CT\*EXEMPTION. Table 13 gives an overview of the summary statistic for the full sample used in the regression below. On average, 14.5% of the foreign-owned subsidiaries in Germany report to the Deutsche Bundesbank that their immediate owner is in turn held by a direct investor from a third country. Dividends that are directly repatriated to the country of the 'final' investor are between 0% and 25% with a moderate average of 3.4%. And final investors come from credit countries in 56% of all cases. The resulting sample of German inbound FDI for which reliable tax information was available has 5501 observations and is significantly smaller than the sample used for analyzing the outbound side. The smaller sample size is partly due to a small influx of firms compared with the outbound side. I also dropped those subsidiaries that are indirectly owned by a foreign investor via a German intermediate company.

*Table 13: Summary Statistics (Inbound)*

Variable	Observations	Mean	Std. Dev.	Min	Max
THIRD-COUNTRY	5503	0.145	0.352	0	1
GERWTR	5503	3.352	4.591	0	20
CREDIT	5503	0.562	0.496	0	1
CT*CREDIT	5503	16.603	17.594	0	42
CT*EXEMPTION	5503	15.000	17.115	0	40.25

The Logit estimations presented in Table 14 are similar to that of Table 11. Column (1) of Table 14 reports results for a comprehensive set of German inbound FDI, while column (2) takes manufacturing firms only. Again, most tax variables perform in the expected way. Like in the outbound sample, the withholding tax rate on direct distributions (GERWTR) is increasing the likelihood that an indirect route is taken. This effect is highly significant for the two samples. The interactive variable (GERWTR\*PROFIT) is positive as was expected but unlike the variable on the outbound side it is statistically insignificant. As shown by the significant dummy CREDIT, subsidiaries with parents from countries with a credit system are indeed more likely to have an intermediate company in a third country. The variable CREDIT loses its significance in the smaller sample of manufacturing firms, though. The home corporate tax rate is a significantly negative factor for credit countries but an insignificant one for exemption countries. The expectation was that parents from credit countries with a high tax rate are particularly reluctant to repatriate as for them the likelihood of additional home country taxation of the dividends is the largest. So the sign of CT\*CREDIT is surprising. The significantly positive sign of the variable ASSET indicates that larger affiliates are more likely to be held via an intermediate firm in a third country. The same holds if the final investor comes from a large country and LN(GDP) is high. Finally, holding companies seem to have a somewhat above average propensity of being held via a third country, but this is not significant at conventional levels.

The explanatory power of the inbound estimation is somewhat higher than for the outbound side and the economic relevance of the estimated tax impact is also somewhat

larger. The estimated average probability for subsidiaries that are owned by investors who are able to receive dividends that are exempted from the German withholding tax rate is 10.3%. Conversely, if the applicable German withholding tax rate is 10% or higher, the average probability more than doubles and is 22.5%.

*Table 14: Logit Models for Explaining Conduit Entities (Inbound)*

	(1)	(2)
GERWTR	0.134 [0.00]***	0.101 [0.02]**
GERWTR*PROFIT	0.000 [0.77]	0.092 [0.35]
PROFIT	-0.008 [0.13]	-0.913 [0.07]*
CREDIT	4.679 [0.04]**	3.554 [0.27]
CT*CREDIT	-0.132 [0.00]***	-0.125 [0.00]***
CT*EXEMPTION	0.052 [0.42]	0.019 [0.83]
GDPPC	2.48E-05 [0.32]	2.53E-05 [0.56]
ASSETS	0.116 [0.00]***	0.195 [0.00]***
LEVERAGER_IND	-0.064 [0.04]**	0.322 [0.40]
FIXED ASSETS	-0.197 [0.45]	0.422 [0.31]
FINANCIAL ASSETS	-0.123 [0.63]	-0.737 [0.35]
BANKING	-0.278 [0.60]	
INSURANCE	0.684 [0.36]	
MANUFACTURING	-0.34 [0.05]**	
HOLDING	0.26 [0.05]*	
LN(GDP)	0.587 [0.01]***	0.498 [0.04]**
Observations	5503	1237
No. of final investor countries	49	36
Pseudo R <sup>2</sup>	32.30%	26.90%

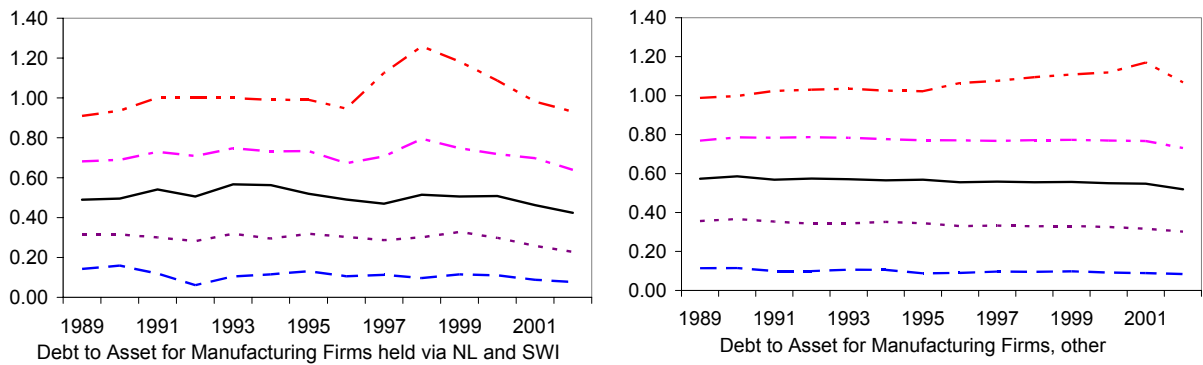
**Annotation:** \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% level respectively. Numbers in brackets are robust p-values that have been corrected for heteroscedasticity and clustering within country cells. Endogenous variable: THIRD-COUNTRY. All observations are from the year 2002. A constant was used but is not reported.

### 3.3. Do Conduit Entities Matter for Affiliate Financing?

As pointed out above, conduit entities may be used to implement tax efficient financing structures in which the conduit receives equity from a parent and forwards these funds as a loan to a foreign affiliate. As we have seen from the "stepping-stone analysis" in Section 2, typical conduit countries that are used widely and irrespective of the location of the final affiliate are the Netherlands and Switzerland. In both countries there are well-known special regulations that give preferential treatment to interest income derived by holding companies. In the following we will look at affiliates that are held via intermediate companies in these countries.

I start by looking at German outbound investment. The left hand panel of Figure 7 reports on the financing structure of German-owned manufacturing subsidiaries that are held via a Dutch or Swiss company. There are five lines that show the development over time. The lowest line characterizes the overall debt to asset ratio of a subsidiary in the fifth centile. The other lines refer to the 25<sup>th</sup> centile, the median, the 75<sup>th</sup> centile, and the 95<sup>th</sup> centile. The right panel of the Figure presents the same picture for those German-owned manufacturing firms that are *not* held via a Dutch or Swiss intermediate company. Large debt to asset ratios imply for the host country that a large fraction of the earnings of a subsidiary benefit from a tax shelter, which reduces corporate tax revenues for the host country. Do Swiss and Dutch holding companies come at a tax cost for host countries? The comparison of the right and the left hand side does not give support to the hypothesis that conduit-held subsidiaries are more levered than other corporations. Indeed, the average debt to asset ratio is lower for the respective median firm.

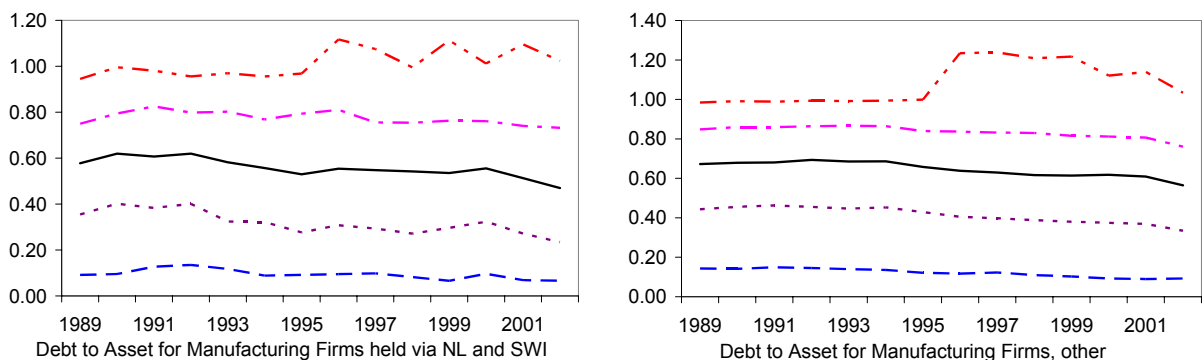
Figure 7: Debt to Asset Ratios and Conduit Entities (Outbound)



**Annotation:** Both panels depict the debt to asset ratio of the population of manufacturing corporations by reporting the ratios for the 5<sup>th</sup>, 25<sup>th</sup>, 75<sup>th</sup>, 95<sup>th</sup> centile and the median. The left panel refers to corporations held via a Swiss or Dutch stepping stone. The right panel contains all other manufacturing firms.

Figure 8 repeats the exercise performed by Figure 7 but relates to foreign-owned manufacturing subsidiaries located in Germany. Again the left panel reports on debt to asset ratios of firms that are held via an intermediate company in the Netherlands or Switzerland.<sup>19</sup> The right hand panel depicts descriptive statistics for all other manufacturing firms. Figure 8 does not support the view that Dutch and Swiss conduit companies are used to increase leverage of the German subsidiaries. Like in Figure 7, the median firm held via a Dutch or Swiss company in all years has a somewhat lower debt to asset ratio than the median of the other manufacturing firms.

Figure 8: Debt to Asset Ratios and Conduit Entities (Inbound)



**Annotation:** cf. Figure 7.

<sup>19</sup> For inbound investment we have no information as to whether the foreign intermediate company is a pure holding company or has also active business. Therefore, Figure 8 as well as the preceding Figure 7 account for all types of Swiss and Dutch intermediate companies, of course including pure holding companies.

Of course, the slightly lower leverage of subsidiaries that are owned via a conduit entity may simply result from a selection bias. If multinationals with a strong equity base are more apt to set up holding companies in the Netherlands or Switzerland, then the lower debt ratio may just be a reflection of the stronger equity base. The next piece of analysis tries to avoid this problem by specifically looking at those subsidiaries that had the same parent on a continuing base, but had a change in the ownership chain.

On the outbound side of German FDI 332 cases can be identified between 1996 and 2002 where the ownership chain was reorganized to include an intermediate corporation in a third country, but a direct ownership chain from the same German parent to the subsidiary in previous year(s). Conversely, in 357 cases the ownership chain of a subsidiary that was formerly making use of a third country was reorganized to establish a direct ownership link to the German subsidiary. In all these 689 cases the data set allows to make sure that the identification number of the German parent company has not changed. Since all these firms are observed over several years we arrive at a data set with 3438 firm-year observations and a total of 608 subsidiaries.<sup>20</sup> Note that for some subsidiaries the ownership chain changed more than once. Four interactive zero-one variables are then introduced to identify the effect of the ownership chain on the financial structure of the dependent subsidiary. The four dummies allow for different effects depending on whether the dependent firm is in manufacturing or not. They also distinguish between "classical" conduit countries with special holding regimes, and ownership chains implying less conspicuous countries or cases where the special holding regimes are unlikely to be applicable.

- TC\_NAR\_NON\_MANU takes on the value one if a non-manufacturing subsidiary in the relevant year is held via a holding company in the Netherlands or Switzerland, (NL, CH). It is zero otherwise.

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<sup>20</sup> For the empirical analysis, firms that on average across the observed years had a debt ratio of more than unity, which is possible only with high current losses or loss forwards, have been dropped from the sample. This eliminates outliers that are "in a financial corner solution".

- TC\_OTHER\_NON\_MANU takes on the value one if a non-manufacturing subsidiary is held via a third country other than NL, CH or via a non-holding company in NL or CH.
- TC\_NAR\_MANU equals unity if a manufacturing subsidiary in the relevant year is held via a holding company in NL or CH.
- Finally, TC\_OTHER\_MANU takes on the value one if a manufacturing subsidiary is held via a third country other than NL or CH, or if the intermediate company in NL or CH is a non-holding company.

I start by looking at the overall debt to asset ratio (LEVERAGE) of the subsidiary. In a second step I will look at several components of debt. FOR\_DEBT is defined as the amount of loans from affiliated firms outside Germany, divided by balance sheet total. PA\_DEBT measures the fraction of loans from German affiliated sources (including the German parent) to finance the subsidiary. Table 15 provides the sample statistics.

*Table 15: Summary Statistics (Switches in the Ownership Chain, Outbound)*

Variable	Observation s	Mean	Std. Dev.	Min	Max
LEVERAGE	3438	0.532	0.285	0	1.911
FOR_DEBT	3438	0.116	0.195	0	1.646
PA_DEBT	3438	0.102	0.175	0	1.585
TC_NAR_NON_MANU	3438	0.130	0.337	0	1
TC_OTHER_NON_MANU	3438	0.144	0.351	0	1
TC_NAR_MANU	3438	0.083	0.275	0	1
TC_OTHER MANU	3438	0.095	0.294	0	1

Table 16 summarizes the results from three panel fixed effects estimations. The presented estimations have quite parsimonious specifications. The right hand variables consist of four dummies as defined above plus a set of time fixed effects (not reported). I also tested additional right-hand variables such as firm sales, fixed investment, host country interest rates, bank loans of the private sector as a fraction of GDP, corporate tax rates, and GDP growth. These variables proved insignificant and left the coefficients of the dummies

for conduit entities virtually unchanged.<sup>21</sup> The data allows inferring the effects that the existence of an intermediate holding has on the total debt to asset ratio (LEVERAGE), the fraction of loans from affiliated firms outside German in total assets (FOR-DEBT), and the fraction of loans from affiliated German firms in total assets (PA-DEBT). The naming of the last variable reflects the expectation that the bulk of the latter financing will come from the parent. Conversely, FOR-DEBT will largely reflect loans of the foreign intermediate firm.

*Table 16: Effects of Switches in the Ownership Chain (Outbound)*

	LEVERAGE	FOR-DEBT	PA-DEBT
TC_NAR_NON_MANU	0.013 [0.50]	0.034 [0.02]**	-0.023 [0.00]***
TC_OTHER_NON_MANU	0.020 [0.32]	0.079 [0.00]***	-0.058 [0.00]***
TC_NAR_MANU	-0.045 [0.00]***	0.008 [0.50]	-0.021 [0.02]**
TC_OTHER_MANU	0.016 [0.49]	0.013 [0.30]	0.003 [0.84]
Observations	3438	3438	3438
No. of subsidiaries	603	603	603
R <sup>2</sup> (within)	1.9%	3.2%	2.2%

**Annotation:** \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% level respectively. Numbers in brackets are robust p-values that have been corrected for heteroscedasticity and clustering within country cells. Time period is 1996-2002. A constant and time fixed effects were used but are not reported.

For non-manufacturing firms, the dummy for a Swiss or Dutch holding company (TC\_NAR\_NON\_MANU) increases the overall debt to asset ratio (LEVERAGE) by 1.3 percentage points, but this estimated coefficient is not significantly different from zero. The fraction of loans in total asset that derives from borrowing from affiliated firms outside Germany (FOR-DEBT) increases for non-manufacturing subsidiaries when these are held via a Swiss or Dutch holding company. The point estimate is 3.4 percentage points. On the other hand, the funding from German sources experiences an estimated 2.3 percentage points cut, which is also statistically significant.

<sup>21</sup> For a more systematic analysis of tax and macro variables for FDI financing see Mintz and Weichenrieder (2005) who use a much larger data set.

A very similar picture arises from the dummy for other conduit entities. The point estimates suggest an increase in the loans from affiliated foreign sources that is larger than the decrease from German sources. But the overall effect on leverage is not significantly different from zero. Interestingly, the coefficients for non-Swiss/non-Dutch conduit entities are higher in absolute values, which casts doubt on the hypothesis that the change in financial structure reflects the special provisions that are available for Dutch or Swiss holding companies.

While the results for non-manufacturing firms suggest that the existence of a conduit entity might be associated with more total debt, this reverses for manufacturing firms. Here we yield a significant negative effect for holding companies from the Netherlands and Switzerland ( $TC\_NAR\_MANU < 0$ ). The effects of other conduit types however are again insignificant, and this holds also for FOR-DEBT and PA-DEBT.

On the inbound side of German FDI we can identify 282 cases in which a switch in the ownership occurred that either introduced a conduit entity in a third country or deleted such an intermediate ownership chain. Unfortunately the data set on the inbound side does not allow making sure that the ultimate investor stays constant during this switch. One can make sure, however, that the ultimate investor country stays unchanged and the 282 cases were selected to comply with this. The working hypothesis is that the ultimate investor stays the same as well. But of course I cannot rule out that the changed ownership pattern goes along with a change in the identity of the ultimate owner. Such a change in itself may give rise to a change in the financing structure of a subsidiary. Another disadvantage of the FDI inbound statistic is that, unlike on the outbound side, we cannot identify the industry of the foreign intermediate company and therefore cannot distinguish a pure holding company from an industrial firm with foreign participations.

Table 17 gives the summary statistics for a sample of 230 firms that experienced at least one change in the existence of a third country in the ownership chain. The average debt to asset ratio for these firms is 59% and roughly half of these loans are granted by foreign

affiliated firms. Compared to the sample described in Table 15 a significantly larger amount of the balance sheet is financed by cross-border intra-company loans. This difference between the inbound and outbound side of German FDI is a more general feature that is not restricted to these two small samples.<sup>22</sup>

*Table 17: Summary Statistics (Switches in the Ownership Chain, Inbound)*

Variable	Observation				
	s	Mean	Std. Dev.	Min	Max
LEVERAGE	1405	0.591	0.307	0	2.373
FOR_DEBT	1405	0.296	0.295	0	2.373
TC_NAR_NON_MANU	1405	0.204	0.403	0	1
TC_OTHER_NON_MANU	1405	0.165	0.371	0	1
TC_NAR_MANU	1405	0.060	0.238	0	1
TC_OTHER_MANU	1405	0.036	0.187	0	1

*Table 18: Effects of Switches in the Ownership Chain (Inbound)*

	LEVERAGE	FOR-DEBT
TC_NAR_NON_MANU	-0.027 [0.19]	0.019 [0.31]
TC_OTHER_NON_MANU	-0.004 [0.18]	-0.008 [0.74]
TC_NAR_MANU	0.030 [0.09]*	0.040 [0.05]*
TC_OTHER_MANU	0.056 [0.33]	0.058 [0.27]
Observations	1405	1405
No. of subsidiaries	230	230
R <sup>2</sup> (within)	2.5%	1.0%

**Annotation:** \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% level respectively. Numbers in brackets are robust p-values that have been corrected for heteroscedasticity and clustering within country cells. Time period is 1996-2002. A constant and time fixed effects were used but are not reported.

Table 18 reports estimation results for two equations on the inbound side. The first equation uses again LEVERAGE (total debt to total assets) as the right-hand variable. The second equation uses FOR-DEBT that measures the intra-company loans granted by all

<sup>22</sup> See Ramb and Weichenrieder (2005).

affiliates outside Germany. For non-manufacturing firms the two measures do not significantly react to a change in the ownership chain. For manufacturing firms we have a significantly positive effect of an intermediate holding located in the Netherlands or Switzerland on FOR-DEBT and a marginally significant effect on total leverage (LEVERAGE). This contrasts with the results on the outbound side, where such a holding was associated with a significantly lower rather than a higher overall debt ratio. The insignificant effect of holding companies on FOR-DEBT does not imply that holding companies refrain from granting loans to the German subsidiary. Indeed, upon introduction of a holding company in a third country, we can observe that the financing from the ultimate investor country goes down. With total loans from affiliated foreign companies being almost constant, this indicates a shift from loans by the parent to loans provided by the conduit entity.

Like in Table 16, the only statistically significant effect on total leverage is found for manufacturing firms. But unlike in the case of German outbound FDI, the effect on the debt to asset ratio is positive. The German treasury may be adversely affected by the introduction of a Swiss or Dutch holding company as the interest on debt tends to reduce taxable profits in Germany.

#### **4. Conclusion**

A popular concern about multinational enterprises is that multiple routing of dividends and complicated financing structures enable these firms to get around their fair share of the tax burden. Against this background, this paper has described real world structures in German outbound and inbound investment and has empirically identified several factors that influence the structure of ownership chains.

While the importance of investors who take advantage of stepping stones in third country seems on the rise, in particular when we look at German inbound investment, direct financing arrangements that use a simple structure still form the majority of cases. The paper

has identified several tax factors that influence the existence of more complicated structures: withholding taxes, profit and loss consolidation, and the type of tax system of the investing country (credit vs. exemption of foreign dividends). Conversely, the corporate tax rate in the destination country of the investment had no significantly positive influence on the use of more complicated ownership chains.

The empirically found important role of withholding taxes for ownership chains is a plausible reason for large changes in the importance of the main conduit countries. While, for example, the Netherlands did profit from the parent-subsidiary directive, this was not the case for Switzerland, which in the 1990s experienced a considerable loss in importance for ownership chains of German multinationals.

An important role of conduit entities in third countries lies in providing loans to dependent subsidiaries. From our sample of German FDI we have only limited evidence that the establishment of such a conduit entity increases total leverage of the dependent subsidiaries. While we could find a weakly significant effect along these lines for German inbound investment in manufacturing, the evidence for outbound investment in manufacturing was the opposite. An important caveat that one should keep in mind is that this paper has touched upon financial services companies only to the extent that these firms are part of a multinational's ownership chain. A systematic analysis of the use of financial service companies that are not part of a multinational's ownership chain is an obvious next step for future research but beyond the scope of this paper.

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