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# TAX POLICY AND FOREIGN DIRECT INVESTMENT

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## ABSTRACT

This paper examines the implications of the most common system of taxing foreign source income. It is argued that, because the repatriation of earnings to the home country investor and not the earnings themselves are typically the source of tax liability, the foreign source income tax should affect foreign investment differently depending on the required transfers of funds within the firm.

One implication of viewing the tax in this fashion is that in order to maximize after tax profits, a firm should finance its foreign investment out of foreign earnings to the greatest extent possible. That is, a firm's required foreign return jumps at the point at which desired foreign investment just exhausts foreign earnings. This allows us to draw a distinction between "mature" foreign operations, which are at any point in time financed at the margin by reinvested earnings (and perhaps also pay dividends to their parent firm in the home country), and "immature" foreign affiliates, which rely on funding from their parents (and should not be paying dividends). It is noted that survey evidence on multinational firm behavior is consistent with this distinction. Direct investment data indicate that mature foreign operations probably account for nearly ninety percent of U.S. foreign direct investment.

The discussion then turns to investment incentives. It is shown that the home country's rate of tax on foreign source income and the presence or absence of a foreign tax credit should be irrelevant to a mature foreign operation's investment and dividend decisions. This conclusion, which conflicts sharply with the conventional wisdom, follows because the home country tax acts as an unavoidable cost. New firms' investment decisions are, on the other hand, influenced by home country taxes.

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# TAX POLICY AND FOREIGN DIRECT INVESTMENT

The importance of foreign direct investment to the economies of most countries has increased dramatically in recent years.[1] For instance, more than a quarter of new investment by U.S. firms is made in foreign operations. Predictably, the tax treatment of income earned by multinational firms has been the subject of frequent debates in both the firms' home countries and the countries which host the investments. Broad issues of both equity and efficient international investment patterns are raised by the interactions of separate national tax systems.

This paper focuses on issues of home country tax policy. In particular, it is argued that the incentive effects of the most common system of taxation are very different from those usually ascribed to such a policy. The analysis of investment incentives is contained in later sections of the paper. First, the international tax policy issues and the conclusions of previous studies are briefly examined. While most of the existing literature is concerned with U.S. policy, the results have broader applicability.

One basic concern of all countries has been the double taxation of corporate income which would arise if both the home country and the host country ignored the multinational nature of a firm and its earnings. Generally, such double taxation has been avoided by action of the home countries, which have recognized the primary right of host countries to tax income earned in their jurisdictions and have forgone a portion of the taxes they would normally have collected on foreign source income. Some countries have, in fact, adopted a "territorial" approach to taxation, under which no tax is owed on income earned abroad. Under the more common "residence" approach, double taxation may still be alleviated by allowing a credit for taxes paid to the host country government. The former system produces an effective tax rate

equal to the host country rate, while the latter results in an effective tax rate equal to the greater of the two countries' rates. Thus, the two systems result in equal tax burdens only if the tax rate in the host country equals or exceeds that in the home country.

Some relief from double taxation is, it is believed, necessary to preserve incentives for capital to be efficiently allocated on a worldwide basis. That is, capital should be employed in the country in which it will earn the highest gross return.

The United States employs the residence approach with a credit given for foreign taxes paid, but proposals to allow only a deduction for foreign taxes have gained considerable support. Given the corporate tax rates in effect in most of the world, very high effective rates of tax would result from ending the U.S. foreign tax credit. A rejection of the present system by the world's largest direct investing nation could apparently have important welfare effects worldwide, but the proposal is justified by opponents of the tax credit by the gains it would bring the U.S. The current system, it is argued, encourages too much U.S. capital to be invested abroad. The reason is that firms will profitably invest abroad as long as the after-tax return abroad exceeds the after-tax return at home, while the U.S. as a whole gains only if the after-foreign-tax return abroad exceeds the gross return at home.[2] Therefore, it would seem that providing only a deduction for foreign taxes paid is necessary to make firms behave in a fashion consistent with the national interest.

One other aspect of residence-based systems which has come under attack in the U.S. is that the home country tax is deferred. That is, the tax on foreign source income is paid only upon repatriation of the income to the parent firm. Deferral reduces the effective tax rate on income earned abroad

and provides some further inducement to foreign direct investment. While deferral has been called a "loophole" by its critics, it is regarded by many as crucial to guaranteeing consistency with a basic premise of U.S. law: that a firm should be taxed only on income it actually receives.[3] In fact, ending deferral raises serious constitutional issues, particularly in the case of parent firms who, by virtue of having minority ownership in a subsidiary, may not be able to control the timing of dividend payments.[4] Exceptions to the general policy have been made for actions motivated by tax avoidance, but the basic principle, that the U.S. should tax not the income of firms incorporated abroad but the income recieved from them by U.S. parents, has remained intact.[5]

The interaction of the foreign tax credit and deferral of the home country tax makes examination of foreign investment incentives quite complicated when the home country's tax rate exceeds the rate of creditable host country tax.[6] Generally, those interested in the incentive effects of the U.S. system have treated deferral as a reduction in the effective tax rate. Specifically, deferral is viewed as reducing the total effective rate from the U.S. rate to a linear combination of both countries' rates, with the dividend payout ratio determining the fraction of subsidiary earnings subjected to the U.S. rate.[7] An increase in the U.S. tax on foreign source income, due either to the elimination of the foreign tax credit or to the imposition of a special tax, would discourage foreign direct investment. This, of course, is the result anticipated by those who propose repeal of the foreign tax credit.

In this paper a much more important role is ascribed to deferral. It is argued that, because the repatriation of profits and not the earning of profits becomes the source of tax liability under deferral, the corporate tax when applied to foreign source income should be thought of as a tax on

the transfer of funds. Therefore, this tax could have very different consequences from those of the tax on domestic income and its effects could be highly dependent on the funds transfers involved in the marginal foreign investment. In particular, it will be important to distinguish the tax implications for new foreign investments from those for what we will call "mature" foreign operations, namely those which do not require continuing injections of funds from the parent.

First, it is shown that the mature foreign operations, which at the margin are deciding to reinvest versus pay dividends to their parents, are theoretically distinct from the "immature" foreign operations, which at the margin are investing funds transferred from the parent.[8] That is, we domonstrate that all foreign direct investment in subsidiaries currently paying dividends to the parent firm should consist of retained earnings. Some casual empirical evidence is cited to support the validity of this separation. In Section II the data on financial behavior of U.S. multinational firms are examined to estimate the fraction of foreign investment accounted for by earnings retained abroad. The conclusion is that all but a small fraction of U.S. foreign direct investment appears to be financed by retained earnings of mature subsidiaries.

In the third section, we examine the effects on mature subsidiaries' investment and dividend decisions of a home country tax system of the U.S. type, and of changes in such a tax law. It is shown that the home country's rate of tax on foreign source income and the presence or absence of a foreign tax credit should be irrelevant to a mature subsidiary's investment decisions, as long as the home country taxes are deferred. This conclusion conflicts sharply with prevailing opinion. Similarly, the repatriation of profits from abroad should be unaffected by the tax treatment of foreign source income, despite the fact that taxes are deferred until repatriation occurs.

This result stands in contrast to the concerns of some that removing the foreign tax credit but maintaining deferral would result in reduced income repatriation.[9] Finally, the decisions of the immature subsidiary are examined and related to the existing foreign investment literature.

## I. Foreign Direct Investment and the Funds Transfers It Involves

Foreign direct investment can be accomplished in several ways. Transfers of funds abroad by a parent firm, either as loans to or equity investments in subsidiaries, are the most explicit forms of direct investment.[10] However, the retention of earnings abroad by foreign subsidiaries raises the stake of the parent firm in the operation of the subsidiary just as surely as do explicit transfers. Retained earnings investment has, of course, been well recognized, and, beginning in 1979, it has been treated in the U.S. balance of payments accounts as two separate transactions: an implicit payment of dividends to the parent firm and an investment of the funds abroad.

Preliminary to the discussion of tax effects on investment incentives, this section demonstrates the impact of the tax system on the choice among the several forms of making direct investments. Later, it will be shown that this choice, which in a world without taxes would be a matter of no significance, can have an important bearing on the tax rate which applies to the marginal investment. The choice among these forms of direct investment follows in a straightforward fashion from the following simple proposition: if unnecessary funds transfers result in extra tax liabilities or in earlier tax liabilities, then the transfers should not be made.

Previous analyses of tax effects on foreign investment incentives have either neglected reinvestment of subsidiary earnings or have assumed a fixed retention ratio (a fixed dividend payout ratio), so that marginal direct investment can be thought of as involving capital transferred directly from the parent.[11] The assumption of stable dividend payouts by subsidiaries, even while additional capital flows to the subsidiaries are taking place, has been justified in much the same way that the behavior of domestic firms has been explained: by the need to maintain a "reasonable" debt-equity ratio,

the desire to signal success, or simply habit. Here, the question is one of how a given amount of internal funds reach the subsidiary, so the debt-equity ratio is unaffected. Since the transactions under discussion are carried out within one firm, considerations such as signaling profitability would seem irrelevant. In general, then, there seems little reason to expect the dividend payout ratio to be fixed unless taxes give no incentive for firms to act otherwise.[12] Therefore, we will assume that firms have complete flexibility to respond to tax inducements.

In a no-tax world, there would be no cost to financial transfers across national boundaries within the firm. Therefore, the firm would be concerned only about the net transfer of funds between parent and subsidiary.

What is important for our purposes is the effect of a home country tax system, such as that of the U.S., including deferral and a foreign tax credit.[13] A simple formulation of a home country tax on capital income earned abroad (at rate t), with a credit for host country taxes paid (at rate $t^* < t$), has the rate $(t - t^*)$ applied to the gross-of-foreign-tax return or the rate $\frac{(t - t^*)}{(1 - t^*)}$ applied to the net-of-foreign-tax return. $t^*$ is paid as the capital income is earned, while $\frac{(t-t^*)}{(1-t^*)}$ is paid only on repatriated dividends. A dollar of after-foreign-tax earnings repatriated to the home country results, therefore, in a receipt of $\frac{(1-t)}{(1-t^*)}$ dollars by the parent firm. Because of the limitation of foreign tax credits to the home tax liability, only the foreign tax is relevant when $t^*$ exceeds t.

To illustrate the implications of various financial transactions which could occur within a firm consisting of a domestic parent and one foreign subsidiary, suppose that each has a dollar and intends to invest a dollar. It is clear that simultaneous repatriation of profits and direct investment through funds transfer is inferior to the alternative of making no funds transfers. With no transfers, parent and subsidiary investments leave them

with $1 + r_n$ and $1 + r^*(1-t^*)$ respectively at the end of the period (or $1 + r_n + \frac{(1-t)}{(1-t^*)}[1 + r^*(1-t^*)]$ in the hands of the parent if earnings are repatriated). The alternative of dividend repatriation coupled with equity investment simply results in an unnecessary tax payment to the home contry government at the time of the initial repatriation. This payment leaves the parent with only $\frac{(1-t)}{(1-t^*)}$ dollars to invest, rather than one dollar. At the end of a period, parent and subsidiary have $\frac{(1-t)}{(1-t^*)}[1 + r_n]$ and $1 + r^*(1-t^*)$ respectively (or the parent has $\frac{(1-t)}{(1-t^*)}[2 + r_n + r^*(1-t^*)]$ if all income is repatriated). So, regardless of whether the firm intends to reinvest abroad at the end of the period or repatriate all assets from abroad, making equity transfers abroad while earnings are being repatriated is a sub-optimal strategy.

This example, which is summarized in Table 1, allows two sources of loss arising from the sub-optimal transfer policy to be distinguished. The first occurs because of an implicit assumption that the eventual repatriation of the extra paid-in equity constitutes a taxable event. That is, the home country tax is paid twice on the initial dollar of subsidiary earnings. However, there is a further loss to the firm making dividend and equity transfers which would occur even if the eventual repatriation of the extra paid-in capital were viewed as a tax-free return of capital.[14] This loss can be identified as the cost of having to pay the extra home country tax immediately, rather than at the end of a period of investment and would equal $\frac{(t-t^*)}{(1-t^*)} r_n$. Therefore, we have shown that a subsidiary should not be repatriating profits and receiving equity transfers from the parent simultaneously, even if the equity can be returned to the parent tax free.

A financial policy of simultaneous dividend payment by the subsidiary and direct investment in the form of loans has a similar effect. The dollar of repatriated earnings produces $\frac{(1-t)}{(1-t^*)}$ of parent firm assets, which grow to

Table 1

A COMPARISON OF INTERNAL FINANCIAL TRANSFER POLICIES

No Transfers Made

| | Initial | (Initial) | End of period | Post-Repatriation |
|---|---|---|---|---|
| Parent Assets | 1 | 1 | $1+r_n$ | $1+r_n + \frac{(1-t)}{(1-t^*)}[1+r^*(1-t^*)]$ |
| Subsidiary Assets | 1 | 1 | $1+r^*(1-t^*)$ | -- |

Subsidiary pays dividend to parent, parent transfers equity to subsidiary

| | Initial | After transfers | End of period | Post-Repatriation |
|---|---|---|---|---|
| Parent Assets | 1 | $\frac{(1-t)}{(1-t^*)}$ | $\frac{(1-t)}{(1-t^*)}(1+r_n)$ | $\frac{(1-t)}{(1-t^*)}(1+r_n) + \frac{(1-t)}{(1-t^*)}[1+r^*(1-t^*)]$ |
| Subsidiary Assets | 1 | 1 | $1+r^*(1-t^*)$ | -- |

Subsidiary pays dividend to parent, parent transfers equity to subsidiary
(Repatriation of the equity transfer is tax free)

| | Initial | After transfers | End of period | Post-Repatriation |
|---|---|---|---|---|
| Parent Assets | 1 | $\frac{(1-t)}{(1-t^*)}$ | $\frac{(1-t)}{(1-t^*)}(1+r_n)$ | $\frac{(1-t)}{(1-t^*)}(1+r_n) + 1 + r^*(1-t)$ |
| Subsidiary Assets | 1 | 1 | $1+r^*(1-t^*)$ | -- |

Subsidiary pays dividend to parent; parent makes loan to subsidiary (at rate r*)

| | Initial | After transfers | End of period | Post-Repatriation |
|---|---|---|---|---|
| Parent Assets | 1 | $\frac{(1-t)}{(1-t^*)}$ | $\frac{(1-t)}{(1-t^*)}(1+r_n)+r^*(1-t)$ | $\frac{(1-t)}{(1-t^*)}(1+r_n)+1+r^*(1-t)$ |
| Subsidiary Assets | 1 | 1 | 1 | -- |

$\frac{(1-t)}{(1-t^*)}(1 + r_n)$ by the end of a period. Since interest payments are ordinarily deductible under host country tax systems, the subsidiary can pay its gross capital return to the parent as interest.[15] The principal of the loan is repaid without further tax liability. As in the case of an equity transfer which can be reversed tax free, the firm incurs an earlier tax liability by making these offsetting financial transactions; the cost, in end-of period dollars, is $\frac{(t-t^*)}{(1-t^*)} r_n$.

In summary, then, a foreign subsidiary should utilize its profits to finance further investments whenever possible, rather than paying dividends to the parent and receiving direct investment from the parent in any form. Only those foreign subsidiaries without sufficient earnings should rely on parental financing. This result, that a tax on transfers of funds from subsidiaries to parents should make firms avoid unnecessary transfers, is certainly not surprising. However, it calls into serious question the previous discussions of the foreign investment decision which presume that parent firms are making equity transfers to dividend-paying foreign subsidiaries.

These previous studies have relied on the aggregate foreign investment data which show substantial dividend payments and parent company transfers of funds taking place at the same time. Our analysis is in no way inconsistent with this observation, so long as the same firms are not involved in both transactions. In fact, there is a great deal of casual empirical evidence from U.S. firms consistent with the predictions of our analysis. Barlow and Wender (1955) reported, for example, that U.S. firms operating abroad tend to "expand the business within the country through reinvestment of local earnings to the greatest extent possible." From their survey of U.S. subsidiary firm behavior, Robbins and Stobaugh (1973) similarly conclude

"After the initial incubation period, retained earnings and depreciation allowances are the dominant source of funds, and these sources, when coupled with local brorowing, leave little need for fresh funds from headquarters." Unfortunately, there is a near absence of empirical evidence on this issue from sources other than interviews or surveys of firms.[16]

More recently, Gilman (1980) has presented empirical evidence on sources of funds employed by multinational firms, concluding that net parents' contributions are generally minor, "only becoming a significant source of foreign asset financing when asset growth is very rapid, past investments small or profits small or negative." Unfortunately, his data, while disaggregated by OECD country, are aggregated across firms; and so, his investment figures net any dividend payments from capital transferred abroad. However, the cases in which funds transfers are found to be significant are those in which we would expect our arguments above to not be applicable, so the results are at least not contradictory to the conclusions reached here.[17]

Without data at the firm level, which could allow isolation of firms which produce sufficient foreign earnings to finance their chosen levels of foreign direct investment, it is necessary to be somewhat cautious. However, both our theoretical analysis and the evidence available at this time indicate that direct investment studies should differentiate the behavior of two types of firms. We will, therefore, characterize foreign operations as "new" (or "immature"), in which case the marginal source of internal funds is a transfer from the parent, or as "mature", in which case the marginal source of funds is a reduction in dividend payments to the parent. As we will show in Section III, the responses of the two types of firm to a tax policy change could be very different. First, we will examine evidence on the proportion of U.S. foreign direct investment accounted for by each category of firm.

## II. The Evidence

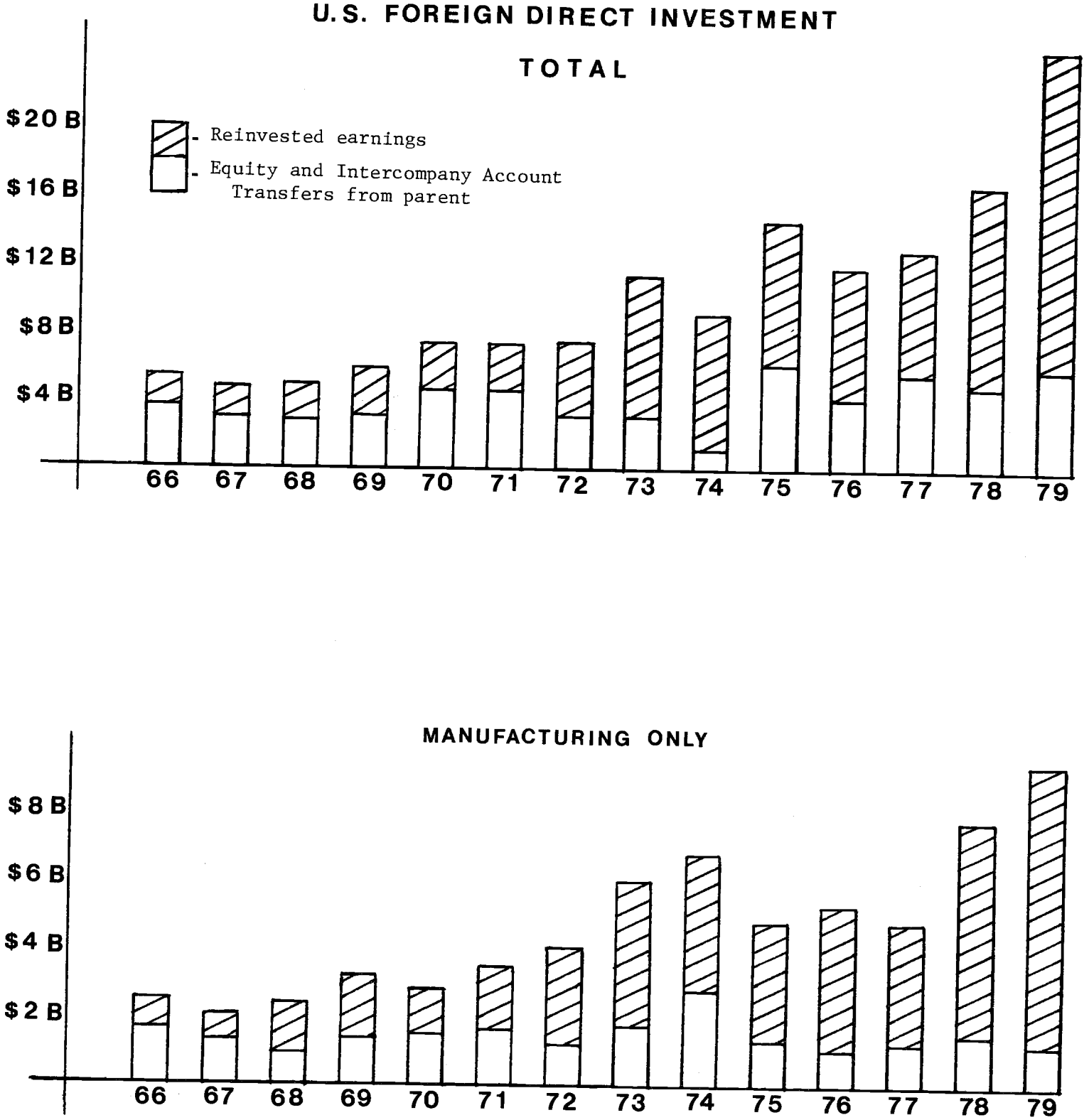
In order to discern whether "mature" or "immature" firms are more representative of U.S. foreign direct investment, individual firm data would be required. Since such information is unavailable, inferences about marginal sources of direct investment must be made from aggregate data.

Very reliable evidence exists on the average source of internal funds. Figure 1 shows the historical pattern of U.S. foreign direct investment and its division into transfers from parent firms and reinvested earnings. The data indicate that a dramatic change has occurred over the past fifteen years in the method by which direct investment is carried out. Reinvested earnings, which formerly played a minor role in direct investment now account for over three quarters of the total; the change is even more impressive for manufacturing investment alone.

The trend toward greater reliance on retained earnings in the aggregate is consistent with the "maturing" of U.S. foreign operations over the past decade which has often been noted by observers. It has produced a situation in which the level of firms' operations abroad could continue to grow quite rapidly without the need for further parent company financing.

That transfers to subsidiaries play a minor role becomes even clearer when it is recognized that the data on transfers are for both separately incorporated and unincorporated foreign affiliates, while the reinvested earnings figures are for only incorporated affiliates. When a firm's foreign affiliate is not separately incorporated, all investment is treated as an "equity and intercompany account" capital outflows in the Commerce Department statistics. Similarly, the earnings of such affiliates are immediately included in the company's consolidated income and are taxed as soon as earned. For purposes of this paper, then, we are mainly concerned with the ninety

# FIGURE 1




Source: U.S. Commerce Department, Survey of Current Business, August, 1980.

percent of U.S. foreign direct investment which occurs in incorporated affiliates. As Table 2 shows, nearly ninety percent of such investment is made out of the profits of the subsidiaries.

While this evidence seems striking, it does not offer conclusive proof that retained earnings provide the marginal source of funds for most investment. Evidence on the marginal source of funds is more indirect. As the theory of Section I has indicated, the payment of dividends should signal a reliance on internally-generated funds as the marginal source of finance. The dividends received from foreign subsidiaries have increased from less than three billion dollars in 1970 to more than nine billion dollars in 1979. In recent years, about forty percent of total foreign subsidiary earnings have been paid out as dividends.[18] In combination, the available evidence points to a very large percentage of U.S. foreign direct investment being undertaken by mature firms.

Table 2

Characteristics of U.S. Direct Investment - 1979

| | All | Manufacturing |
|---|---|---|
| Total Direct Investment | $24.381 B | $9.375 B |
| Reinvested Earnings of Incorporated Affiliates | 18.414 | 8.139 |
| Equity and Intercompany Account Outflows | 5.904 | 1.236 |
| Unincorporated Affiliates | 3.363 | -.131 |
| Incorporated Affiliates | 2.541 | 1.367 |
| Reinvested earnings as percent of total investment in incorporated affiliates | 87.9% | 85.6% |

Source: U.S. Commerce Department, Survey of Current Business, August 1980

## III. The impacts of Taxes on Mature Foreign Operations[19]

Since at least U.S. foreign direct investment seems to now be dominated by firms employing foreign earnings as their marginal source of finance of new foreign investment, we now turn to an analysis of their behavior. While in a no-tax world, the fact that such mature firms are the typical investors would be irrelevant for analysis, the optimal investment decisions in a system with taxes can be quite sensitive to the marginal source of investment funds. In particular, common home country tax systems, which we have argued can best be viewed as imposing a tax on the transfer of funds from the subsidiary to the parent, will obviously affect foreign investment decisions differently depending on whether the funds are already abroad.

Consideration of a simple marginal investment decision of a mature foreign subsidiary serves to illustrate this point. Suppose that a foreign subsidiary has a dollar of after-foreign-tax earnings which it can either reinvest or repatriate to its parent. If the dollar is reinvested, the dollar plus the one-period investment earnings will be repatriated at the end of the period.[20]

If the subsidiary firm repatriates immediately, the parent receives one dollar, must pay the home country tax net of foreign tax credit, and therefore, has at its disposal $\frac{(1-t)}{(1-t^*)}$ dollars.[21] After investing this amount for the period, the parent has $\frac{(1-t)}{(1-t^*)}(1+r_n)$.

By comparison, the subsidiary could reinvest a whole dollar in its own operations, ending the period with $[1 + r^*(1-t^*)]$ to be repatriated as a dividend to the parent. Upon receipt of the dividend, the parent must pay the home country tax on the original dollar of earnings and the return earned during the period, but it can claim a credit for the foreign taxes paid. So,

the parent receives $\frac{(1-t)}{(1-t^*)}[1 + r^*(1-t^*)]$.

Comparing these two decisions, it can be seen that the subsidiary will optimally reinvest rather than repatriating profits if $r^*(1-t^*)$ exceeds $r_n$. That is, the home country system of deferring taxes and providing a credit for host country tax payments induces multinational firms to invest abroad up to the point at which the after-foreign-tax return available abroad equals the available domestic after-tax return. Surprisingly, the domestic tax applied to foreign source income plays no role in the firm's marginal investment decision; the firm behaves in the same manner as it would with no home country tax on foreign source income. So, home country tax systems of the U.S. type provide what is termed "capital import neutrality": the tax rates influencing decisions of both host country firms and foreign investors in the host country are equivalent.

This conclusion stands in direct conflict with the previous research which notes that taxing at the domestic rate with a foreign tax credit provides for "capital export neutrality" (the same tax rate applied to the foreign and domestic investment returns of multinational firms) and concludes that deferral serves to shift the system partially away from such a standard. Horst (1977), who assumes that new funds advanced from the parent are the marginal source of direct investment, concludes, for example, that the firm should optimally equate $r_n$ to $[1 - pt - (1-p)t^*]r^*$, where "p" is the dividend payout ratio.[22]

Our result that the home country tax should not affect the mature subsidiary's investment decision extends to a system which replaces the foreign tax credit by a deduction. Under such a system, a dollar of after-foreign-tax earnings repatriated to the parent gives the parent (1-t), which produces $(1-t)(1+r_n)$ after one period. A reinvested dollar, on the other hand, produces

$[1 + r^*(1-t^*)]$ for the subsidiary and, upon repatriation, the parent receives $(1-t)[1 + r^*(1-t^*)]$. Again, the firm is induced to invest abroad up to the point where $r^*(1-t^*) = r_n$.

As noted above, if the home country imposed no tax on foreign source income, the same condition for optimal investment would hold. Consequently, the same optimal foreign investment rule applies under the typical home country system of foreign tax credits when $t^*$ exceeds $t$, generating foreign tax payments in excess of the amount creditable but leaving no home tax liability. That is, despite the discontinuity in the foreign tax credit around the home country tax rate, one marginal condition is sufficient to describe the optimal behavior of a foreign investor. Similarly, the investor's optimal decisions are determined in the same manner if it is able to avoid a tax imposed by the home country.[23]

These results, which are so contrary to the conventional wisdom, are, in addition to being very simple, highly intuitive. Since the potential foreign direct investment is to be financed out of foreign subsidiary earnings, which will currently or in the future bear the same home country tax liability, the only question for the firm is in which locations those earnings could be invested to produce the highest net return. The firm's choice is between a return of $r^*(1-t^*)$, reduced by the home country tax, on a dollar invested abroad, versus a return of $r_n$ on an after-home-country-tax dollar invested at home. The home country tax on foreign source income affects both available returns equally.

That a revenue-producing tax imposed on foreign source income would not affect investment decisions may still seem curious. The answer to this puzzle lies in the unavoidable nature of the tax for a firm with subsidiary earnings. A tax increase would immediately lower the value to the parent firm of the

future subsidiary earnings, but would do nothing to alter future decisions. Only for firms with immature foreign operations is the home country tax a deterrent to investment.

Implicit in these conclusions is the further result that optimal dividend payments--subsidiary earnings net of reinvestment--are not sensitive to the home country tax policy toward foreign source income. Kopits (1972), who concluded that a rise in the U.S. tax rate would reduce dividend payments, neglected the future U.S. tax liability due to repatriation. The consistent treatment of current and deferred tax liabilities is what produces the absence of an impact on dividends. One casualty of our results, therefore, is the argument that eliminating the foreign tax credit without ending deferral could backfire, resulting in greatly reduced dividends and, therefore, possibly decreased tax revenue.

These conclusions have been based on a simple example, but one which is quite general. Since no particular assumption has been made concerning the length of the time period, the results hold even if home country taxes are deferred for a very long time. The analysis would be invalid, however, if the home country tax could somehow be avoided eventually. An ability to avoid paying the home country tax later, but not if repatriation occurs currently, would tend to cause the firm to invest more abroad. In particular, the ability to repatriate tax-free at the end of a period would cause a firm to reinvest abroad as long as $r^*(1-t^*)$ exceeds $r_n\frac{(1-t)}{(1-t^*)} - \frac{(t-t^*)}{(1-t^*)}$. This situation could arise if the firm anticipated a tax-favored liquidation of foreign operations at some future time[24] or if a future elimination (or reduction) of the home country tax were expected. On the other hand, a firm expecting the home country tax treatment of foreign source income to take an unfavorable turn will tend to reinvest less abroad.

The existence of operations in many countries changes nothing of substance in our analysis but does point to a role for funds transfers between mature and immature subsidiaries. An immature subsidiary of a parent firm with mature subsidiaries should be financed to the greatest extent possible by funds transferred from the mature subsidiaries (rather than the parent). An immature subsidiary optimally follows the investment rule applicable to a mature subsidiary if its marginal source of funds is a mature subsidiary's earnings. That is, our concept of maturity is most appropriately defined by reference to the firm's aggregated operations abroad.

Thus, we reach the general conclusion that investment by mature foreign affiliates should be insensitive to home country rates of tax on foreign source income. It is to the investment decisions of foreign affiliates which rely on parent funds that we now turn.

## IV. The Impact of Taxes on Immature Foreign Operations

While the available evidence points to the predominance of mature subsidiaries, in at least U.S. foreign direct investment, the tax effects on newer foreign operations could be important also, particularly over time. Unlike the mature firms considered in Section III, immature subsidiaries should in general alter their investment decisions in response to tax changes, since the tax is not, for them, an unavoidable fixed cost as it is for a mature firm. As we shall see, the precise nature of the tax effects on the behavior of immature subsidiaries depends on the firms' plans for future investment abroad.

The situation in which investment is financed by capital transfers from the parent to the subsidiary is the one considered in previous foreign investment studies. As shown in Section I, a firm would not be expected to be paying dividends at the same time transfers are being received from the parent. So, the accepted method of analysis which assumes that the income generated by new foreign investment faces a weighted average of the home and host country's tax rates, with weights based on the subsidiary's dividend payout ratio, seems problematic.[25]

The basic notion of a weighted average tax rate is, of course, correct in the sense that in every future period the marginal dividend payout ratio will determine the marginal rate of combined tax. Furthermore, it is simple to show that, if a foreign subsidiary were expected to pay out $p$ of its earnings in every future period, the weighted average rule would exactly describe the effective tax rate over the life of the foreign operation. That is, the present value of all future dividend payments generated by a dollar of investment abroad (discounted at $r_n$), would equal one only with $r_n = [1-pt-(1-p)t^*]r^*$.

As our earlier analysis indicates, however, a foreign subsidiary currently relying on parent funds will begin to repatriate dividends to the parent only when, due to earnings reinvestment over time or to reduced investment opportunities, the return available at the margin declines. A precise calculation of the effective tax burden on earnings from a prospective investment would require knowledge of the marginal dividend payout ratios in each future period. The weighted average formula based on some average dividend payout ratio across firms will, consequently, provide a better or worse approximation to the tax facing a firm, depending on that ratio's adequacy in representing the firm's future plans.

In any case, the general thrust of the received theory is applicable to the immature firm. A subsidiary whose marginal source of finance is capital transferred from the parent faces a tax rate between the host country tax rate and the home rate of taxing foreign source income, with the exact value depending on the timing of the deferred tax payments.

## V. Implications

In summary, our analysis of a firm relying on its foreign earnings as the marginal source of funds for foreign direct investment has left virtually none of the theory of optimal foreign investment decisions unscathed. For what is apparently the overwhelming majority of U.S. firms investing abroad, for example, the size of the U.S. tax burden on foreign source income should be irrelevant for investment decisions. Even replacing the foreign tax credit with a deduction would not provide a disincentive for such firms to reinvest abroad. Similarly, the foreign subsidiary's decisions to repatriate earnings to the parent should be independent of the home country's tax treatment of foreign source income.

By contrast, a parent firm whose foreign subsidiaries can not finance their investments without funds transfers from the parent should respond to an increase in the home country's tax on foreign source income by investing less abroad. Crucial to the coexistence of both types of firm is, of course, some aspect of foreign investment opportunities which is firm specific. Otherwise, since the required return abroad is lower for mature firms, no new investment requiring transfers abroad would occur as long as some firms were reinvesting less than their total earnings.

With foreign investment opportunities being firm specific, home country taxes on foreign source income are distortionary to the extent that opportunities arise for new firms to invest abroad. An increase in the tax would tend to cause reduced foreign investment in the period before a foreign subsidiary matures and might cause a firm to completely forego the opportunity to invest abroad. However, in terms of aggregate investment, the impacts of any tax change are likely to be minor and largely temporary in nature. Thus, the distinction drawn between the territorial and residence approaches to

taxation is much less important in practice than is commonly believed.

Another striking conclusion of our analysis concerns the effects of changes in the general system of capital income taxation in the home country. Even though the same tax rate might apply to domestic and foreign source income, changes in that tax rate will, as we have shown, have their main effect on domestic investment incentives. Therefore, even a tax increase, which might appear to apply equally to domestic and foreign income, could cause foreign investment to become more attractive relative to domestic investment.

Our results depend on the continued deferral of home country taxes. The elimination of deferral would, of course, end the distinction between new and mature foreign operations; and the effective tax rate on foreign source income would be the greater of the home and host tax rates. Proposals to end the U.S. foreign tax credit often include the elimination of deferral. One reason sometimes given for this package is that, otherwise, the foreign tax credit elimination would increase the incentive to retain earnings abroad. As we have shown in this paper, such fears are misguided. However, the practical significance of our results does hinge on the likelihood of deferral being retained as other features of the tax are changed. The constitutional issues raised by current taxation of foreign earnings would seem to make the chances for moving to such a system fairly low. In any event, a full understanding of the effects of the current home country systems should be important in assessing any proposals for change.

## FOOTNOTES

[1]Direct investment is distinguished by the existence of capital supplier control over the "affiliate" receiving the capital.

[2]This argument was made by Musgrave (1969) and numerous others. Later extensions, such as Hartman (1980) in which other aspects of firm behavior such as host country borrowing are considered, show the result to be sensitive to the characterization of the multinational firm. The earlier notion of foreign investment will be retained here for reasons of simplicity. The extension of this analysis to take account of this more recent work is straightforward.

[3]See, for example, United Nations (1970).

[4]These issues are discussed in Fatemi, et al (1976), while a different opinion of the constitutional question may be found in Krause and Dam (1964).

[5]The current law does make provision for taxing not only incomes of firms abroad which are not separately incorporated but also incomes of majority-owned controlled foreign corporations which do not make substantial dividend payments, which do not face foreign tax rates approximately as high as the U.S. rate, and which earn significant profits from sales to related parties or sales outside the country of incorporation. In other words, the law is intended to discourage the artificial shifting of profits to sales subsidiaries in low-tax countries. However, if even a company which meets these criteria can demonstrate that its motivation is not tax avoidance, taxes are deferred. The amount of this currently-taxed retained income (Subpart F income), $95.7 million in 1972 (Treasury (1979), is minor by any standard.

[6]Only brief mention will be made of cases in which the host tax rate exceeds the home tax rate, since no tax is collected by the home country in such instances.

[7]See Horst (1977).

[8]In order to focus on these important transactions, we will ignore foreign subsidiary borrowing from unrelated parties. For discussions of subsidiary borrowing, see Horst (1977) or Goldsbrough (1979).

[9]Kopits (1972), for example, argues that a rise in the U.S. rate of tax on foreign source income would produce lower dividend payments.

[10]Foreign affiliates not separately incorporated as subsidiaries are taxed on a current basis, as noted above. The analysis of their behavior is straightforward and will not be discussed here.

[11]Curiously in contrast to these studies are Kopits' (1972) study of subsidiary dividends which take these payments as a residual in the reinvestment decision and the survey literature on business decisions, to be discussed later.

[12]U.S. law may force some subsidiaries to pay some dividends in order to avoid current taxation of earnings retained abroad, but as was noted before, the practical effect of that provision is doubtful.

[13]For simplicity, we will ignore foreign withholding taxes, which are paid to the host country at the time of dividend repatriation, and also the complications inherent in the corporate income tax itself such as depreciation allowances.

[14]Since we are considering a marginal investment decision, it may be difficult for such a firm to meet the restrictive conditions under which a return of capital is allowed (see U.N. (1970)).

[15]The ability to charge a different rate of interest could provide the firm with an advantage over charging $r^*$ in some situations. Making a low-interest loan to a subsidiary could be a superior way of transferring funds abroad, in cases in which a tax-free return of equity transferred abroad is not available. A loan at high interest could be attractive if $t^*$ exceeded $t$.

[16]Kopits (1972), who assumes the absence of additional parents' funding, verifies that the dividend payout ratios of subsidiaries respond to investment incentives.

[17]Gilman does not consider the tax implications of funds transfers in his analysis, attributing the firms' behavior to "exchange rate illusion".

[18]U.S. Commerce Department, Survey of Current Business, August, 1980.

[19]The effects of a tax on dividend payments made by a purely domestic firm are explored by Bradford (1981). The method of analysis followed here owes a great deal to both that paper and the work of King (1977).

[20]The consideration of some discrete time period is, of course, crucial if deferral of the home country tax is to be incorporated.

[21]At this stage, we are still assuming $t > t^*$.

[22]If the average and marginal payout ratios are equal and the future home country tax liability on the retained earnings can be ignored, the firm pays the home country tax on $p$ of its earnings and only the host tax on the remainder.

[23]The flexibility of transactions within the multinational firm is commonly believed to provide some potential for tax avoidance. The fact that a sizable volume of taxable dividend payments are made seems to imply that, in general, the marginal method of transferring funds to the parent firm produces a tax liability. See Horst (1977) for a thorough analysis of intra-firm financial transactions.

[24]The U.S. law is designed to prevent tax avoidance at the termination of the foreign operation. The Revenue Act of 1962 specified that the sale or liquidation of a foreign subsidiary produces ordinary income for tax purposes to the extent of earnings previously reinvested. See Musgrave (1969).

[25]No similar concerns arise from the standard discussions of the "excess credits" case, i.e., the case of $t^* > t$.

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