# *Fighting International Tax Avoidance: The Case of Germany*

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## I. INTRODUCTION

There is broad agreement in theoretical work that taxes on capital income are bound to cease when markets become fully integrated.[2] In particular, high-tax countries should be concerned about tax competition, and empirical evidence on the working of tax competition should be found most easily by looking at countries with traditionally high tax rates on capital income. In this respect, Germany is a good candidate for closer examination. Throughout the 1980s, it had the highest statutory corporate tax rate of all major industrial countries (see Figure 1). This makes it worthwhile considering recent German tax legislation and evaluating the extent to which international tax competition was responsible for new tax law amendments. In doing so, the emphasis is on corporate taxation.

In recent years, Germany has introduced various legislative measures in the field of corporate taxation. This activity is not at all surprising. Large German multinational corporations, in particular, have recently almost ceased to pay profit taxes to the German government. In the years 1990 through 1993, many big companies achieved reductions in the average tax rate on profits although an additional surtax on the corporate tax (not shown in Figure 1) had been introduced on a temporary basis to finance German unification. Well-known
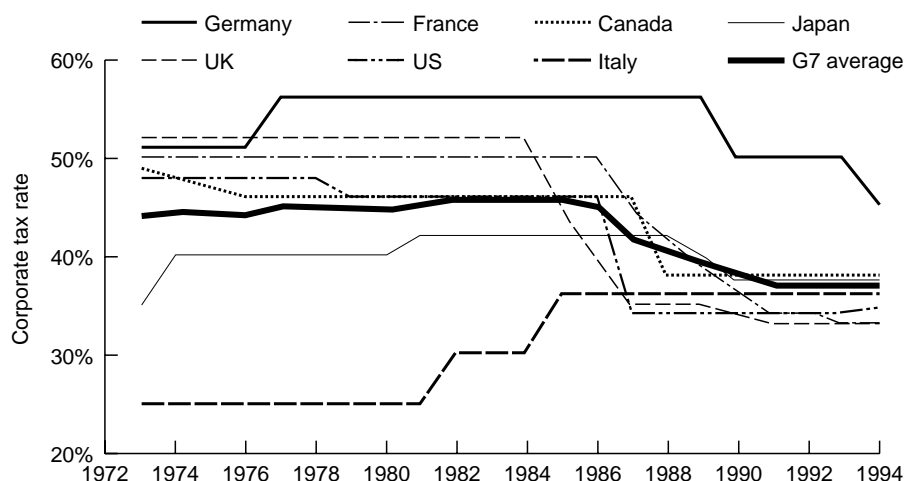
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[2] MacDougall (1960), Richman (1963), Oates (1972) and Razin and Sadka (1991), among others. An exception is Gordon (1992). For an extensive overview of the literature, see Koop (1993).

FIGURE 1

**Statutory Corporate Tax Rates in G7 Countries (Federal Level)**



examples of this trend are BASF, Bayer, BMW, Daimler-Benz, Deutsche Bank, Hoechst, Linde, MAN and Siemens.[3]

The case of BMW might be most illustrative. Table 1 shows the portions of taxes on profits that it has paid to German and foreign governments, respectively. While total profitability was good or even excellent in 1992, the tax revenue paid to Germany became a tiny proportion of world-wide taxes at the beginning of the 1990s. Interestingly, this proportion recovered somewhat after Germany's significant tax cuts in 1994.[4]

It could be thought that low tax payments in Germany are due to high wages and low profits rather than firms' tax planning. However, statements by top financial managers tell us something different. Presenting the 1992 balance sheet, BMW financial director Volker Doppelfeld publicly said that his corporation tried to shift costs to where taxes are highest and this was Germany.[5] Subsequently, high-ranking managers of BASF and Merck explicitly referred to BMW as an example.

German tax authorities reacted to the erosion of the tax base mainly along two lines. The first was directed towards closing tax loopholes. In 1992 and 1994, additional regulations were introduced to prevent the outflow of multinationals' financial capital to specific tax havens. Another measure introduced tighter limits on debt finance by foreign-owned subsidiaries in Germany. However, loophole mending was thought to be not enough.

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[3] See Antrecht and Luber (1994).

[4] For a description of tax cuts, see Section IV.

[5] *Handelsblatt*, 26 March 1993, p. 2.

TABLE 1

**BMW: Pocket-Money for the Treasury**

| | BMW's taxes on profits | | |
| --- | --- | --- | --- |
| | *World-wide* *(DM million)* | *Domestic* *(DM million)* | *Domestic/world-wide* |
| 1988 | 618 | 545 | 88% |
| 1989 | 889 | 509 | 57% |
| 1990 | 832 | 389 | 47% |
| 1991 | 782 | 228 | 29% |
| 1992 | 608 | 31 | 5% |
| 1993 | 192 | -32 | -16% |
| 1994 | 561 | 197 | 35% |

Eventually, corporate tax cuts were also introduced in a Tax Act that explicitly stated international competition as its justification.[6]

By concentrating on recent German experience, this paper tries to highlight the working of international tax competition in some detail. The analysis suggests that there is quite strong tax competition, at least with regard to the more mobile part of the tax base that firms can shift across borders with the help of financial transactions. While there are various ways of restricting firms' use of tax loopholes, this paper shows that these normally incur costs. To lower firms' incentives to shift profits abroad, recent German tax cuts therefore seemed unavoidable.

This paper will give a review of the problems with respect to the taxation of both outward and inward direct investment. In addition, the economic effects of several tax law amendments are analysed.

## II. THE EMERGENCE OF NEW TAX HAVENS

Currently, Germany has agreed on more than 60 double taxation treaties. With some exceptions, the vast majority of them imply the exemption of profits received from subsidiaries abroad.[7] Naturally, the exemption method and the high German corporation taxes make it profitable for German firms to accumulate passive investment in low-tax jurisdictions rather than hold securities

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[6] The translation of the full title of the Tax Act is 'Law to Secure the Competitiveness of Germany as a Location for Enterprises in a Common Market'.

[7] There is the possibility of an additional tax burden when foreign profits are used by the parent to pay dividends to its personal stockholders. See, however, Weichenrieder (1994) for how this tax burden can be circumvented.

at home. To prevent the German tax base from erosion, German Subpart-F type legislation works as follows.[8]

On the one hand, double taxation treaties with low-tax jurisdictions often imply an activity clause. Only those subsidiaries that have at least 90 per cent of their income stemming from active business enjoy the full exemption from German taxes. § 8 of *Außensteuergesetz* (AStG) defines an explicit catalogue of income that is accepted as active income. Not included in the list is income from portfolio investment and from the holding of patents and licences. If the activity clause is binding, and taxation abroad is less than 30 per cent, the parent is liable for taxes on all the passive investment income of its subsidiary according to § 10.[9] Foreign taxes paid by the subsidiary on that passive income can be credited against German taxes after application (§ 12 AStG). On the other hand, the provision of § 10 AStG applies immediately when there is no double taxation treaty with the host country of the affiliate.

At the end of the 1980s, some countries offered new tax incentives for attracting multinationals' financial capital. This development created severe problems for German tax revenues because some of the relevant treaties on double taxation did not contain any activity clauses. Moreover, in these cases, § 10 AStG was not applicable. In particular, the US, Belgium, the Netherlands and Ireland took advantage of this loophole. The tax incentives are described below.

## German Investment in REITs and RICs[10]

In the late 1980s, a huge amount of German investment took place in US investment trusts. Two types of trusts played a major role: REITs (real estate investment trusts), which are corporations mainly engaged in holding real estate assets and portfolio capital, and RICs (regulated investment companies), which act as investment trusts. To qualify as an RIC, the bulk of investment has to be in securities and diversified shares. Because of their function as investment trusts, the US government does not want to tax these institutions according to the classical US corporate system. Those companies are therefore allowed to deduct all their paid-out dividends as business expenses. In effect, profits leave the companies without taxation.[11] These companies are therefore very interesting for firms wishing to avoid German taxes. Holding 10 per cent of an RIC qualifies a German corporation for the exemption privilege, and the absence of withholding taxes has opened up the possibility of enjoying tax-free interest income.

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[8] The term Subpart-F stems from the US Internal Revenue Code and refers to provisions that try to restrict tax avoidance by holding passive investment in separately incorporated affiliates abroad.

[9] Before 1992, there had to be a holding of more than 50 per cent.

[10] The description of the following tax-saving devices draws heavily on Flick, Wassermeyer and Becker (1990, Supplement 1992).

[11] There are severe restrictions that must be met to qualify for this privilege. The companies are not allowed to retain more than a tiny fraction of their profits, some ownership tests have to be met, and the overwhelming majority of profits must stem from passive investment.

In 1989, Germany and the US agreed on a new double taxation treaty which in Article 10 explicitly addresses RICs and REITs. Since then, a 15 per cent withholding tax applies on these dividends which ends the tax-free investment for German firms' financial capital. However, given that German corporate tax far exceeds the 15 per cent level, the withholding tax did not fully eliminate the tax advantage of RICs and REITs.

### Belgium, Luxemburg and the Netherlands

Additional low-taxed investment opportunities opened up for German firms in Belgium, Luxemburg and the Netherlands. Foreign subsidiaries in these countries may qualify for a reduced tax burden if their main activity is to provide intra- company financial services or to act as a financial holding company. The treatment granted to Belgian 'co-ordination centres' is an example. While a Belgian co- ordination centre bears the normal Belgian statutory corporate tax rate, this rate is applied to a computed `profit' which amounts to 8 per cent of the firm's costs. Wage and interest costs do not enter the calculation.[12] It is hardly surprising that in 1992 and 1993, Belgium received more German direct investment than any other country in the world (DM 7.9 billion) and the total stock of German direct investment increased by 40.7 per cent.[13]

### Tax Saving in Ireland

The patience of German tax authorities ended when an additional opportunity for tax saving became available in Ireland. The loophole resulted from Ireland's efforts to develop its capital, Dublin, as a new financial centre. Substantial tax incentives were given to foreign capital.

When it joined the EC in 1973, Ireland insisted on the right to attract foreign industry in manufacturing by lowering the corporate tax rate to 10 per cent. Indeed, this might have accelerated inward direct investment quite considerably. Since then, 1,017 foreign corporations have founded affiliates in Ireland and these employ some 93,000 workers. In total, some 40 per cent of all workers in Irish industry are employed by subsidiaries of foreign multinationals.[14]

In 1987, the Irish government widened the scope for this preferential taxation to subsidiaries that are only engaged in financial investment. For firms to qualify for the preferential tax treatment, they only have to prove that some jobs are created in the financial centre of Dublin. Because these subsidiaries are located near the docks in Dublin, they are often referred to as *Dublin docks companies*.

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[12] See Gundel (1992, p. 4).

[13] Deutsche Bundesbank, Monatsbericht, May 1995, pp. 45–59.

[14] *Frankfurter Allgemeine Zeitung*, 1 June 1993, p. 16.

Assessment of Capital Outflow

The German Ministry of Finance gives no exact data on how much capital fled to Ireland and induced it to react quickly with legislation. It is possible, however, to obtain a close estimate. At the end of 1989, the stock of German direct investment in Ireland amounted to DM 1.9 billion. By the end of 1991, the figure had jumped to DM 12.9 billion.[15] Assuming that each of the 12,000 jobs[16] in the German subsidiaries is endowed with a fixed capital stock of DM 200,000, there might be a real investment of DM 2.4 billion.[17] This leaves at least DM 10.5 billion as pure financial investment. Figure 2 shows the time pattern of capital flight to Ireland. While the dramatic increase of capital export to Ireland starting in 1989 is due to the tax incentives for Dublin docks companies, the harsh slowdown is induced by German counter-measures described below.

Reactions of Fiscal Authorities

The fact that makes Ireland different from most other low-tax jurisdictions is that there is no activity clause in the treaty on double taxation with Ireland. Therefore the provision of § 10 AStG was not available to close the tax loophole that the German exemption system opens for foreign investors. In principle, German tax law offers another possibility for taxing passive income abroad. However, the application of the general clauses of German tax law[18] faced a high probability that courts would reject tax assessments based on these clauses. On the one hand, this stems from the fact that judges would have been required to form a new case law with respect to Dublin docks companies. On the other hand, the uncertainty was further increased by the fact that the European Union had approved the Irish tax policy.[19]

The German government therefore wanted the Republic of Ireland to renegotiate the treaty on double taxation. It is hardly surprising that the Irish were not too eager to retard the newly granted tax incentives by a new tax treaty, and negotiations soon stopped. This induced Germany to amend the German *Außensteuergesetz*. In 1992, a new clause was introduced into §10 AStG. According to § 10 (6), a German parent is taxed on the passive income of its foreign subsidiary if this affiliate receives the majority of its income from holding securities and portfolio capital.[20] This regulation was introduced to override § 10 (5) which in the past ruled German taxation of foreign income

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[15] Deutsche Bundesbank, Monatsbericht, April 1993, p. 41.

[16] *Frankfurter Allgemeine Zeitung*, 1 June 1993, p. 17.

[17] Note that this is an upper bound for real investment since a capital stock of DM 200,000 per job is slightly more than even the corresponding figure for manufacturing in Germany.

[18] Abgabenordnung (AO) Articles 39 and 42.

[19] I am grateful to Klaus Vogel for a helpful discussion on these legal issues. See also Vogel (1995).

[20] This is interpreted in a way that means that passive income is exempt from German taxation if it is less than half the total income of a subsidiary. See Gundel (1992).

FIGURE 2

**The Impact of Dublin Docks Companies and Foreign Tax Law on Capital Flows**
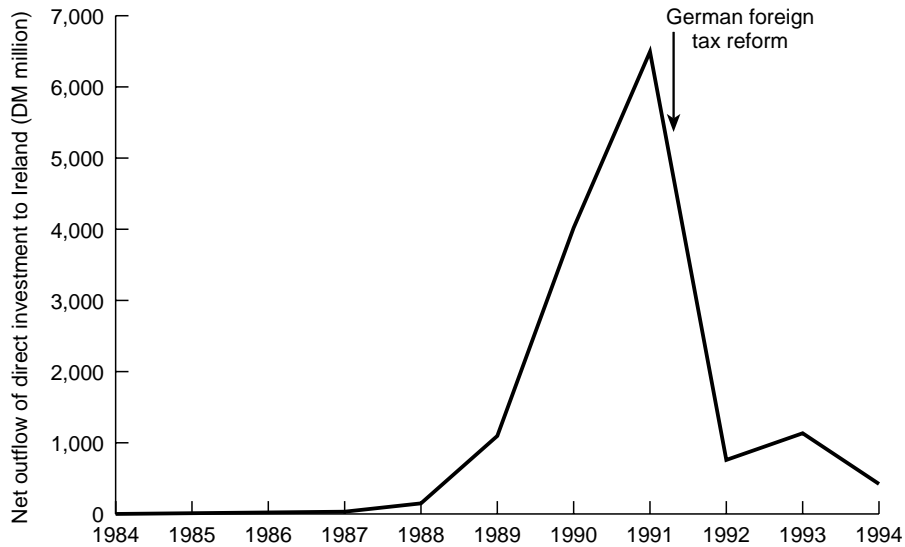


Note: 1994 figure is for January to September only.
Sources: Deutsche Bundesbank: *Zahlungsbilanz nach Regionen, Beilage zur Zahlungsbilanzstatistik*, July 1993; *Zahlungsbilanzstatistik*, January 1993, p.37 and February 1995, p. 37.

when a double taxation treaty (without the activity clause) existed with the host country. Note that the new provision is also applicable to investment income stemming from the US trusts mentioned above. For § 10 (6) to be applicable in this case, a lower minimum ownership requirement of 10 per cent is included in § 7 (6).

In principle, a conceivable escape from the applicability of the new foreign tax regulation is the setting-up of bank subsidiaries in Dublin. This is because, on the one hand, the German foreign tax law defines banking as active business rather than passive income. On the other hand, foreign banks too may qualify for the reduced tax rate of 10 per cent. Indeed, almost all major German banks have established subsidiaries in Ireland.[21] Note, however, that this escape is, in practice, impossible for German non-banks. If a firm in manufacturing wanted to open up a bank subsidiary in Ireland to shelter its own financial assets from German taxation, this bank would have to meet all the standard Irish banking requirements, such as a broadly diversified portfolio structure on both the debit and credit sides of the balance sheet, and top managers with banking experience as well. The fact that Dublin docks companies cannot be easily transformed into banks can also be seen by considering Figure 2. Capital outflows to Ireland

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[21] According to information of the Irish–German Chamber of Commerce.

dramatically declined in 1992 when the new regulation became effective and have not recovered since.

One of the hot debates before implementation of the amendment was whether the overriding of international double taxation treaties is legal. Even German tax experts had their doubts about whether the new clause is in line with existing treaties on double taxation,[22] but this will not be the main issue of this section. We will rather concentrate on the effects the rule can have on the amount of *real* investment in the relevant countries.

### 1. The Effect of the 1992 Regulation on Active Investment

The 1992 restriction implied by § 10 (6), while it reduced empirically the outflow of financial capital to Ireland (see Figure 2), tended to increase German real investment there. The reason lies in the fact that the possible amount of passive investment income a German subsidiary can enjoy in Ireland is a linear function of active investment it receives. Note that the 1992 regulation did not apply when most of the foreign income (more than 50 per cent) was active income. This may well induce German multinationals to start using subsidiaries, originally set up for financial investment reasons, to produce locally. Conversely, existing affiliates in manufacturing could also be used to shelter passive investment from German taxation.

A useful way to infer how investment incentives are altered by taxes is to look at the cost of capital. This measure tells us about the gross return on an additional investment needed to break even net of taxes. The Appendix derives the cost of capital for a foreign subsidiary analytically. Figure 3 gives an illustration of the result. With no restriction on passive investment, a multinational invests in physical (real) assets abroad until the marginal return net of foreign tax equals the rate of return available at home net of domestic tax.[23] The resulting cost of capital in terms of the domestic interest rate is shown by the broken line in Figure 3. Different rates for the German profit tax are assumed on the *x*-axis,[24] while the Irish rate is fixed at 10 per cent. The higher the German tax rate, the lower the alternative return at home, and the lower also the required rate of return abroad. Therefore the line is downward sloping.

If the home country (Germany) adds a restriction on passive investment which relates the allowed amount of tax-preferred passive income to the income from physical capital, then the required rate of return on physical assets decreases. The broken line shifts down. This is because every unit of real capital then implies the right to earn more tax-preferred passive investment income. This additional advantage of physical capital allows for additional real

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[22] See Ritter (1992) and Gundel (1992).

[23] Note that, because of the German exemption system, domestic taxes do not fall on active investment income abroad.

[24] For recent changes in the German corporate tax rate, see below.

investment with lower (gross) productivity. The extent to which the line is shifted down depends on the amount of additional passive income that is enabled by one additional Deutschmark of active income. The bigger this amount, the bigger the shift. Figure 3 depicts the German 1992 regulation that implied a one-to-one proportion of active and passive investment income. The resulting decrease in the cost of capital is some 15 per cent compared with the situation without regulation.

The fundamental idea of the 1992 regulation is not unique. The UK, France and the US employ similar restrictions which tie the amount of possible passive investment income from abroad to the respective active income.[25] While some of these countries use the world-wide principle of taxation rather than the exemption system, in many cases the tax incentives described above apply.[26]

FIGURE 3

**Constraint on Passive Investment and the Cost of Physical Capital**



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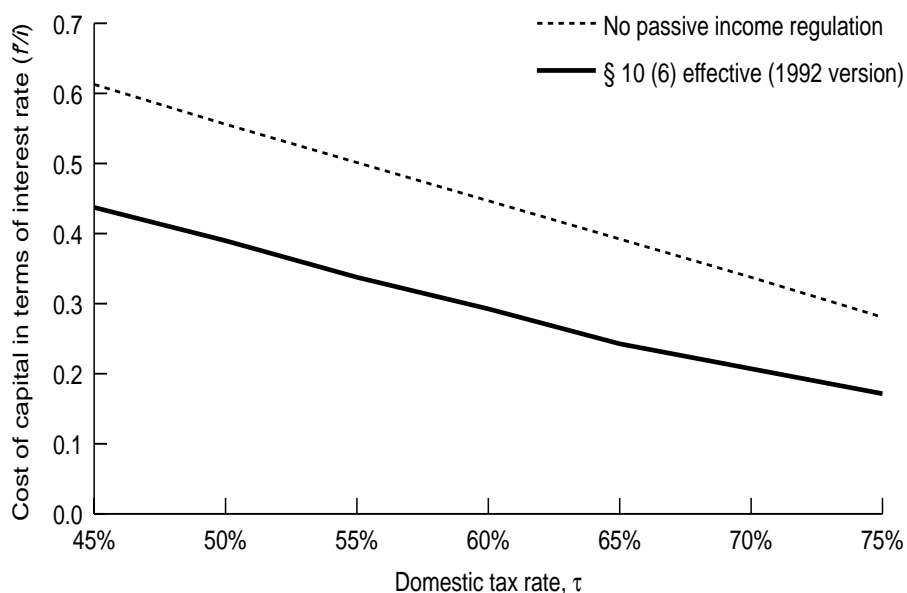
[25] For an overview, see OECD (1987, pp. 55–7). For details on some countries, see also McIntyre (1989), Ishiyama (1980) and Granwell and Kaufman (1989).

[26] For a discussion of different types of Subpart-F rules in the context of the credit-with-deferral system of taxation, see Weichenrieder (1996). Note that the effects of the Subpart-F rules are not taken account of in recent studies trying to compute the cost of capital for direct investment by using the King–Fullerton method (OECD, 1991; Commission of the European Communities, 1992).

*2. The 1994 Amendment*

Only some two years after the introduction of § 10 (6), it was reformed. The reform was explicitly aimed at those subsidiaries that earn not only portfolio income but also income from other (active) sources.[27] Since then, passive income is always subject to German taxation if it exceeds 10 per cent of total income. Most active income is not considered here in calculating total income, which makes the restriction even more binding. In the light of the discussion above, this reform largely eliminates the repercussion of the regulation on active investment. Moreover, if the total amount of passive investment income exceeds DM 120,000, then, under the new form of § 10 (6), all portfolio investment is subject to German taxation no matter how high the subsidiary's other income may be. Therefore, while the reform tightened the restriction on passive income, at the same time it lowered the distortion for real investment decisions.

## III. THIN CAPITALISATION RULES

The amendments to the foreign tax law analysed above were not the only attempts to close tax loopholes. Another provision was directed at foreign multinationals' leverage decisions. At the beginning of the 1990s, more than half of all foreign direct investment was carried out by parents providing for intra-company debt. In 1990 and 1991, total inflow of direct investment amounted to DM 42 billion, of which DM 26 billion was financed by intra-company loans.[28] For comparison, in 1991, only 25 per cent of the stock of German direct investment abroad was financed by loans rather than equity. The data on outflows indicate that, in the years 1988 and 1989, only 17.3 per cent of all outward investment was financed by loans.[29] The figure for the years 1990 and 1991 was only 15 per cent.[30] The relative importance of intra-company loans increased in 1992 and 1993. While total inflow of foreign direct investment in these years was DM 10.8 billion, intra-company loans increased by DM 16 billion and new equity accounted for some DM 4 billion.[31] This reflects the fact that foreign firms distributed to a large extent the retained earnings of previous years. This behaviour was largely induced by the anticipated tax reform of 1994, and domestic firms, too, reacted similarly.[32] The reason is that the lower tax rates

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[27] According to the official reasoning of the Ministry of Finance. See Flick, Wassermeyer and Becker (1990, Supplement 1994).

[28] Deutsche Bundesbank, Monatsbericht, April 1993, p. 39.

[29] This may be an indication that doubt (see, for example, Mayer (1988)) that had been raised about the question of whether taxes do influence the finance decisions of domestic corporations may not be appropriate in an international context. One theoretical reason for believing this is that foreign subsidiaries are often majority owned and monitoring problems might not be as severe in this case.

[30] Deutsche Bundesbank, Monatsbericht, April 1993, p. 29 and p. 37.

[31] See Deutsche Bundesbank, Monatsbericht, May 1995, pp. 45–59.

[32] See also the note to Table 1.

after 1993 also lowered the possible tax refund associated with distributions. The tax refund associated with distributions is, in turn, an implication of the German split-rate corporate tax system with its lower tax rate on distributed profits. While the anticipated tax cut of 1994 explains the sharp reduction in the stock of retained earnings, it does not explain why most compensating finance took the form of loans rather than new equity.

The Deutsche Bundesbank argues that the large amount of debt may be due to high German interest rates after unification. While this may be part of the explanation, it falls short of the whole truth. It should be noted that even at the end of 1989 — before German interest rates reacted sharply to German unification — 39 per cent of the stock of foreign direct investment was financed by loans.[33] This high propensity for debt financing — often referred to as thin capitalisation — can easily be explained by tax rate differentials. By repatriating profits as interest payments rather than dividends, multinationals can reduce their German tax base by the same amount as the foreign tax base is increased.[34] Since the German tax rate is normally higher than foreign tax rates, this increases net-of-tax profits.

In 1989, Devereux and Pearson published the results of a questionnaire among British multinationals. They found a fairly bimodal distribution. Either multinationals found it very attractive to finance their subsidiaries by loans or they financed them this way quite infrequently. Furthermore, managers were well aware of the circumstances under which thin capitalisation is beneficial to the corporation. In a question on how taxes influence the firm's choices, some answered explicitly that the choice of debt or equity finance decides whether foreign taxes or domestic taxes are effective.

In the case of foreign investment in Germany, the effect of thin capitalisation is surprising. If foreign multinationals had been able to rely exclusively on debt finance in 1991, Germany would have provided the lowest cost of capital in the OECD. This result can be inferred from Table 2. In this table, the costs of capital for an investment in manufacturing are given when this is undertaken by a subsidiary. Possible host (source) countries of the subsidiary are shown at the top. Possible home countries of the parent are shown down the left-hand side. The underlying OECD data are computed for three different sources of finance. The parent can finance its subsidiary by debt and by injecting new equity. A third source of finance is retaining earnings within the affiliate. The figure for each of the corresponding costs of capital is computed by the King–Fullerton

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[33] Deutsche Bundesbank, Monatsbericht, April 1993, p. 37.

[34] Note that there is no German withholding tax on interest income paid to foreigners.

TABLE 2

The Cost of Capital for Foreign Direct Investment under Full Financial Flexibility[a,b]

| Home country | Source country | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Australia | Austria | Belgium | Canada | Denmark | Finland | France | Germany | Greece | Iceland | Ireland | Italy | Japan | Luxemburg | Netherlands | New Zealand | Norway | Portugal | Spain | Sweden | Switzerland | Turkey | UK | US |
| Australia | nf 7.1 | f 6.1 | f 6.0 | f 7.3 | f 6.5 | f 6.6 | tf 7.3 | f 4.2 | n 5.9 | t 8.0 | n 4.2 | f 5.6 | f 6.0 | f 6.9 | f 6.5 | t 7.9 | n 4.7 | f 6.7 | f 7.6 | t 6.1 | tf 6.6 | f 6.2 | n 6.0 | f 6.5 |
| Austria | nf 7.1 | nf 5.5 | f 6.0 | f 7.3 | f 6.3 | f 6.4 | tf 7.3 | f 4.7 | f 5.5 | t 8.0 | n 4.2 | f 5.6 | f 5.7 | f 6.5 | n 6.0 | f 8.9 | n 4.7 | f 6.2 | f 6.8 | n 4.7 | n 5.6 | f 6.2 | n 6.0 | f 6.0 |
| Belgium | f 6.7 | f 4.6 | nf 5.4 | f 7.5 | f 5.0 | f 5.0 | f 5.5 | f 2.7 | f 5.5 | t 7.3 | n 4.5 | f 5.7 | f 5.5 | f 5.0 | f 4.8 | f 7.5 | f 4.1 | f 6.4 | f 7.2 | f 5.1 | f 5.1 | f 5.8 | n 5.3 | f 6.2 |
| Canada | n 6.1 | n 6.8 | n 6.7 | nf 6.2 | n 7.1 | n 7.5 | t 7.3 | n 5.0 | t 7.3 | t 8.0 | n 3.5 | n 5.4 | n 6.1 | n 6.1 | n 5.9 | n 8.6 | n 3.6 | t 7.5 | n 7.4 | n 5.8 | n 6.2 | nf 8.0 | n 4.6 | n 6.3 |
| Denmark | n 6.5 | f 5.8 | f 5.9 | f 7.2 | nf 5.9 | nf 6.0 | nf 6.6 | f 4.1 | n 6.0 | t 8.0 | n 4.0 | f 5.5 | f 5.6 | n 5.9 | n 5.1 | t 7.6 | n 3.1 | t 2.6 | n 7.4 | n 4.7 | n 4.8 | f 6.1 | n 4.6 | f 6.0 |
| Finland | n 6.5 | f 5.7 | f 5.7 | f 7.6 | n 5.3 | nf 5.6 | f 6.9 | f 2.5 | f 5.2 | n 5.3 | n 3.7 | f 4.4 | f 4.8 | f 6.2 | n 4.9 | t 8.1 | n 3.3 | f 5.8 | f 0.8 | n 4.3 | n 5.3 | f 5.2 | n 4.1 | f 5.8 |
| France | f 6.1 | f 5.2 | f 4.9 | f 6.3 | f 5.1 | f 5.1 | nf 5.4 | f 2.3 | f 4.6 | t 8.0 | n 4.0 | f 4.3 | f 4.3 | f 5.4 | f 5.3 | f 7.0 | n 3.1 | f 5.0 | f 6.2 | f 4.5 | f 5.6 | f 4.9 | f 5.9 | f 5.1 |
| Germany | n 5.6 | t 7.3 | f 7.1 | t 8.1 | n 6.5 | n 6.9 | n 6.8 | nf 5.6 | n 1.3 | n 5.4 | n 3.1 | t 9.1 | n 7.7 | n 4.9 | n 6.1 | t 9.1 | n 0.9 | t 7.5 | n 6.7 | n 4.4 | n 5.7 | n 6.1 | n 4.6 | n 6.5 |
| Greece | nf 6.8 | f 7.2 | f 6.0 | t 8.1 | t 7.5 | f 6.4 | t 7.3 | f 4.3 | nf 5.0 | t 8.0 | t 5.5 | f 5.2 | f 5.6 | nf 6.0 | nf 6.2 | t 9.1 | f 4.4 | t 7.3 | t 7.8 | t 6.1 | t 6.6 | f 5.2 | nf 7.1 | t 7.6 |
| Iceland | nf 8.1 | tf 7.3 | tf 7.1 | t 8.1 | n 6.9 | n 6.9 | t 7.3 | n 6.3 | nf 6.7 | t 8.0 | t 5.5 | f 7.2 | f 7.0 | f 7.5 | t 7.1 | t 9.1 | nf 6.3 | t 7.4 | t 7.8 | t 6.1 | t 6.6 | f 6.8 | t 7.7 | nf 6.9 |
| Ireland | nf 7.7 | nf 6.1 | f 6.3 | f 7.7 | nf 6.5 | f 6.5 | t 7.3 | f 4.4 | t 7.3 | t 8.0 | nf 5.1 | nf 5.6 | f 6.0 | nf 6.8 | nf 6.7 | t 8.4 | nf 5.8 | t 7.5 | t 7.8 | t 6.1 | t 6.6 | t 9.8 | nf 7.5 | nf 6.5 |
| Italy | f 7.9 | t 7.3 | t 7.1 | t 8.1 | t 7.5 | tf 8.0 | t 7.3 | f 3.2 | t 7.3 | t 8.0 | t 5.5 | nf 5.9 | f 6.2 | t 8.1 | t 7.1 | t 9.1 | nf 5.7 | t 7.5 | t 7.8 | t 6.1 | t 6.6 | f 6.3 | t 7.7 | t 7.6 |
| Japan | t 9.0 | t 7.3 | t 7.1 | t 8.1 | t 7.5 | nf 7.8 | t 7.3 | f 5.3 | nf 7.2 | t 8.0 | t 5.5 | nf 7.0 | nf 6.4 | t 8.1 | t 7.1 | t 9.1 | nf 7.2 | t 7.5 | t 7.8 | t 6.1 | t 6.6 | nf 7.4 | t 7.7 | t 7.6 |
| Luxemburg | nf 7.1 | f 5.7 | f 5.8 | f 7.1 | f 6.1 | f 6.3 | f 6.9 | f 4.2 | n 5.9 | t 8.0 | n 4.1 | f 5.6 | f 6.3 | nf 6.3 | n 5.8 | t 8.9 | n 4.7 | f 6.8 | f 6.9 | n 5.2 | t 6.6 | f 6.2 | n 4.9 | f 6.1 |
| Netherlands | f 6.7 | f 5.3 | f 5.3 | f 6.7 | f 5.6 | f 5.7 | f 6.5 | f 3.8 | nf 4.8 | t 8.0 | n 4.3 | f 4.7 | f 5.3 | f 6.0 | nf 5.6 | f 7.5 | n 4.8 | t 7.5 | f 6.5 | n 4.8 | n 5.2 | f 5.8 | n 5.1 | f 5.7 |
| New Zealand | f 6.6 | f 5.9 | f 5.4 | f 6.7 | f 5.9 | f 6.0 | f 6.7 | f 3.6 | n 6.2 | t 8.0 | t 5.5 | f 5.0 | f 5.3 | f 6.3 | f 5.9 | nf 6.8 | f 4.7 | f 6.1 | f 6.9 | tf 6.1 | f 6.1 | f 5.6 | f 6.2 | f 5.9 |
| Norway | t 9.0 | t 7.3 | nt 7.1 | t 8.1 | t 7.5 | t 8.0 | t 7.3 | f 4.4 | t 7.3 | n 6.9 | n 3.4 | nf 6.9 | f 6.8 | t 8.1 | t 7.1 | t 9.1 | nf 6.8 | n 6.4 | t 7.8 | n 3.9 | t 6.6 | nf 7.1 | n 4.4 | nt 7.6 |
| Portugal | t 9.0 | f 6.2 | f 6.0 | t 8.1 | f 6.3 | f 6.5 | f 6.8 | f 4.3 | t 7.3 | t 8.0 | t 5.5 | f 5.6 | t 9.0 | t 8.1 | t 7.1 | t 9.1 | nf 5.5 | nf 5.7 | f 6.9 | t 6.1 | tf 6.6 | t 9.8 | nf 7.0 | t 7.6 |
| Spain | f 6.8 | f 5.6 | f 5.7 | f 7.0 | f 6.0 | f 6.1 | f 6.8 | f 3.9 | n 6.1 | t 8.0 | t 5.5 | f 5.3 | f 5.4 | f 6.0 | f 5.8 | t 8.5 | nf 5.0 | t 2.7 | nf 6.2 | n 5.9 | f 6.1 | f 5.9 | nf 6.5 | f 6.0 |
| Sweden | f 6.3 | f 5.0 | f 5.1 | f 6.4 | f 5.2 | f 5.3 | f 5.9 | f 3.3 | f 4.7 | n 6.4 | n 4.5 | f 4.5 | f 4.7 | f 5.7 | f 5.2 | t 7.0 | n 3.5 | f 5.7 | f 6.0 | n 5.0 | f 5.5 | f 5.3 | n 5.3 | f 5.2 |
| Switzerland | f 6.3 | f 4.9 | f 5.0 | f 6.4 | f 5.2 | f 5.4 | f 6.0 | f 3.4 | f 4.5 | n 7.1 | n 4.5 | f 4.7 | f 4.8 | f 6.0 | f 5.2 | t 7.0 | n 4.0 | f 5.3 | f 6.0 | f 5.4 | nf 5.4 | f 6.4 | n 5.3 | f 5.3 |
| Turkey | tf 9.0 | t 7.3 | t 7.1 | t 8.1 | t 7.5 | nf 7.7 | t 7.3 | f 5.8 | nf 7.0 | t 8.0 | f 5.5 | f 7.7 | f 7.5 | nf 8.0 | t 7.1 | t 9.1 | nf 7.0 | t 7.5 | t 7.8 | t 6.1 | t 6.6 | nf 7.2 | t 7.7 | t 7.6 |
| UK | f 6.2 | f 4.8 | f 4.8 | f 6.3 | f 5.1 | f 5.3 | f 6.2 | f 2.7 | t 4.6 | t 8.0 | t 5.5 | f 4.0 | f 4.4 | f 5.4 | f 5.4 | nf 7.1 | nf 4.1 | f 5.2 | f 6.1 | n 5.3 | nf 5.7 | f 4.9 | nf 5.9 | f 5.2 |
| US | f 7.0 | f 5.6 | f 5.5 | f 7.0 | f 6.0 | f 6.2 | f 6.8 | f 3.9 | t 5.5 | n 6.7 | t 5.5 | f 5.1 | f 5.6 | f 6.4 | f 6.0 | t 7.9 | n 5.2 | f 6.7 | f 6.8 | n 5.8 | nf 6.4 | f 6.1 | f 6.8 | nf 5.8 |
| Average | 7.1 | 6.1 | 6.0 | 7.3 | 6.3 | 6.4 | 6.8 | 4.0 | 5.7 | 7.4 | 4.7 | 5.7 | 6.0 | 6.5 | 6.0 | 8.2 | 4.7 | 6.3 | 6.6 | 5.4 | 6.0 | 6.4 | 6.0 | 6.4 |
| Standard deviation | 1.7 | 1.5 | 1.4 | 1.6 | 1.5 | 1.6 | 1.5 | 1.2 | 1.8 | 1.7 | 1.2 | 1.6 | 1.6 | 1.6 | 1.4 | 1.8 | 1.7 | 1.9 | 2.1 | 1.3 | 1.3 | 1.8 | 1.7 | 1.5 |

[a] Underlying assumptions: real rate of interest 5 per cent; rate of inflation 4.5 per cent in all countries; tax base definition of source countries is accepted by the home country.
[b] f: debt finance provided by parent; n: new equity; t: retained earnings. f, n and t indicate the cheapest source of finance with respect to a specific constellation of source and home country.
Sources: OECD (1991) and author's calculations.

method.[35] The computation of the costs of capital takes into account the different depreciation allowances of the source countries.[36]

An inflation rate of 4.5 per cent is assumed throughout. The real rate of interest is assumed to be 5 per cent. The parent is assumed to be financed by new shares, retained earnings and debt in equal proportions.

The following question is answered by the figures in Table 2: 'what is the pre-tax return required for an investment undertaken by a subsidiary located in country A and its parent located in country B to provide the parent's final shareholder with a real rate of interest of 5 per cent, when the cheapest source of finance is chosen?'. In answering this question, personal income taxes are set at zero in the underlying computation. The table differs from that presented in OECD (1991) in that the three different costs of capital (for debt, new equity and retained earnings) are not compounded into a single average figure by using fixed weights but by picking the lowest. While the presentation of weighted average is adequate if it is believed that financial structures are determined by exogenous factors, the comparison of the cheapest source may be interesting if it is believed that there is a role for financial flexibility in minimising the tax burden. For the case of Germany, inspection of Table 2 shows that, if marginal investment could be financed exclusively by intra- company debt, the country would, on average, provide the lowest cost of capital of all OECD countries. Not even an investment in Ireland could compete. (Note that it is never optimal to rely on debt when financing an Irish subsidiary.)

While this exercise may be quite illustrative, the case of full flexibility is, of course, overdone. Another exercise that can be undertaken is to alter the weights used in the OECD study. As an illustrative example, the OECD study assumes that the foreign subsidiary — like the parent — is always financed by intra-company loans, retained earnings and new equity in equal proportions. With these weights, the average cost of capital for direct investment in Germany undertaken by parents located in all other OECD countries amounts to 6.4 per cent. Empirically, the shares of financial sources of foreign subsidiaries in Germany are very different. During the years 1990 and 1991, retained earnings accounted for 14.3 per cent, new equity for 23.8 per cent and internal debt for 61.9 per cent of the total inflow of direct investment to Germany.[37] Attaching

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[35] King and Fullerton, 1984.

[36] The definition of the tax base used by the source country is assumed to be accepted by the home country. This is reasonable for all countries except the US. See Leechor and Mintz (1993) for a discussion of the US system.

[37] Note that only intra-corporate loans are counted as a part of direct investment; investment that is financed by loans from third parties is not. It has been pointed out by Sinn (1991 and 1993) that the King–Fullerton approach, by assuming that dividends are always the marginal use of profits, underestimates the cost of capital for new share issue. Note, however, that in the case of Germany, this error is negligible since the tax on distributed profits is lower than the tax on retained earnings in most cases. Therefore retentions are unlikely to dominate repatriations as a use for profits. One caveat to the cost of capital figures is that with extreme debt–equity ratios, firms may not be able to take advantage of full depreciation allowances.

these weights, rather than equal proportions, makes the cost of capital for investment in Germany shrink from 6.4 per cent to 5.2 per cent.[38]

*Political Reaction*

While financial flexibility is obviously cushioning the adverse effects of high German tax rates on the cost of capital, this is at the cost of German tax revenue. Therefore, to prevent tax evasion by thin capitalisation, a new § 8a was implemented in the German corporate tax act (Körperschaftsteuergesetz — KStG). In future, interest payments by corporations located in Germany that are paid to a shareholder of the corporation who cannot take advantage of the German imputation credit may be deemed to be dividend payments for corporation tax purposes. This can happen in two circumstances:

- The interest rate is not a fixed proportion of debt and the loan given by the shareholder exceeds half of his/her share of equity in the corporation.
- If a fixed interest rate is agreed on, interest payments to a shareholder are deemed to be dividends if the loan provided by the shareholder exceeds his/her equity share by a factor of three.[39] This does not apply when the corporation proves that an unrelated party would have agreed to the loan under the same conditions.

There have been previous measures against thin capitalisation. According to the behaviour of fiscal authorities, interest payments were redeemed if the ratio of loan to equity exceeded 10:1.[40] The explicit definition of a limit to debt finance became necessary after a tax court complained that tax assessments should have a clear legal basis, which was not the case with the former behaviour.

During the long debate on the tax reform, an even stricter regulation than that described above was planned. With the former plan, interest payments could have been redeemed as soon as a shareholder's loan to the corporation exceeded his/her share of equity. Nevertheless, even under the less strict regulation, many foreign subsidiaries operating in Germany may be adversely affected. Indeed, it is true that in the past, many other countries have embarked on similar thin capitalisation regulations. Table 3 gives a short survey of comparable legislation

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[38] See Deutsche Bundesbank, Monatsbericht, April 1993. Loans to a multinational given by an unrelated party are not counted as direct investment according to German statistics and are not included in this alternative calculation of a weighted average as they are not included in the OECD study.

[39] More favourable restrictions apply when the corporation is a bank or a holding company. If the shareholder has already given a loan LV with a variable rate of interest, the maximum loan LF with a fixed interest rate he/she already given a loan LV with a variable rate of interest, the maximum loan LF with a fixed interest rate

he/she is allowed to give is computed as $LF = 6\left(\frac{X_s}{} - LV\right)$, where $X_s$ is the shareholder's part of equity.

[40] See BMF-Schreiben (Ministry of Finance), 6 March 1987, p. 373.

abroad. There are quite a few countries that employ debt–equity ratios or use a substance-over- form clause according to which interest payments can be redeemed as dividends. However, with the high German corporation tax, foreign multinationals rely heavily on intra-company loans for financing German affiliates. Therefore the new German restriction might be more binding than comparable codes. On the other hand, the incentive for debt finance was reduced by the tax cuts of the 1994 reform (see discussion below). Nevertheless, some foreign corporations will still be adversely affected by the thin capitalisation rule. The German Ministry of Finance calculated[41] that some DM 600 million additional tax revenue will result from the new thin capitalisation rule. This would be roughly equivalent to a tax increase on foreign direct investment of some 1.6 per cent.[42]

## IV. THE 1994 TAX CUT

Several kinds of firm behaviour have been discussed above. Clearly, activities such as transfer pricing, shifting of financial capital to tax havens and thin capitalisation have been induced by the high German statutory tax differentials compared with those of other countries. Therefore the most natural way to react to other countries' reduced tax rates was to reduce tax rates as well. Indeed, the official reasons given in the government's comments on the 1994 tax cut pointed to significant tax cuts in competing countries.

While there was a broad consensus that corporate taxes *should* be lowered, the budgetary problems induced by German unification made the way tax revenues *could* be lowered very unclear. The German government therefore wanted the tax reform to be neutral for total tax revenues. The intention was to achieve this by simultaneously lowering tax rates and reducing depreciation allowances. After the Deutsche Bundestag had already agreed on the law, the upper house, representing the German states (*Länder*), objected.

Table 4 summarises the government's initial draft and the compromise between the upper house and the Bundestag on 30 June 1993. As can be seen, the cut in depreciation allowances did not materialise. This was due to strong objections from industry, which feared that it would suffer a comparative disadvantage compared with services. Arguments from economic advisers were

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[41] Presse und Informationsamt der Bundesregierung, Aktuelle Beiträge zur Wirtschafts- und Finanzpolitik, 2 September 1993.

[42] Supposing that total foreign direct investment amounts to DM 185 billion (see Deutsche Bundesbank, Monatsbericht, April 1993, p. 37) and the gross return on investment is 20 per cent. The relatively high return on investment before taxes keeps us on the safe side. Note that the stock of capital might be underestimated in the official statistics. Moreover, some part of the tax revenue of DM 600 million would have been due to purely domestic firms since they are also affected when domestic shareholders cannot take advantage of the imputation system.

TABLE 2

The Cost of Capital for Foreign Direct Investment under Full Financial Flexibility[a,b]

| Home country | Source country | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Australia | Austria | Belgium | Canada | Denmark | Finland | France | Germany | Greece | Iceland | Ireland | Italy | Japan | Luxemburg | Netherlands | New Zealand | Norway | Portugal | Spain | Sweden | Switzerland | Turkey | UK | US |
| Australia | nf 7.1 | f 6.1 | f 6.0 | f 7.3 | f 6.5 | f 6.6 | tf 7.3 | f 4.2 | n 5.9 | t 8.0 | n 4.2 | f 5.6 | f 6.0 | f 6.9 | f 6.5 | f 7.9 | n 4.7 | f 6.7 | f 7.6 | f 6.1 | tf 6.6 | f 6.2 | n 6.0 | f 6.5 |
| Austria | nf 7.1 | f 5.5 | nf 5.4 | f 7.3 | f 6.3 | f 6.4 | tf 7.3 | f 4.7 | f 5.5 | t 8.0 | n 4.2 | f 5.6 | f 5.7 | f 6.5 | n 6.0 | f 8.9 | n 4.7 | f 6.2 | f 6.8 | n 4.7 | n 5.6 | f 6.2 | n 6.0 | f 6.0 |
| Belgium | f 6.7 | f 4.6 | nf 5.4 | f 7.5 | f 5.0 | f 5.0 | f 5.5 | f 2.7 | n 3.7 | t 7.3 | n 4.5 | f 5.7 | f 5.5 | f 5.0 | f 4.8 | f 7.5 | f 4.1 | f 6.4 | f 7.2 | f 5.1 | f 5.1 | f 5.8 | n 5.3 | f 6.2 |
| Canada | n 6.1 | n 6.8 | n 6.7 | nf 6.2 | n 7.1 | n 7.5 | n 7.1 | n 5.0 | t 7.3 | t 8.0 | n 3.5 | n 5.4 | f 7.2 | n 6.1 | n 5.9 | n 8.6 | n 3.6 | t 7.5 | n 7.4 | n 5.8 | n 6.2 | nf 8.0 | n 4.6 | n 6.3 |
| Denmark | n 6.5 | f 5.8 | f 5.9 | f 7.2 | nf 5.9 | nf 5.9 | nf 6.6 | f 4.1 | n 5.6 | t 8.0 | n 4.0 | f 5.4 | f 5.6 | n 5.9 | n 5.1 | t 7.6 | n 3.1 | t 2.6 | f 2.8 | n 4.7 | n 4.8 | f 6.1 | n 4.6 | f 5.8 |
| Finland | n 6.5 | f 5.7 | f 5.7 | f 7.6 | nf 5.6 | nf 5.6 | f 6.9 | f 2.5 | f 5.2 | n 5.3 | n 3.7 | f 4.3 | f 4.8 | f 6.2 | n 4.9 | f 8.1 | n 3.3 | f 5.8 | f 0.8 | f 4.3 | n 5.3 | f 5.2 | f 4.1 | f 5.8 |
| France | f 6.1 | f 5.2 | f 4.9 | f 6.3 | f 5.1 | f 5.1 | nf 5.4 | f 2.3 | f 4.6 | t 8.0 | n 4.0 | f 4.3 | f 4.3 | f 5.4 | f 5.3 | f 7.0 | n 3.1 | f 5.0 | f 6.2 | n 4.5 | f 5.6 | f 4.9 | f 5.9 | f 5.1 |
| Germany | n 5.6 | t 7.3 | f 7.1 | t 8.1 | n 6.5 | n 6.9 | n 6.8 | nf 5.6 | n 1.3 | n 5.4 | n 3.1 | t 9.1 | n 7.7 | n 4.9 | n 6.1 | f 9.1 | n 0.9 | t 7.5 | n 6.7 | n 4.4 | n 5.7 | n 6.1 | n 4.6 | n 6.5 |
| Greece | nf 6.8 | f 7.2 | f 6.0 | t 8.1 | t 7.5 | f 6.4 | t 7.3 | f 3.2 | nf 5.0 | t 8.0 | t 5.5 | f 5.2 | f 5.6 | nf 6.0 | nf 6.2 | f 9.1 | f 4.4 | t 7.3 | t 7.8 | f 6.1 | t 6.6 | f 5.2 | nf 7.1 | t 7.6 |
| Iceland | nf 8.1 | tf 7.3 | tf 7.1 | t 8.1 | t 7.5 | nf 6.9 | t 7.3 | f 4.3 | n 6.3 | nf 6.7 | t 5.5 | t 7.2 | f 7.0 | f 7.5 | t 7.1 | f 9.1 | f 4.4 | t 7.4 | t 7.8 | f 6.1 | t 6.6 | f 6.8 | t 7.7 | nf 6.9 |
| Ireland | nf 7.7 | nf 6.1 | f 6.3 | f 7.7 | nf 6.5 | nf 6.5 | t 7.3 | f 4.4 | t 7.3 | nf 5.1 | t 5.5 | nf 5.6 | f 6.0 | nf 6.8 | nf 6.7 | f 8.4 | nf 5.8 | t 7.5 | t 7.8 | f 6.1 | t 6.6 | t 9.8 | nf 7.5 | nf 6.5 |
| Italy | f 7.9 | t 7.3 | t 7.1 | t 8.1 | t 7.5 | tf 8.0 | t 7.3 | f 3.2 | t 7.3 | t 8.0 | t 5.5 | f 5.9 | f 6.2 | t 8.1 | t 7.1 | f 9.1 | nf 5.7 | t 7.5 | t 7.8 | f 6.1 | t 6.6 | nf 7.4 | t 7.7 | t 7.6 |
| Japan | t 9.0 | t 7.3 | t 7.1 | t 8.1 | t 7.5 | nf 7.8 | t 7.3 | f 5.3 | nf 7.2 | t 8.0 | nf 6.4 | nf 7.0 | f 6.2 | t 8.1 | t 7.1 | f 9.1 | nf 7.2 | t 7.5 | t 7.8 | f 6.1 | t 6.6 | nf 7.4 | t 7.7 | t 7.6 |
| Luxemburg | nf 7.1 | f 5.7 | f 5.8 | f 7.1 | f 6.1 | f 6.3 | f 6.9 | f 4.2 | n 5.9 | t 8.0 | n 4.1 | f 5.6 | f 6.3 | nf 6.3 | n 5.8 | f 8.9 | n 4.7 | f 6.8 | f 6.9 | n 5.2 | f 6.6 | f 6.2 | n 4.9 | f 6.1 |
| Netherlands | f 6.7 | f 5.3 | f 5.3 | f 6.7 | f 5.6 | f 5.7 | f 6.5 | f 3.8 | nf 4.8 | t 8.0 | n 4.3 | f 4.7 | f 5.3 | f 6.0 | nf 5.6 | f 7.5 | n 4.8 | t 7.5 | f 6.5 | n 4.8 | f 5.2 | f 5.8 | n 5.1 | f 5.7 |
| New Zealand | f 6.6 | f 5.9 | f 5.4 | f 6.7 | f 5.9 | f 6.0 | f 6.7 | f 3.6 | n 6.2 | t 8.0 | t 5.5 | f 5.0 | f 5.3 | f 6.3 | nf 5.6 | nf 6.8 | f 4.7 | n 6.4 | f 6.9 | tf 6.1 | f 6.1 | f 5.6 | f 6.2 | f 5.9 |
| Norway | t 9.0 | t 7.3 | nt 7.1 | t 8.1 | t 8.0 | t 8.0 | t 7.3 | f 4.4 | t 7.3 | n 6.9 | n 3.4 | nf 6.9 | f 6.8 | f 8.1 | f 5.9 | nf 6.8 | nf 6.8 | t 6.6 | t 7.8 | n 3.9 | t 6.6 | nf 7.1 | n 4.4 | nt 7.6 |
| Portugal | t 9.0 | f 6.2 | f 6.0 | t 7.0 | f 6.3 | f 6.5 | t 7.3 | f 4.3 | t 7.3 | t 8.0 | t 5.5 | f 5.6 | t 9.0 | t 8.1 | t 7.1 | f 9.1 | nf 5.5 | t 6.6 | t 6.9 | t 6.1 | t 6.6 | t 9.8 | nf 7.0 | t 7.6 |
| Spain | f 6.8 | f 5.6 | f 5.7 | f 7.0 | f 6.0 | f 6.1 | f 6.8 | f 3.9 | n 6.1 | t 8.0 | t 5.5 | f 5.3 | f 5.4 | f 6.0 | f 5.8 | f 8.5 | nf 5.0 | t 2.7 | nf 6.2 | n 5.9 | f 6.1 | f 5.9 | nf 6.5 | f 6.0 |
| Sweden | f 6.3 | f 5.0 | f 5.1 | f 6.4 | f 5.2 | f 5.3 | f 5.9 | f 3.3 | f 4.7 | n 6.4 | n 4.5 | f 4.5 | f 4.7 | f 5.7 | f 5.2 | f 7.0 | n 3.5 | f 5.7 | f 6.0 | n 5.0 | f 5.5 | f 5.3 | n 5.3 | f 5.2 |
| Switzerland | f 6.3 | f 4.9 | f 5.0 | f 6.4 | f 5.2 | f 5.4 | f 6.0 | f 3.4 | f 4.5 | n 7.1 | n 4.5 | f 4.7 | f 4.8 | f 6.0 | f 5.2 | f 7.0 | n 4.0 | f 5.3 | f 6.0 | f 5.4 | nf 5.4 | f 6.4 | n 5.3 | f 5.3 |
| Turkey | tf 9.0 | t 7.3 | f 7.1 | t 8.1 | t 7.5 | f 7.7 | t 7.3 | f 5.8 | nf 7.0 | t 8.0 | t 5.5 | f 7.7 | f 7.5 | nf 8.0 | t 7.1 | f 9.1 | nf 7.0 | f 5.3 | f 7.8 | f 6.1 | t 6.6 | t 7.2 | t 7.7 | t 7.6 |
| UK | f 6.2 | f 4.8 | f 4.8 | f 6.3 | f 5.1 | f 5.3 | f 6.2 | f 2.7 | f 4.6 | t 8.0 | t 5.5 | f 4.0 | f 4.4 | f 5.4 | f 5.4 | f 7.1 | nf 4.1 | f 5.2 | f 6.1 | n 5.3 | nf 5.7 | f 4.9 | nf 5.9 | f 5.2 |
| US | f 7.0 | f 5.6 | f 5.5 | f 7.0 | f 6.0 | f 5.1 | f 6.8 | f 3.9 | f 5.5 | n 6.7 | t 5.5 | f 5.1 | f 5.6 | f 6.4 | f 5.4 | f 7.9 | n 5.2 | f 6.7 | f 6.8 | n 5.8 | nf 6.4 | f 6.1 | f 6.8 | nf 5.8 |
| Average | 7.1 | 6.1 | 6.0 | 7.3 | 6.3 | 6.4 | 6.8 | 4.0 | 5.7 | 7.4 | 4.7 | 5.7 | 6.0 | 6.5 | 6.0 | 8.2 | 4.7 | 6.3 | 6.6 | 5.4 | 6.0 | 6.4 | 6.0 | 6.4 |
| Standard deviation | 1.7 | 1.5 | 1.4 | 1.6 | 1.5 | 1.6 | 1.5 | 1.2 | 1.8 | 1.7 | 1.2 | 1.6 | 1.6 | 1.6 | 1.4 | 1.8 | 1.7 | 1.9 | 2.1 | 1.3 | 1.3 | 1.8 | 1.7 | 1.5 |

[a] Underlying assumptions: real rate of interest 5 per cent; rate of inflation 4.5 per cent in all countries; tax base definition of source countries is accepted by the home country.
[b] f: debt finance provided by parent; n: new equity; t: retained earnings. f, n and t indicate the cheapest source of finance with respect to a specific constellation of source and home country.
Sources: OECD (1991) and author's calculations.

TABLE 4

**Tax Rates and Depreciation Allowances**

|  | Status quo *in 1992*[a] | *Government draft* | *Final compromise* |
|---|---|---|---|
| Corporate tax rate on retained earnings | 50%[b] | 44% | 45% |
| Corporate tax rate for distributed profits | 36% | 30% | 30% |
| Depreciation allowances for machinery | 30% per year (geometric) | 25% per year (geometric) | 30% per year (geometric) |
| Top income tax rate on business income through non-incorporated domestic firms | 53% | 44% | 47% |

[a]Federal taxes only; local taxes remian unchanged
[b]When average local taxes are added, a total tax rate of 56.5 per cent applies.

also heard. Many economists argued in favour of the prevailing depreciation rules, for business-cycle reasons.[43]

How difficult it was for the German Treasury to afford the 1994 tax cut became apparent only one year later. In 1995, a special tax that is supposed to cover government expenses for the former East Germany was reintroduced.[44] The tax rate is 7.5 per cent. The tax base is the total tax burden from personal income taxes and corporate taxes. Hence, with a 45 per cent tax rate on retained profits, the effective rate of the surcharge is $0.45 \times 0.075 = 3.375$ per cent and compensates for more than half of the corporate tax cut of 5 percentage points one year earlier. Though the tax is officially intended to be an intermediate charge designed to finance German unification, there is serious doubt as to whether economic development in the former East Germany will allow it to be repealed in the near future.

## V. SUMMARY

In recent years, various countries have introduced incentives aimed at attracting the more mobile parts of multinationals' corporate tax bases. In addition, most major industrial countries have embarked on significant corporate tax cuts. It has been shown that these international trends, together with Germany's traditionally

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[43] See Sinn (1992), Leibfritz (1993) or Funke and Willenbockel (1993). See also the minutes of a hearing of tax experts in the lower house of parliament on 3 March 1993 (Deutscher Bundestag, 12 Wahlperiode, 7, Ausschuß, Protokoll 47).

[44] The *Solidaritätszuschlag* had already been collected from July 1991 through December 1992.

high tax rates, put severe strain on Germany's ability to raise taxes from multinationals.

Two kinds of reactions have occurred in Germany. First, tax authorities tried to close several tax loopholes. While this loophole mending might have been effective for increasing revenues, this paper has argued that some of these measures have adverse effects on multinationals' real investment. As a second reaction, Germany followed the international trend in reducing statutory tax rates on corporations despite the fact that German unification increased rather than reduced fiscal needs.

The summary of anecdotal evidence strongly suggests that significant tax competition is occurring with regard to the more mobile part of the corporate tax base which can easily be shifted across borders by financial transactions. It seems that, if there is a case for international harmonisation of corporate taxes, then it is with respect to special tax incentives directed towards this mobile part of the tax base.

## APPENDIX: AN ANALYTICAL DERIVATION OF THE COST OF CAPITAL FOR A FOREIGN SUBSIDIARY

A simple model is employed to show the effect of § 10 AStG (1992) on the cost of capital. Suppose a German multinational is considering a direct investment in Ireland. When investing there, a concave production function, $f(K)$, is available, with $K$ being the stock of real capital employed abroad. Since dividends are exempted from German taxation and withholding taxes do not apply, optimal behaviour implies that the multinational maximises the discounted value of dividends, $D$, it receives from abroad minus capital injections, $Q$, into the subsidiary.

With the high tax rate in Germany, debt is a very expensive way of financing an Irish affiliate. Using debt would mean that the multinational partly forgoes the exemption privilege and exchanges the low Irish tax rate for the higher German one. We can therefore concentrate on equity. Total equity abroad, $X$, can be used for fixed investment, $K$, and financial (passive) investment, $X–K$. Given that the parent considers domestic capital investment as the alternative to the foreign investment, the discount rate is given by the domestic interest rate net of tax, $i(1-\tau)$. With $I$ denoting the new real investment, $i$ denoting the world rate of interest, and $\tau$ and $\tau^*$ being the tax rates at home and abroad, respectively, the formal problem for the German parent is given by[45]

(1) $$\max \int_0^\infty [D(t) - Q(t)] \exp\{i(1-\tau)\} \mathrm{d}t$$

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[45] Time indices are dropped where this is possible without creating confusion.

such that

(1a)   $\dot{X} = [f(K) + i(X - K)][1 - \tau^*] - D + Q;$

(1b)   $\dot{K} = I;$   and

(1c)   $\sigma f(K) + (\sigma - 1)i(X - K) \geq 0$

While equations 1a and 1b are the simple flow constraints, equation 1c reflects the new restriction from German Subpart-F type legislation. With parameter σ equal to 0.5 (which was implied by § 10 (6) (1992)), the affiliate is allowed to receive half its profits as passive investment income. The Lagrangian corresponding to this problem is

(2)    $L = D - Q + q\{[f(K) + i(X - K)][1 - \tau^*] - D + Q\}$

$\qquad + \gamma I + \mu_f[\sigma f(K) + (\sigma - 1)i(X - K)],$

where γ and $q$ are the co-state variables attached to real capital, *K*, and equity, *X*, respectively, and $\mu_f$ is a Kuhn-Tucker multiplier. From the first-order conditions, we get

(3)    $q = 1;$

(4)    $q(1 - \tau^*)(f' - i) + \mu_f[\sigma f' - (\sigma - 1)i] = 0$   and

(5)    $(1 - \tau^*)qi + \mu_f(\sigma - 1)i = i(1 - \tau)q.$

From equations 3 and 5, we have

(6)    $\mu_f = \dfrac{\tau - \tau^*}{1 - \sigma}$

Putting equation 6 into equation 4, we get the following cost of capital for the foreign investment:

(7)    $f'[1 - \tau^* + \dfrac{(1 - \tau^*)\sigma}{1 - \sigma}] = (1 - \tau)i$

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If σ = 0 (i.e. no passive income is allowed), then the net return available abroad $f'(1-\tau^*)$ has to equal the net return available at home, $i(1-\tau)$, in order that foreign investment breaks even. If, in accordance with the 1992 regulation, σ = 0.5 holds, equation 7 simplifies to

$$(8) \qquad f' = \frac{1-\tau}{(1-\tau^*)+(\tau-\tau^*)}i$$

The element that is introduced into the cost of capital formula by the Subpart-F type rule is the term τ - τ*. This can be interpreted quite easily. By installing another unit of real capital in Ireland, gross profits increase by the marginal product of capital, $f'$, which equals the cost of capital. This additional

active profit increases the feasible passive income by the same amount. Hence, $(\tau-\tau^*)f'$ is the advantage that an additional unit of real capital brings about by allowing for additional passive investment income abroad which is taxed at rate τ* rather than τ. The new German Subpart-F rule therefore acts like an implicit subsidy on real investment in Ireland.

To complete the proof that equations 7 and 8 give the proper formula for an Irish subsidiary, we have to show that the multinational lacks incentives to violate the restriction given in equation 1c. Note that this restriction can be broken at the expense of immediate domestic taxation of passive income abroad. Consider three cases:

(a)    The Irish affiliate receives more than 50 per cent of its income from passive investment. Therefore domestic taxation is due on total passive income and there is no more advantage in holding securities abroad. Active investment will be allocated in a way that equates marginal returns net of taxes:

$$f'(1-\tau^*) = i(1-\tau)$$

(b)    The subsidiary allocates real investment according to policy (a). It holds some passive investment but obeys the restriction given in equation 1c.

(c)    The subsidiary acts according to policy (a) and invests passively until equation 1c becomes binding.

It is easy to see that policy (b) is strictly preferable to policy (a). Profits from real investment are equal, but under (b) there is an additional advantage of enjoying preferential taxation on passive investment. At the same time, policy (c) is better than policy (b) since (c) has been proved to be the best strategy that does not violate equation 1c.

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