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ABSTRACT

U.S. corporations owe taxes to the U.S. Treasury on income earned both inside and outside American borders. This paper examines the incentives created by the U.S. tax system for the legal avoidance of taxes on foreign source income. Using data from 1986 corporate tax returns, we investigate the extent to which U.S. corporations structure and coordinate remittances of income from their foreign subsidiaries to reduce their U.S. and foreign tax liabilities. In contrast to previous work in this area, our estimates of the tax consequences of income remittances from foreign subsidiaries to parent corporations explicitly take into account the ability to use foreign tax credits generated from one source of foreign income to offset the U.S. tax liability generated by other sources of foreign income, withholding tax rates on income remittances, variations in source country corporate income tax systems, and dynamic aspects of the U.S. tax system. Our findings indicate that U.S. multinationals are able to take advantage of the U.S. tax system to avoid paying much U.S. tax on their foreign source income.

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I. INTRODUCTION

U.S. corporations earn a substantial portion of their income from foreign sources. In 1986, the net foreign source income reported by U.S. corporations on their U.S. tax returns was over $140 billion, which amounted to over 52 percent of their total net income.[1] Both the United States and the countries that are the source of this income generally assert the right to tax this income. But U.S. tax policy attempts to some extent to balance the U.S. tax claim against a desire to prevent double taxation. This balance, and the overlapping tax claims that require it, complicates tax collection by the United States and can open various avenues for tax avoidance by U.S. multinational corporations. Such tax avoiding behavior would reduce U.S. tax revenue and could distort international financial flows and the international allocation of investment by U.S. corporations. An important policy question is to what extent these incentives for tax avoidance actually affect the behavior of U.S. corporations and reduce tax revenue. This paper attempts to address that question by examining the impact of tax incentives on the way in which U.S. corporations structure and coordinate remittances of income from their foreign subsidiaries.[2]

This study uses new data from 1986 U.S. corporate income tax returns to examine the effects of taxes on the patterns of remittances of income from foreign subsidiaries to their U.S. parent corporations. We focus on the behavioral effects of three important features of the U.S. tax treatment of foreign source income. The first feature is the deferral of tax on the income of foreign subsidiaries of U.S. corporations until the income is remitted to the United States. The second is the credit allowed against U.S. tax for foreign taxes already paid on foreign source income. The third is the limitation of the foreign tax credit so that it does not exceed the U.S. tax otherwise payable on foreign source income and therefore cannot reduce U.S. tax on domestic income. We are particularly interested in the effects

on income repatriation patterns of the *global* or *overall* limitation that is allowed under U.S. tax law. The overall limitation allows the use of foreign tax credits generated from one source of income to offset the U.S. tax liability generated by other sources of foreign income.

Several previous studies have used aggregate data to investigate the effect of taxation on the income repatriation activity of multinationals. Kopits (1972) used U.S. tax data aggregated by country to estimate a dividend payout equation for payments from foreign subsidiaries to their U.S. parent corporations. In a subsequent study, Kopits (1976) used U.S. tax data aggregated by country and industry to estimate the effects of taxation on royalty remittances from foreign subsidiaries. Using aggregate data on U.S. foreign direct investment, Hartman (1981), Boskin and Gale (1987), Newlon (1987), Slemrod (1990a), and Jun (1990) all estimated tax effects on the retention of earnings by the foreign affiliates of U.S. companies and/or the U.S. affiliates of foreign companies. A fundamental problem with all of these studies is that the complex incentives provided by the tax system cannot necessarily be captured using aggregate data. For example, tax incentive effects on income repatriations from individual subsidiaries in the same country can vary depending upon the global tax situation of their respective parents.

Only a few studies have used micro data to examine the effect of taxes on income repatriation by multinational companies. Mutti (1981) appears to be the earliest study. He used U.S. tax return data from 1972 to estimate the effect of tax costs on the choice of income remittance channels. Significant tax effects were found in estimates of a dividend equation using the underlying micro data. Using financial accounting data for the foreign affiliates of British companies, Alworth (1988) estimated dividend equations. He found significant effects of tax cost variables on dividend payout

behavior. Both Goodspeed and Frisch (1989) and Hines and Hubbard (1990) used 1984 tax return data of a sample of U.S. corporations and their foreign subsidiaries to investigate tax effects on their income remittances. Goodspeed and Frisch (1989) matched data on parent corporations with country specific information on their foreign subsidiaries in an attempt to quantify income repatriation incentives created by the U.S. tax system. By further disaggregating the 1984 tax return data, Hines and Hubbard (1990) were able to study income repatriation behavior using a data set that matched foreign subsidiary specific information to parent corporation data. Both studies found significant evidence of tax effects.

We improve on and extend the previous micro-data studies in three respects. First, we use the most recently available tax return data for a large sample of U.S. corporations and their foreign subsidiaries. Second, our specification of the tax cost of income remittances from abroad more accurately reflects the tax incentives facing firms. For example, unlike Alworth (1988), we use actual company tax data to calculate the tax incentives facing firms. While Goodspeed and Frisch (1989) employ foreign subsidiary data that is aggregated by country, we use a similar data set to Hines and Hubbard (1990) that matches subsidiary specific information with parent corporation tax information. Unlike Hines and Hubbard (1990), when measuring tax incentives we incorporate the withholding taxes most firms face on remittances of foreign income and we account for some important variations in source country corporate income tax systems. Finally, we investigate some of the dynamic aspects of the U.S. taxation of foreign source income. We attempt to reflect these dynamics in our econometric estimates of dividend remittance equations.

The remainder of this paper is organized as follows. Section II describes the basic structure of the U.S. tax treatment of the foreign income

of U.S. corporations and discusses how this system may affect income repatriation incentives and the consequent policy concerns. Section III specifies the *tax prices* that U.S. multinational corporations pay for income remittances from their foreign subsidiaries. These tax prices measure the change in a multinational's tax liabilities caused by an incremental increase in income payments from its foreign subsidiary. Section IV discusses the tax return data used in this study. Section V presents the results of our analysis of the income remittance patterns of the corporations in our sample. The final section attempts to draw some policy implications from the results.

II. U.S. TAX POLICY TOWARDS FOREIGN INCOME

When a U.S. corporation earns profits from its operations in a foreign country the source country usually gets the first crack at those profits through its corporate income tax. The source country may also levy withholding taxes on remittances of income out of the country in the form of payments such as of dividends, interest, rents, fees, and royalties. Like the United States, some countries also levy an additional tax on the profits of branches of foreign companies on top of the ordinary corporate income tax.[3]

II.1 Deferral

The time at which the U.S Treasury first taxes foreign profits depends on the way in which the foreign operation is organized. If it is organized as a *branch* of the U.S. corporation, i.e., it is not separately incorporated, then the United States taxes the profits as they accrue. If it is organized as a *subsidiary*, meaning it is separately incorporated in the foreign country, then the profits are not generally taxed until they are

remitted to the U.S. parent corporation. This delay in taxation until a subsidiary's profits are actually remitted to the United States is known as *deferral.*

The deferral of taxation on income earned by foreign subsidiaries is an important and controversial aspect of U.S. tax policy. Deferral gives firms an incentive to accumulate profits in low-tax jurisdictions rather than repatriating them to the United States. Deferral is particularly relevant in this study because our data provide detailed information on the foreign subsidiaries of a sample of U.S. corporations. We do not have detailed information on their foreign branch operations.

Deferral has been attacked for allowing U.S. multinational corporations to avoid U.S. taxes on foreign income by retaining it abroad in low-tax, or tax haven, jurisdictions and, as a consequence, favoring foreign direct investment over domestic investment. The tax code does contain restrictions that hamper the ability of multinationals to permanently avoid tax payments on overseas income held in subsidiaries. The Subpart F provisions of the tax code restrict deferral on certain types of unrepatriated subsidiary income by treating it as if it was distributed as a dividend. In general, under Subpart F, income that accrues from a subsidiary's passive ownership of assets (called *passive income*) is denied deferral and taxed immediately. On the other hand, income earned from the conduct of a business (called *active income*) is generally not subject to the Subpart F rules and is allowed deferral.

II.2 The foreign tax credit

The United States attempts to reduce the possibility that foreign source income could be taxed twice by allowing a credit against U.S. taxes for taxes levied by the source country. The foreign tax credit has two

components. The first, called the *direct* credit, is a credit for foreign taxes paid directly on income as it is received by a U.S. taxpayer. Foreign taxes eligible for the direct credit include withholding taxes on remittances to the U.S. taxpayer such as dividends, interest, and royalties, and also income taxes on foreign branch operations. The second component, called the *indirect* or *deemed-paid* credit, is a credit for foreign income taxes paid on the income out of which a distribution is made to the U.S. taxpayer. The deemed-paid credit is available to the U.S. corporate shareholders of a foreign corporation who own at least 10 percent of the voting stock of the foreign corporation.

We will outline briefly how the deemed-paid credit works. Suppose subsidiary i makes a dividend payment, D_i, to its U.S. parent corporation. Since this is a distribution of profits after foreign tax, the United States considers the taxable income arising from this dividend to be the dividend *grossed up* by the foreign tax deemed paid on that dividend. The grossed up dividend is

$$D_i + T_iD_i/(Y_i-T_i), \tag{1}$$

where T_i denotes the total foreign income tax paid by subsidiary i and Y_i denotes the subsidiary's pre-tax income from the U.S. perspective, which is the subsidiary's book earnings and profits.[4] Equation (1) can be rewritten in a way that may be more familiar to economists as $D_i/(1-\tau_i)$, where τ_i represents the average subsidiary tax rate, T_i/Y_i, on foreign earnings from the U.S. perspective. The U.S. tax on the dividend before the deemed-paid credit is $\tau D_i/(1-\tau_i)$, where τ denotes the U.S. rate of tax. The United States considers that creditable foreign tax was paid on the dividend in the amount of $\tau_i D_i/(1-\tau_i)$. The U.S. tax liability on the dividend payment is therefore $D_i(\tau-\tau_i)/(1-\tau_i)$.

The amount of foreign tax credit that can actually be used is limited, however, to the amount of U.S. tax payable on foreign income. Therefore, if the foreign tax rate, τ_i, exceeds the U.S. tax rate, τ, *excess credits* are created in the amount of $D_i(\tau_i-\tau)/(1-\tau_i)$. If the foreign tax rate is less than the U.S. tax rate, then a U.S. tax liability of $D_i(\tau-\tau_i)/(1-\tau_i)$ accrues and the remitted foreign income is said to be creating *excess limitation*.

II.3 The Overall Limitation and Cross-crediting

As noted in the introduction, the limitation on the foreign tax credit operates to some extent on an overall basis. This means that excess credits accruing from one source of foreign income can often be used to offset U.S. tax (excess limitation) on foreign income from another source.[5] We call this cross-crediting or averaging of foreign income.

Cross-crediting or averaging of foreign income can take three forms. First, U.S. taxpayers can cross-credit by receiving simultaneous dividend remittances from subsidiaries in high-tax-rate and low-tax-rate countries. Second, cross-crediting can occur between income types that tend to incur relatively high foreign taxes (dividends or branch income) and income types that incur lower foreign taxes (e.g., interest, rents, and royalties). Third, cross-crediting can occur over time using foreign tax credit carryovers. We will discuss the third type of cross-crediting in more detail below.

The ability to cross-credit can reduce U.S. tax revenue from foreign source income. It may also affect the incentives for income repatriation and the incentive to invest abroad. For example, if a U.S. corporation is in an excess limitation position--i.e., the U.S. tax liability on its foreign source income is greater than its supply of foreign tax credits--then any income it derives from a low-tax subsidiary faces additional U.S. tax. The same total

amount of tax is paid as would be on U.S. source income. Consequently, the tax rate differential between the United States and the foreign country does not distort the allocation of capital by U.S. corporations in favor of the low-tax country--i.e., *capital export neutrality* is preserved.[6] However, if the U.S. corporation is in excess credit, say because it has income derived from a high-tax country, the excess credits may offset any additional U.S. tax on the income from the low-tax country. In this case capital export neutrality may be violated, because investment in the low-tax country will be tax favored over investment in the U.S. or in high-tax countries. On the other hand, cross-crediting may move the tax system *closer* to capital export neutrality. This is because capital export neutrality does not hold unless corporations that invest in high-tax countries receive refunds from the U.S. government for the difference between taxes paid at home and taxes paid to host countries with high average tax rates. With the overall limitation, firms that have the ability to average high- and low-taxed foreign source income will be more willing to undertake investments in high-tax countries, all else equal, than they would be under a per country limitation where cross-crediting is only permitted for income derived from the same country. Therefore, under our current tax system, whether or not capital export neutrality holds depends on the credit position or averaging potential of the multinational. Excess credit parents favor investments in low-tax locations over investments in high-tax locations (violating capital export neutrality), while excess limitation parents face the same U.S. tax rate on foreign investment projects regardless of their location (preserving capital export neutrality).[7]

Such revenue and efficiency considerations have made the appropriate form for the limitation on the foreign tax credit the subject of policy debate in the past. Prior to the Tax Reform Act of 1986, movement

to a per country limitation was proposed in the Treasury tax reform proposal (Treasury (1984)) and the President's tax reform proposal (Treasury (1985)). But the desire to restrict cross-crediting has instead been pursued through the application of separate limitations to *baskets* of different types of foreign income. Before the 1986 Act, the period which our study covers, there were five separate baskets: (1) one for investment interest income, (2) one for Domestic International Sales Corporation dividend income,[8] (3) one for the foreign trade income of a Foreign Sales Corporation,[9] (4) another for distributions from a Foreign Sales Corporation, and (5) one for all other foreign source income, which we will call general limitation income. The 1986 Act decreased the potential for cross-crediting further by increasing the number of separate limitation baskets to nine. Since the 1986 Act, various parties have argued for reductions in the number of baskets, generally on grounds of simplicity or competitiveness concerns.[10]

Taxpayers are permitted to carry excess foreign tax credits back up to two years or forward up to five years to offset U.S. tax on other foreign source income. As noted above, these carryovers effectively allow taxpayers to cross-credit over time. They also mean that the "true" foreign tax credit position of a taxpayer--excess credit or excess limitation--in a given year, and consequently the tax effect of a remittance of foreign income in that year, may differ from what it appears to be. For example, if a taxpayer is currently in excess limitation, then it would appear that a dividend payment from a subsidiary in a low-tax (i.e. lower than U.S. tax rate) country would incur an additional U.S. tax. But if the U.S. taxpayer will move into excess credit next year, then the dividend payment may incur no additional U.S. tax,[11] since next year's excess credits can be carried back to offset taxes paid in the current year.

III. THE TAX PRICE OF SUBSIDIARY INCOME REMITTANCES

To measure the influence of taxation on income flows within U.S. multinational corporations, we derive *tax prices* for income remittances from subsidiaries to their U.S. parent corporations. We define the tax price as the additional tax liability arising from an incremental dollar's worth of income remittance. The tax price of sending income back to the United States depends on the foreign tax credit position of the U.S. parent--whether it is in excess credit or excess limitation--and the channel used to remit the income. We can differentiate broadly between the dividend channel, and channels for which the remittance is tax deductible in the source country, such as interest, royalties, and rents. While dividends are not tax deductible in the source country, they do get the deemed-paid foreign tax credit in the United States. This section presents first the tax prices for dividend remittances and then the tax prices for other forms of remittances.

III.1 The Tax Price of Dividend Remittances

The tax price of remitting income through dividend payments depends not only on tax rates, but also on the source country's system for taxing corporate income. Our specification of the tax price of dividend payments is similar to that of Alworth (1988)[12] and Hines and Hubbard (1990); however, as noted in the introduction, it differs in a few important respects. Unlike Alworth (1988), we use actual tax return data to calculate the average tax rate for the deemed-paid credit. Unlike Hines and Hubbard (1990), we incorporate withholding taxes, which can be significant in magnitude,[13] and we account for divergences from the classical system of corporate income taxation by some important countries in the sample such as the United Kingdom, Germany and Japan.

For purposes of specifying a tax price for dividend remittances, the countries in our sample can be classified into three different categories on the basis of their corporate income tax systems: classical systems, split-rate systems, and imputation systems. We discuss the tax price of dividend remittances from subsidiaries under each of these systems below.

III.I.1 Under classical systems

Under a classical corporate income tax system the only source country tax consequences of a dividend remittance arise from withholding taxes. The source country tax liability for subsidiary i can be defined as

$$T_i = \tau_i Y_i + \omega_i D_i, \tag{2}$$

where ω_i denotes the withholding tax rate in the subsidiary's country for dividends paid abroad and the other variables are as defined above. The foreign taxes creditable against U.S. tax liability are deemed-paid taxes plus withholding taxes, or

$$\tau_i D_i/(1-\tau_i) + \omega_i D_i. \tag{3}$$

If the U.S. parent is in excess credit, any U.S. tax liability on the dividend is offset by excess credits, so

$$T_{US} = 0. \tag{4}$$

And, of course, the U.S. tax price of a dividend remittance is simply

$$dT_{US}/dD_i = 0. \tag{5}$$

If the U.S. parent is in excess limitation, then the U.S. tax liability deriving from the dividend payment is

$$T_{US} = D_i\{(\tau-\tau_i)/(1-\tau_i) - \omega_i\}. \tag{6}$$

The U.S. tax cost of remitting an additional dollar of dividend is

$$dT_{US}/dD_i = (\tau-\tau_i)/(1-\tau_i) - \omega_i. \tag{7}$$

Note that this expression is negative if the source country average tax rate exceeds the U.S. tax rate or if the amount by which the U.S. rate exceeds

the foreign rate is more than offset by the effect of the withholding tax. In that case a dividend payment actually reduces the firm's total U.S. tax liability because it creates excess credits that can be used to offset U.S. tax on other foreign income.

The global tax effects of a dividend remittance for the firm are simply the sum of its source country and U.S. tax effects.

$$T_G = T_{US} + \omega_i D_i. \tag{8}$$

If the parent is in excess credit, this expression reduces to

$$T_G = \omega_i D_i, \tag{9}$$

because the payment of source country withholding tax does not result in any offsetting reduction in U.S. taxes. The tax price is simply

$$dT_G/dD_i = \omega_i. \tag{10}$$

If the parent is in excess limitation, the global tax effect is

$$T_G = D_i(\tau-\tau_i)/(1-\tau_i), \tag{11}$$

and the tax price of an additional dollar of dividend remittance is

$$dT_G/dD_i = (\tau-\tau_i)/(1-\tau_i). \tag{12}$$

This expression is negative if the source country tax rate exceeds the U.S. tax rate, because the additional credits created by the dividend remittance are used to reduce U.S. tax on other foreign income. The withholding tax has no net effect because the extra withholding tax paid on the remittance is offset by a reduction in U.S. tax of an equal amount. For reference, the tax prices we have derived are summarized in Table 1.

We have ignored the effect of the foreign tax credit carryover in the derivation of these tax prices. If the parent firm's foreign tax credit position changes during the period over which foreign tax credits can be carried forward or back, then the true credit position differs from the position on the books. This means that it may be more appropriate to specify the tax price as an *expected* price that incorporates the probability of changing credit

position. Table 1 indicates the direction of the potential error introduced by ignoring the carryover potential of foreign tax credits.

III.1.2 Under split-rate systems

Several major countries have split-rate corporate tax systems, including Germany[14] and Japan. Under these tax systems, distributed profits are taxed at a different, usually lower, rate than undistributed profits. The derivation of the tax price of dividend remittances is much more complicated in this case because the average foreign tax rate, and hence the dividend gross-up and the foreign tax credit, vary with the level of dividend payments. We leave the derivations of the tax prices to Appendix A and present only the results here.

Where the source country has a split-rate system, let τ_u and τ_d denote its tax rate on undistributed and distributed profits, respectively. If the U.S. parent is in excess credit, the U.S. tax price of an incremental dividend remittance is still zero, because excess credits offset any additional U.S. tax liability that would otherwise arise on remitted foreign source income. If the U.S. parent is in excess limitation, then the U.S. tax price of an incremental dividend remittance is

$$dT_{US}/dD_i = (\tau-\tau_i)/(1-\tau_i) - \omega_i + (D_i/Y_i)(\tau_u-\tau_d)(1-\tau)/(1-\tau_i)^2. \qquad (13)$$

Note that this is the same expression as derived for the classical system but with one additional term. The extra term will be positive if distributed profits are taxed at a lower rate than undistributed profits. This increases the U.S. tax price of a dividend distribution because increased dividend distributions lower foreign tax payments and thereby decrease the deemed-paid credit.

When the parent is in excess limitation, the global tax price of dividend payments is

$$dT_G/dD_i = (\tau-\tau_i)/(1-\tau_i) + \tau_d - \tau_u + (D_i/Y_i)(\tau_u-\tau_d)(1-\tau)/(1-\tau_i)^2. \quad (14)$$

This expression has two additional terms. One of the terms has already been discussed above. The other, $\tau_d-\tau_u$, represents the net effect of the dividend payment on source country corporate tax payments. For a parent in excess credit, the global tax price of a dividend payment is

$$dT_G/dD_i = \tau_d - \tau_u + \omega_i. \quad (15)$$

This price also includes the effect of the dividend payment on source country corporate tax payments. The tax prices we have derived for subsidiaries in countries with split-rate corporate income tax systems are also summarized in Table 1.

III.1.3 Under imputation systems

A number of countries partially or fully integrate the taxation of corporations and their shareholders through imputation systems. However, the tax credits generally provided to shareholders under these systems for the corporate income tax already paid on distributed profits are not usually extended to foreign direct investors. Only the United Kingdom, under the terms of its tax treaty with the United States, provides a partial credit to U.S. direct investors for its Advanced Corporation Tax (ACT). In the other countries with imputation systems, such tax credits are not provided to U.S. direct investors, and the incentive effects of the tax system on dividend remittances to the U.S. are the same as they would be under a classical corporate tax system.[15]

As under split-rate systems, the tax price of a dividend remittance to a U.S. shareholder is complex because the average tax rate used to determine the dividend gross-up and the foreign tax credit varies with the level of the dividend. We leave the detailed derivation of this tax price to Appendix A and present the results here.

Under the U.S.-U.K. tax treaty, the tax credit provided to U.S. shareholders for ACT on distributed profits is one half of the credit given domestic shareholders. The United Kingdom applies its withholding tax to both the dividend payment and the ACT credit. The United States considers the tax credit paid to be part of the grossed-up dividend. In addition, for foreign tax credit purposes the United States treats the reduction by one half in the credit given to U.S. shareholders as an additional payment of U.K. corporate income tax by the U.K. subsidiary.

If we denote the tax credit given to U.S. shareholders for ACT as θ_i, then for U.S. parents in excess limitation, the U.S. tax price to the parent of a dividend remittance from a U.K. subsidiary is

$$dT_{US}/dD_i = (1+\theta_i)\{(\tau-\tau_i)/(1-\tau_i) - \omega_i - \theta_i(D_i/Y_i)(1-\tau)/(1-\tau_i)^2\}. \quad (16)$$

If the U.S. parent is in excess credit, then the U.S. tax price to the parent is zero.

The global tax price for a parent in excess limitation is

$$dT_G/dD_i = (1+\theta_i)\{(\tau-\tau_i)/(1-\tau_i) - \theta_i(D_i/Y_i)(1-\tau)/(1-\tau_i)^2\} - \theta_i. \quad (17)$$

If the U.S. parent is in excess credit, then the global tax price is

$$dT_G/dD_i = (1+\theta_i)\omega_i - \theta_i. \quad (18)$$

The third panel of Table 1 summarizes the tax prices we have derived for subsidiaries in countries with imputation systems.

III.2 The Tax Price for Tax-deductible Remittances

Rent, royalty and interest payments from subsidiaries to their U.S. parent corporations are generally deductible against corporate income tax in the source country.[16] Each dollar remitted through one of these channels therefore saves τ_i dollars in source country tax, although there is likely also to be a withholding tax on such payments. At the same time, there is no deemed-paid credit for such payments. This leads to the following tax

prices. If the U.S. parent is in excess limitation, the net global tax price of a remittance is τ-τ_i. If the parent is in excess credit, the tax price is ω_i-τ_i.

Multinationals generally have an incentive to receive income remittances from subsidiaries facing high source country tax rates in one of the tax deductible forms, rather than in the form of dividends. A tax deductible remittance decreases source country tax payments directly, whereas dividend payments might only produce unusable excess credits. If withholding tax rates on the tax-deductible forms of payment are not substantially higher than they are on dividends, the incentive to make payments in these tax-deductible forms is especially strong when the parent is in excess credit. The excess credits can be used to offset any residual U.S. tax on these payments, and the dominant effect is the deductibility of the payments against source country taxes.

IV. THE DATA

To comply with U.S. tax law, U.S. multinationals must file a number of tax and information forms. We created a data set from information obtained from three sets of these forms filed by U.S. taxpayers in 1986: corporate income tax returns filed by non-financial U.S. corporations[17], called 1120 forms; forms filed in support of foreign tax credits claimed, called 1118 forms; and information returns, called 5471 forms, filed for each *Controlled Foreign Corporation* (CFC) controlled by a U.S. taxpayer. A CFC is a foreign corporation that is at least 50 percent owned by a group of U.S. shareholders each of whom have at least a 10 percent interest in the company. The 1120 form contains firm-specific tax return data which includes U.S. taxable income, U.S. taxes paid, tax credits claimed and balance sheet and income statement items. Information on foreign source income, foreign taxes paid and foreign tax credits claimed by

foreign tax credit basket is reported on Form 1118. This form also provides us with data on foreign source income and foreign taxes paid for the general limitation income basket which is the focus of this study. The CFC data from Form 5471 includes balance sheet and income statement variables along with detailed information on remittances to U.S. parent corporations.

Our full sample contains 617 U.S. parent corporations, 277 of which had non-positive worldwide income in 1986.[18] Each parent in our sample controlled at least one CFC and filed an 1118 form to claim a foreign tax credit in the general limitation income basket.[19] In relation to the entire universe of non-financial corporations, our sample contains only 31 percent of total assets. However, ninety-two percent of foreign tax credits in 1986 are claimed by parents in our sample and this fraction increases to ninety-five percent if we consider only manufacturing parents. The majority of the parents in the sample were in the manufacturing industry (71.5 percent), followed by retail trade (11.2 percent), transportation (7.9 percent), services (5.0 percent), mining (2.6 percent), construction (1.5 percent) and agriculture (0.3 percent).[20]

The CFC data set provides information detailing income remittances to U.S. parent corporations for the top 7,500 CFCs in terms of asset size in 1986. The U.S. parent corporations in our sample accounted for 6,121 of these large CFCs. Compared to the entire set of subsidiaries owned by our parents, these 6,121 CFCs accounted for 91.5 percent of assets and 93.0 percent of earnings and profits both before and after taxes.

Calculating CFC specific tax prices for income remittances requires knowledge of both the appropriate foreign corporate tax rate and the withholding tax rate. We used the CFC's average foreign tax rate (foreign tax payments divided by before-tax earnings and profits both taken from Form 5471) to measure the rate τ_i at which dividends are grossed-up and

foreign tax credits created. Under some circumstances, calculating the average tax rate in this manner may lead to an unsatisfactory approximation of τ_i. In particular, problems arise when CFCs report negative earnings and profits, receive tax refunds from host countries, repatriate dividends in excess of current earnings and profits, and receive dividends from subsidiaries of their own. Appendix B describes how we handled CFCs in those situations.

Foreign withholding taxes on dividend remittances can affect the overall tax cost of repatriations and were therefore included in our tax price specification. We used the Price Waterhouse guides and tax treaties to develop a list of country specific withholding tax rates for 1986. The Price Waterhouse guides also provided the appropriate statutory tax rates for the countries in our sample with split rate and imputation tax systems.

V. RESULTS

V.1 Tax Payments and Income Remittance Patterns

Table 2 presents summary information on the income of the 340 U.S. parent corporations in our sample that had positive taxable income and the taxes that they paid. The columns of the table present figures for the number of U.S. corporations in our sample and the book value of their assets, their U.S. total taxable income, the total U.S. taxes they paid after tax credits, their foreign source income, the U.S. taxes they paid on foreign source income, and the average U.S. tax rate on their foreign source income. The rows of the table present totals for all U.S. parent corporations in the sample, industry totals, and totals for firms in excess limitation and excess credit, respectively.

Table 2 shows that U.S. tax collections on foreign source income varied considerably by industry in our sample. Corporations in agriculture,

transportation, and, to a lesser extent, service industries paid more U.S. taxes on their foreign source income than companies in the other industries we consider.[21] For example, the average U.S. tax paid on a dollar of income earned abroad was over 33 cents in the agricultural and transportation industries but less than 3 cents in manufacturing industries. The fact that corporations in the transportation and service industries pay lower foreign taxes on their foreign source income and consequently have higher U.S. tax liabilities on that income is unsurprising. In many countries income from the transportation and services activities of foreign companies is exempt from tax or lightly taxed, either as a matter of domestic law or as a consequence of tax treaty provisions.

Table 2 also shows that despite industry variation, most of the foreign source income of the U.S. parent corporations in the sample bore little U.S. tax. For the sample as a whole, foreign source income was a large percentage (59.0 percent) of total U.S. taxable income, but the U.S. taxes paid on this income were small, both as a percentage of total U.S. taxes paid (10.7 percent) and as a percentage of foreign source income (3.4 percent). Apparently the U.S. corporations in the sample were able to offset most potential U.S. tax liability on their foreign source income with credits for the foreign taxes they paid, or were deemed to have paid, on that income. This was definitely the case for those U.S. parents that were in excess credit, and although most (62 percent) of the U.S. parents in the sample were in excess limitation, most (69 percent) of the foreign source income accrued to firms in excess credit. Even the U.S. parents in excess limitation paid relatively little U.S. tax on their foreign source income, since the average U.S. tax rate on that income was less than 11 percent.

The fact that most of the foreign source income of these firms bore little U.S. tax did not necessarily result from specific tax avoidance activities

on their part. It could have arisen simply because tax rates were high in the jurisdictions in which most foreign income was earned, and hence firms that received substantial foreign source income were likely to be in excess credit. Table 3 presents some evidence bearing on this point.

Table 3 presents information for CFCs associated with parents that had positive worldwide income in 1986. CFCs are split into two groups: those with U.S. parents in excess limitation and those with U.S. parents in excess credit. Within each of these groups the CFCs are classified by the average foreign tax rate they faced. The columns of Table 3 present information on CFC assets, CFC after-foreign-tax earnings, and the different forms of U.S. taxable foreign source income the parent corporations derived from the CFCs.[22] Although our original sample contained 6,121 CFCs, 1,646 were associated with parents that had tax losses in 1986. Of the remaining 4,475 CFCs, 3,410 had sufficient information to calculate average foreign tax rates and are therefore included in Table 3. As mentioned in Section IV and detailed in Appendix B, in some circumstances we did not have the appropriate information to calculate a CFC specific tax rate.

The table shows that the assets and after-tax earnings of CFCs in the sample are distributed unevenly across foreign tax rates for both excess credit and excess limitation parents. There are concentrations of assets and earnings in the lowest (less than 20 percent) and middle (30-50 percent) tax rate ranges. This suggests that the parent corporations' low U.S. tax liabilities on foreign income may be due more to cross-crediting than to generally high foreign tax rates.

Table 3 shows that CFC dividend payments were distributed across foreign tax rates in much the same way as CFC earnings and assets. This indicates that there may be significant cross-crediting occurring, but it is not clear whether it is by design or simply due to the distribution of tax rates on

the earnings of these CFCs. The table does show some evidence of tax influences on dividend remittances. First, CFCs with parents in excess credit pay out relatively more as a percentage of assets or earnings than do other CFCs. One would expect this, since dividend payments from those CFCs incur no additional U.S. tax. Second, dividend remittances of high-tax CFCs of excess limitation parents generally bear a negative tax price, and those CFCs do pay out much more in relation to their earnings than do other CFCs of excess limitation parents. However, this last result does not hold when dividend payments are expressed as a percentage of CFC assets. Furthermore, one might expect high-tax CFCs of parents in excess limitation to have higher payout ratios than CFCs with parents in excess credit -- since in the former case the tax price of a dividend remittance is generally negative while in the latter case it is at least zero -- but the figures in Table 3 suggest otherwise.

Table 3 does not provide any conclusive evidence for substantial tax influences on CFC dividend remittance patterns. But it should be remembered that we have ignored withholding taxes and variations in host country corporate tax systems here. As we show below, these turn out to be important.

Evidence that U.S. multinational corporations use different *channels* for income remittances in order to reduce their global tax liabilities is provided in Table 3. Remitting income through the interest, rents and royalties channels instead of the dividend channel takes advantage of the deductibility of such payments against the CFC's taxes. Therefore, we would expect to see relatively more of these forms of remittances from CFCs facing high source country tax rates. Table 3 shows that pattern of remittances. Relatively more interest, rents and royalties were paid from the CFCs with higher foreign tax rates than from those with lower foreign tax

rates--although there is some concentration of payments in the lowest tax rate range. When these remittances are measured in relation to CFC assets or earnings the concentration in the upper tax rate ranges appears particularly pronounced. CFCs with parents in excess credit also remitted substantially more income in these tax deductible forms than did those with parents in excess limitation. This makes sense, since these firms are effectively averaging the excess credits created from other sources of foreign income to offset the additional U.S. tax liability generally created by interest, rent and royalty payments.[23]

The distribution of Subpart F income by CFC tax rate shown in Table 3 illustrates the value of deferral to U.S. multinational corporations. The vast majority of this income was accounted for by CFCs facing low tax rates. Although there is no deferral for Subpart F income, Subpart F income may be earned on *passive* investments of retained *active* CFC income that *does* benefit from deferral. U.S. multinationals may choose to retain this active income in low-tax jurisdictions, and earn Subpart F income on it, until such time as excess credits are available from elsewhere to offset the residual U.S. tax liability that would accrue if the active income were sent back to the United States immediately.

V.2 Cross-crediting

Table 3 shows that the most important channel for income remittances from CFCs was through dividend payments. Dividend payments made up about 62 percent of the total foreign income derived by U.S. parents from the CFCs in the sample. And this understates the importance of dividends in the net receipts of the parent, since they are paid out of after-foreign-tax income, and so get the deemed-paid credit, while interest, rents, and royalties are paid out of pre-foreign-tax income and do not get the

deemed-paid credit. Therefore, much of the scope for tax minimization by U.S. parents may lie in coordinating CFC dividend payments properly. CFC dividend payment levels should also be more easy to change in the short run than the levels of interest, royalties, and rents. So dividends are particularly suitable for taking advantage of the ability to cross-credit provided by the overall limitation on the foreign tax credit. The question is how much U.S. corporations do use dividend payments in this way to reduce their tax liabilities given that other factors may drive dividend remittance patterns as well.

Table 4 partitions the data in a way that may indicate the potential for cross-crediting through concurrent dividend payments from CFCs facing different levels of foreign taxation, and, to some extent, how much of that potential is realized. For this table, CFCs are classified as *high-tax* if their average foreign tax rate is greater than or equal to the U.S. statutory rate in 1986 (46 percent) and as *low-tax* otherwise. Dividends from a high-tax CFC would tend to create excess credits or offset U.S. tax on other foreign source income, while dividends from a low-tax CFC would tend to create a U.S. tax liability or absorb excess foreign tax credits.[24] As was the case with Table 3, to construct this table we had to eliminate CFCs for which we did not have sufficient information to calculate average tax rates. Parents that did not control *any* CFCs for which we could compute an average tax rate were eliminated from the sample. As a result our original sample of 340 parents with positive worldwide income was reduced to 290 parents. Of the 290 parent firms in the new sample, 212, or about 73 percent, had both high-tax and low-tax CFCs in our sample; these U.S. parents therefore had the potential to cross-credit through concurrent dividend payments from high- and low-tax CFCs. The table also shows that most (54.4 percent) of the parents receiving dividends received them from both high- and low-tax

CFCs, and these parents accounted for the bulk (93.7 percent) of dividends received. Clearly, most of the parents with the potential to cross-credit did so, at least to some extent. About 17 percent of the parents receiving dividends from CFCs had both high- and low-tax CFCs, but received dividend payments only from their high-tax CFCs. However, these dividends accounted for only 1.6 percent of total dividends received by U.S. parents in the sample. The bottom two rows of Table 4 provide information on parents that had both high- and low-tax CFCs but received dividends only from their low-tax CFCs. These parents accounted for 12.7 percent of all parents, but only 1.8 percent of total dividends received by parents from CFCs. In addition, the bottom row shows that about two thirds of those dividends were received by parents with foreign tax credit carryovers that they could use to offset at least some of the additional U.S. tax liability that might otherwise arise on the dividend remittances.[25]

In addition to cross-crediting through concurrent remittances of foreign income from differently taxed sources, firms can use the ability to carry foreign tax credits back two years and forward five years to cross-credit over time. It appears that the use of these carryovers is not insignificant. The U.S. corporations in our sample carried over $4 billion worth of foreign tax credits into 1986 from previous years.[26] About 40 percent of these carryovers were used to offset U.S. tax on foreign source income in 1986.

We cannot measure the full extent of cross-crediting over time because we do not have data on the amount of excess foreign tax credits created in 1986 which were carried back to offset tax liabilities in previous years or forward to offset tax in the future. (Note that a carryover created in 1986 would not have expired before 1991). We do know, however, that foreign tax credit carryovers could only be of use to a firm in excess credit

in 1986 if that firm was in excess limitation for at least one of the previous two years or moved into excess limitation before 1991. In general, the more frequently firms change their credit position, the more likely they are to be able to use these carryovers. In an effort to determine to what extent firms move between excess credit and excess limitation, we created a panel data set from tax return data for a sample of U.S. corporations. Unfortunately, data from foreign tax credit forms is only compiled in even years and was available to us only for the years 1980, 1982, 1984 and 1986. In addition, U.S. corporations generally file foreign tax credit forms only in years in which they claim a credit and, as a result, the data are missing for parents with non-positive worldwide income. In an effort to obtain the largest number of observations, we created three data sets that match tax returns over three year periods. There were 449 U.S. corporations in the sample that linked the 1980 and 1982 tax returns, 388 in the sample that linked 1982 and 1984 returns and 317 in the sample that linked returns from 1984 and 1986.

Table 5 presents our estimates of the percent of firms that switched credit position over time. We divided the parents into four groups: those that were in excess limitation during the three year time period under consideration, those that were always in excess credit, those that moved from excess credit to excess limitation during the time period and those that transited from excess limitation to excess credit. To classify firms into these cells we first determined their credit status in the two even years and then checked for the presence of foreign tax credit carryforwards in the most recent year of the sample under consideration. For example, a firm that was in excess limitation in 1984 and 1986 that did not claim a foreign tax credit carryforward in 1986 was placed in the "always in excess limitation" cell. If the same firm claimed a foreign tax credit carryforward in 1986 it was

placed in the "transit from excess credit to excess limitation" cell since the presence of the carryforward indicates that this firm was in excess credit in the previous year. Using this methodology we developed what should be considered floor estimates of the extent to which firms switched credit position.[27] We present both unweighted estimates and figures that are weighted by assets and foreign source income for the last even year of each sample.

Table 5 demonstrates that a significant number of firms transited both into and out of excess credit during the 1980s. At least 37 percent of parents switched states in each of our three samples and this figure increased over time to reach 46 percent in the 1984-1986 time period. A similar story emerges when these numbers are weighted by assets or foreign source income. In each of the sample periods under consideration, at least 37 percent of assets and 41 percent of foreign source income was associated with parents that switched credit positions. During the 1984-1986 time period more than half of foreign source income was generated by parents that changed credit position.[28] These results indicate that, as pointed out in Section III, it may not be correct to specify the tax price for dividend remittances as taking on one of two values depending on the credit position of the parent firm in that year. An *expected* tax price is the more appropriate concept when the credit position may change. We will return to this issue below when we discuss the specification and estimation of our dividend equation.

V.3 The Tax Consequences of Dividend Remittances

We now focus more closely on the tax implications of the dividend remittances of the CFCs in our sample. We ignore for the time being the use of foreign tax credit carryovers, so the tax price of a dividend payment

to the parent corporation takes on the values derived in Section III. Even with this restriction, we find strong evidence that U.S. corporations in our sample were coordinating the level and source of dividend payments from their CFCs so as to reduce their U.S. and foreign tax liabilities.

We would expect the probability that a CFC pays a dividend to its parent, and the amount of any dividend paid, to depend on the effect the payment would have on the total tax liability of the CFC and the parent. For each CFC in the sample, we calculated the effect a dividend remittance from that CFC to its parent would have on tax payments by the CFC and its parent given the parent's foreign tax credit position in the absence of any dividend remittance from that CFC. For CFCs that paid no dividend in 1986, this calculation was simple, since the tax price of the dividend payment would depend on the actual excess credit position of the parent. For CFCs that did pay a dividend, this calculation involved computing what the foreign tax credit position of the parent would have been if the dividend had not been paid.

Table 6 summarizes the impact of dividend remittances on tax payments for the CFCs in our sample for which we calculate an average tax rate.[29] We partition the data into two groups of CFCs: (1) those CFCs with parents that had positive U.S. taxable income; and (2) those CFCs with parents that had U.S. tax losses. For each group, the table shows the number of CFCs, the number paying dividends, the percent paying dividends, the total amount of CFC dividend payments, and the ratios of CFC dividend payments to CFC earnings and assets, respectively.

In the first six rows of the table, those CFCs that had U.S. parents with taxable U.S. income are partitioned by whether a dividend payment from them to their parent would have increased, left unchanged, or decreased tax payments. The first three of these rows consider only the

effect of a dividend payment on the U.S. tax liabilities of the parent company. Comparing the percent of CFCs paying dividends and the average payout ratios across the different categories yields striking results. It appears that tax incentives strongly affected whether a multinational chose to receive dividend remittances from a CFC. About 29.4 percent of all CFCs paid a dividend, but only 19.0 percent of those CFCs from whom dividend payments would have increased U.S. tax liabilities actually paid dividends, while 31.3 percent of those CFCs whose dividend payments would not have changed U.S. tax liabilities and 39.0 percent of those CFCs whose dividends would have decreased U.S. tax liabilities did pay dividends.[30] And tax incentives affected the amount of dividend payments as a percentage of CFC earnings or assets even more than they affected the number of CFCs paying dividends. In particular, the sixth column of the table shows that the ratio of dividend payments to assets for those CFCs whose dividend payments increased U.S. taxes was only 1.4 percent, while this ratio was 4.1 percent and 4.4 percent for CFCs whose dividend payments did not change or decreased U.S. taxes, respectively. The seventh column presents similar results for the ratio of dividend payments to CFC earnings. The fifth column shows that these CFC dividend payments generated little U.S. tax revenue; only 8.1 percent of the total dividend payments increased U.S. taxes at all, compared to 17.0 percent of the payments which actually decreased U.S. taxes.

The next three rows of Table 6 partition CFCs by the effect of dividend payments on global--i.e. both U.S. and source country--tax liabilities. Taxes still appear to have had a strong influence on dividend remittance patterns, but the U.S. multinationals bore some taxes on 51.2 percent of these income flows. This occurs because remittances from CFCs with parents in excess credit often create a source country withholding tax

liability which is not offset by a reduction in U.S. taxes, since the withholding tax payment just creates more excess foreign tax credits.[31] However, comparing the proportions of CFCs paying dividends and CFC payout ratios yields a similar result to when only U.S. tax liabilities are considered: CFCs appear to have been far more likely to pay dividends and to pay larger dividends if those dividends bore a negative, or zero, tax price. Remarkably, 35.6 percent of CFC dividend payments appear to have decreased global tax liabilities for their U.S. parent corporations.

The last three rows of Table 6 present results for CFCs with parents that had tax losses and therefore no U.S. taxes to pay. Our sample has 1,066 of such CFCs, as compared to 3,339 CFCs with parents having positive taxable income. Remittances from these CFCs do not incur any U.S. tax because the foreign taxable income they represent is offset by domestic (or foreign branch) tax losses. Because there is no current U.S. tax liability, any foreign tax credit on the remitted income cannot be taken currently, but it may be carried forward or back to other tax years.

We might expect large remittances of income from low-tax CFCs in this situation, since the parent pays no additional U.S. tax currently, but the results in Table 6 contradict this intuition. Those CFCs paid out little in relation to their income and assets. For example, as a group these CFCs paid out only 26.4 percent of their earnings, compared to 39.6 percent for those CFCs that had parents with positive taxable income. Particularly puzzling is the result that low-tax CFCs paid out less than high-tax CFCs, since firms making losses save U.S. tax when they receive dividends from low-tax CFCs but not when they receive them from high-tax CFCs.

These results may not be as puzzling as they at first seemed to us, since a plausible tax motivation exists for CFCs to pay out less when their U.S. parents are making losses. When the parent receives a dividend from

a CFC in this situation, it gives up a loss deduction that, according to U.S. tax rules, can be carried back to past years or forward to future years to offset taxable income and reduce taxes. In exchange for the foregone loss carryover, the parent saves the additional U.S. tax that would otherwise accrue immediately on the foreign income it repatriates. The parent also acquires excess foreign tax credits in the amount of the foreign tax paid or deemed paid on the remitted income. Together, the current savings in U.S. tax and the excess foreign tax credit are equal in dollar value to the loss carryover that the firm gives up. However, according to U.S. tax law, the loss deduction can be carried back up to three years and forward up to fifteen years, while the foreign tax credit can be carried back only two years and forward only five years. The foreign tax credit carryover is therefore much more likely to expire unused than is the loss carryover. U.S. multinationals may be reluctant to give up a loss carryover that they would probably be able to use at some point in the future in exchange for a smaller immediate tax gain and a foreign tax credit carryover that is more likely to expire unused. However, the result that low-tax CFCs pay out less than high-tax CFCs in this situation remains a puzzle.

V.4 Estimates of the Relationship Between Dividend Remittances and their Tax Price

The results reported in Tables 3 through 6 suggest that taxation may have an important influence on dividend remittance patterns, but they do not allow us to gauge whether tax incentives are significant when other factors are taken into account. To do that we estimated dividend equations of the following basic form:

$$D_i = \alpha_0 + \alpha_1 TAX_i + \alpha_2 Y_i + \beta' X_i + \gamma' X_p + \epsilon_i, \qquad (19)$$

where D_i denotes the dividend payment of CFC i to its U.S. parent corporation; TAX_i denotes the tax price of dividend payments from the CFC to its parent; Y_i denotes CFC after-tax income; X_i is a vector of other CFC characteristics; X_p is a vector of the characteristics of the U.S. parent; and ϵ_i is a random error term.

Equation (19) is similar to the dividend equation estimated by Hines and Hubbard (1990), but our estimates differ in some important ways. As we have noted, our specification of the tax price variable includes withholding taxes and takes into account variations in source country corporate income taxation systems. In addition, in some of our estimates we include an additional tax price variable designed to reflect *expected* tax price effects. We attempt to capture the possibility that the parent firm's excess credit position could change in the future and that the use of foreign tax credit carryovers could change the tax consequences of current dividend payments. We assume that the larger the parent firm's excess credit position, if it is in excess credit, or the greater its deficit of credits, if it is in excess limitation, relative to its total foreign source income, the less likely it will be to change credit position during the period when carryovers could be used. This led us to the following dividend equation:

$$D_i = \alpha_0 + \alpha_1 TAX_i + \alpha_2 ETAX_i + \alpha_3 Y_i + \beta' X_i + \gamma' X_p + \epsilon_i, \quad (20)$$

where

$$ETAX_i = (TAX_i - OTAX_i)\, e^{-\left(\frac{FTC_p}{FSI_p}\right)} \quad (21)$$

and $OTAX_i$ denotes the tax price of a dividend remittance if the parent which is currently in excess credit (excess limitation) were instead in excess limitation (excess credit); FTC_p denotes the current total excess credit or

excess limitation of the parent; and FSI_P denotes the parent's total foreign source income from all sources.

Although ad hoc, this specification has three attractive properties. To illustrate this, note that if the probability of switching credit position is P, so that the expected tax price is

$$(1\text{-}P)TAX_i + P(OTAX_i), \tag{22}$$

then

$$P = \left(\frac{\alpha_2}{\alpha_1}\right) e^{-\left(\frac{FTC_P}{FSI_P}\right)} \tag{23}$$

Given this interpretation, the first attractive property of the specification is that α_1 represents the effect of the *expected* tax price no matter what value P takes on. The second attractive property is that as FTC_P/FSI_P gets large,--i.e., as the parent goes further into excess credit or excess limitation and is therefore less likely to move out of that state in the near future--$ETAX_i$, and hence P, gets small and eventually approaches zero. The third property is that as the foreign tax credit position, FTC_P, approaches zero, P approaches a fixed number, α_2/α_1.

Since over 70 percent of the CFCs in the sample pay no dividends at all, the dividend equations were estimated using a tobit model. The columns of Table 7 report estimates of six different versions of the tobit model. Column (1) presents estimates of the basic dividend equation including the tax price variable, CFC earnings and CFC age measured by the number of years since incorporation. To control for variations in CFC size, CFC dividend remittances and earnings are divided by CFC assets. Column (2) shows estimates of the same equation with the addition of the variable to capture the expected tax price effect, ETAX. We included the ratio of

parent company dividends to assets and a set of parent dummy variables, to capture parent-specific effects, in the estimates reported in column (3). Column (4) reports estimates of the equation including 59 country dummy variables. For the estimates shown in column (5), we included CFC interest paid divided by CFC assets and a dummy variable for the U.S. parent corporation's excess credit position. Column (6) presents estimates of the dividend equation with CFC industry dummy variables in addition to the country dummy variables.

The estimated tax price effects on CFC dividend remittances are negative and significant in each model suggesting that the larger the tax price of receiving dividends from a CFC, the lower the dividend payment from that CFC will be. Interestingly, adding the expected tax price variable improves the estimates overall and increases the estimated tax price coefficient substantially, from -0.058 in column (1) to -0.160 in column (2). The expected tax price effect appears to be larger and more significant than the estimated effect of the simple tax price specification used in the column (1) estimates.

The estimated parameters for the other variables present in these, and the other, specifications have unsurprising signs. Higher CFC earnings increase CFC distributions. CFC dividends increase with CFC age, a result predicted by some models of multinational behavior under taxation with a foreign tax credit and deferral.[32]

The estimates shown in column (3) are of interest in light of results reported in Hines and Hubbard (1990) and Hines (1991). Hines and Hubbard (1990) found a strong positive relationship between CFC dividend payments and parent company dividend payments. They suggest that this relationship may be due to cash flow constraints, since parent firms might need more internally generated funds when they are making distributions to

their shareholders. Hines (1991) found a strong positive effect of foreign earnings in estimates of dividend payout equations for U.S. corporations. He is uncertain as to the reason for this relationship, but suggests that it is consistent with a signalling view of dividends. In an earlier version of this paper, we presented estimates that were consistent with these earlier findings: parent dividend payments had a large positive coefficient when added to our CFC dividend equations. However, the results reported in column (3) show that when separate parent effects are added to the equation, the relationship between parent and CFC dividend payments disappears. It appears that the parent dividend variable may simply have been capturing some omitted parent characteristics. In any case, the presence or absence of these, and other, parent variables does not affect the estimated coefficients on the other variables substantially.

Including country effects in column (4) increases the estimated tax effect from -0.160 to -0.217. Although not reported in the table, many of the estimated country effects are significantly different from the omitted country effect, Canada. For example, significant negative effects were estimated for the United Kingdom (-0.160), France (-0.073), and the Netherlands (-0.083). We found no evidence of a strong tax haven effect independent of the tax price effect. While Hong Kong and the Cayman Islands have significant negative country effects of -0.097 and -0.158, respectively, the Netherlands Antilles has a significant positive effect (0.108), and other tax havens generally have insignificant country effects. Country risk factors may be evident in the positive country effects on dividend remittances found for Panama (0.089), South Africa (0.074), and the Philippines (0.145).

In order to control for differences in CFC capital structure, we included the ratio of CFC interest payments to CFC assets in the estimates

reported in column (5).[33] The more debt financed a CFC, the greater its interest payments and the less funds may be available for dividend payments. The estimated coefficient on this variable has the expected negative sign, but it is not statistically significant. Including this variable does not change the estimated tax price effect.

A potential problem with our estimated tax effects is that they may measure no more than the fact that CFCs with parents in excess credit paid larger dividends. To test for this possibility the estimates reported in column (5) also include a dummy variable equal to one if the parent is in excess credit and zero otherwise. While the estimated coefficient on this variable is positive and significant, the estimated tax price effect reported in column (5) remains highly significant and virtually unchanged from the column (4) estimate.

Our results are robust to the inclusion of other variables in the equation. For example, column (6) reports estimates of the dividend equation containing 27 CFC industry dummy variables in addition to the country dummy variables.[34] The results are largely the same as in the other estimates.[35]

We have also estimated these equations including terms that interact the tax price variables with the CFC earnings variable. Such interactive terms are frequently included in empirical estimates of dividend equations. The results from those estimates are qualitatively the same as those presented in Table 7, although the estimated tax price effects evaluated at the variable means are actually somewhat larger when the interactive terms are included. We present the results without the interactive terms because they are somewhat easier to evaluate visually.

A potential endogeneity problem associated with our tax price variable becomes apparent if one examines the formulas in Table 1.

Specifically, the value of the tax price variable depends on the size of the CFC's dividend payment when the host country has a split-rate or imputation tax system. We used instrumental variables estimates to evaluate whether this is an important problem. We instrumented the tax price variables on their values evaluated when dividend payments are zero. The instrumental variables estimates were very close to those reported in Table 7, so it appears that this source of endogeneity in the tax variable is not important.

The results reported in Table 7 show that the tax price of a dividend remittance has a significant negative impact on CFC dividend remittances. The estimates from columns (4) and (5) indicate that at the mean of the variables an increase in the tax price of 1 percentage point would decrease the dividend payout ratio by about .054 percentage points, which translates into approximately a 1.5 percent decrease in dividend payments. This effect may not seem large, but given that the tax price of remittances varied enormously across CFCs within the sample, from less than -300 percent to over 50 percent, the estimates indicate that tax incentives did have dramatic impacts on dividend remittance patterns.

As explained above, one can calculate implied values for the probability of switching credit position from our estimates. When the stock of excess credits equals zero, an estimate of this probability is given by the coefficient on the expected tax price variable. Using the parameter estimate from our preferred specifications in columns (4), (5) and (6) the implied probability of switching credit position is around 0.62. This probability may seem large, but considered in light of the substantial shifts in credit position shown in Table 5 it appears to be more reasonable. In particular note that Table 5 shows that at least 46 percent of the parent corporations switched credit position during the period from 1984 to 1986. Over the seven year period around 1986 during which excess credits could be carried back or

forward the percentage of firms switching credit position would probably be a lot higher.

Our results appear to suggest a greater and more significant tax price effect on dividend remittances than found by Hines and Hubbard (1990) in their estimates of a similar equation. This may be due to our improved specification of the tax price variable or to differences in the data used.

Caution should be exercised in interpreting the estimated coefficients on our tax price variable. These estimates do not necessarily show the effect of tax policy changes on the aggregate level of dividend remittances from CFCs. What the figures show is that firms tend to structure their CFC dividend remittances so that they minimize taxes at the margin. If, given the income flows from other sources, the tax price of a dividend remittance from a particular CFC to its U.S. parent is low, our results suggest that the U.S. parent is more likely to receive a dividend payment from that CFC. But the tax price of a dividend remittance from one CFC will frequently depend on the foreign income its U.S. parent receives from other CFCs, foreign branches, and other sources. Since we have not estimated the parameters of a model that would simultaneously determine the levels of all of these income flows, our estimates will not capture all the effects of policy changes on aggregate dividend remittances.

VI. SUMMARY AND IMPLICATIONS

Our results suggest that U.S. corporations are able to manipulate the flows of income from their CFCs in order to reduce the global tax on their foreign source income. They are able to take advantage of deferral and the overall limitation on the foreign tax credit to avoid paying much U.S. tax on

their foreign income.[36] The incentives for tax avoidance distort the timing and the source of remittances of income from abroad.

The fact that U.S. multinational corporations avoid paying much U.S. tax on foreign source income is not necessarily in conflict with U.S. policy goals to the extent that it merely reflects high foreign taxes paid by U.S. corporations on their foreign source income. The foreign tax credit is, after all, meant to relieve double taxation. However, our results indicate that the low U.S. tax payments on this income are not merely the result of uniformly high foreign tax rates. Instead, they appear to arise to a significant extent from the ability of U.S. firms to cross-credit between different sources of income within the overall limitation on the foreign tax credit. In addition to lowering U.S. tax revenues, this may also affect the extent to which the tax system preserves capital export neutrality. With cross-crediting, firms with excess credits have a tax incentive to invest in low-tax countries rather than in the U.S. or elsewhere thereby violating capital export neutrality. However, ignoring the effects of deferral, cross-crediting may tend to preserve capital export neutrality for firms in excess limitation because the tax consequences of earning income in high-tax countries and low-tax countries are the same. Whether this is, or should be, compatible with U.S. policy goals is an open question.

The current policy implications of our results should be qualified by the major changes in the tax law that have occurred since 1986. The Tax Reform Act of 1986 tightened up on the use of cross-crediting by increasing the number of separate limitation baskets. Our results indicate that the concerns that led to these further restrictions on cross-crediting were justified, whatever the merits of the particular measures that were adopted. The 1986 Act also lowered the U.S. corporate income tax rate substantially, which may have caused a much greater portion of the foreign source income

of U.S. multinationals to generate excess credits. Another possible limitation of this analysis is that 1986 may have been an anomalous year due to the anticipation of the tax law changes that took effect over the following two years. Slemrod (1990b) presents balance of payments data suggesting that there were such effects on multinational income flows in 1986. We plan to investigate the anticipatory impacts and subsequent effects of the 1986 tax legislation by linking our 1986 data to data from earlier and later years when the first multinational tax data from the period following 1986 become available.

ENDNOTES

1. These figures are from the latest tax return data available as presented in Redmiles (1990).

2. The focus here is on the exploitation of opportunities for legal tax avoidance; we do not examine enforcement issues such as those relating to transfer pricing.

3. The source country may also collect revenue through sales taxes or a VAT. Some of the burden of these taxes may be borne by the foreign operation of the U.S. company.

4. The U.S. tax base can differ from the tax base as defined by the host government for a variety of reasons. For example, the amount of interest deductions allowed, depreciation schedules and inflation rates may differ in host and home countries. Hines (1989) and Leechor and Mintz (1990) show that these differences can have important incentive effects.

5. Up until 1976, U.S. taxpayers could elect to apply their limitation either on a global basis or on a per country basis. The per country limitation was eliminated in 1976.

6. This ignores the possible effects of deferral in violating capital export neutrality.

7. This discussion ignores the role of deferral. Taking deferral into account, Hartman (1985) argues that capital export neutrality holds neither for excess limitation firms nor for excess credit firms. He argues that only the host country tax matters for foreign investment financed through foreign subsidiary retained earnings. His insight is that the taxes paid to the U.S. government upon repatriation of foreign earnings decrease both the opportunity cost of investment (reduced dividends in his case) and the return to investment by the same amount and are therefore irrelevant to marginal investment decisions.

8. A DISC (Domestic International Sales Corporation) is a corporation through which U.S. companies can generate export sales. DISCs were created in 1971 to provide a tax incentive to U.S. exporters. Companies which set up DISCs were allowed to defer a portion of the U.S. tax due on export income.

9. In 1984, Congress effectively replaced the DISC program with the FSC (Foreign Sales Corporation) rules. FSCs are a special class of corporations which are eligible to receive an exemption from U.S. taxation on a portion of export income.

10. See, for example, Price Waterhouse (1991) and Tillinghast (1990).

11. Except for the time value of the additional tax paid this year that will be offset by a reduction in tax next year.

12. Alworth expresses the tax cost of dividend remittances in the form of the opportunity cost of retained earnings.

13. For the countries in our sample, withholding tax rates on dividends range from zero to 55 percent.

14. Germany's corporate tax system is actually a hybrid of a split-rate and an imputation system; however, since Germany provides no refunds of tax on distributions of profits to foreign direct investors, the imputation part of the system does not apply for our purposes.

15. As noted above, Germany has a split-rate system coupled with its imputation credit.

16. There are exceptions. For example, Brazil does not allow the deductibility of royalty payments from Brazilian companies to related foreign parties.

17. Financial companies face some different tax rules and they generally operate in other countries through branches rather than subsidiaries. For these reasons financial companies were omitted from the analysis.

18. The firms in our sample were drawn from the sample collected by the Statistics of Income Division of the Internal Revenue Service. This sample is created by including all U.S. corporations with assets that exceeded $50 million and a subset of U.S. corporations with smaller asset size. A complete description of the sampling technique used by the Internal Revenue Service can be found in the 1986 Statistics of Income Corporation Income Tax Returns volume.

19. Since we are primarily concerned with CFC income repatriations we eliminated from our sample parents that did not have general limitation income and parents that did not own any CFCs. The original sample contained 1,817 non-financial parent corporations. More than half of those eliminated from our study had no CFCs (1,101) the remainder had either not filed a foreign tax credit form (97) or had no general limitation basket foreign source income (2). Removing multinationals that did not control any CFCs from our sample resulted in only a 7% reduction in general limitation basket foreign source income.

20. These percentages are calculated for parents with positive worldwide income.

21. This result is possibly of limited significance for agriculture, since there is only one corporation in that industry present in our sample. Confidentiality considerations required us to report the figures for that corporation grouped with the transportation industry, which faced a similar average U.S. tax rate on its foreign source income.

22. The total foreign source income in this table is smaller than in Table 2 for at least two reasons. First, foreign sources of income other than CFCs, such as branch operations, are not included. Second, the sample of CFCs does not necessarily represent all the CFCs of the U.S. firms in the sample.

23. The analysis in Goodspeed and Frisch (1989) also suggests that parents average across income sources. They calculate average tax rates on all types of foreign source income in the general limitation basket by country using 1984 data. They find that the effective tax rate on dividends was high while the effective tax rate on interest and other forms of deductible income repatriations was low. Comparing these effective tax rates with country specific average tax rates suggests that parents cross-credit over foreign source income types.

24. This will not always be true because we are ignoring the withholding tax rates and variations in foreign corporate tax systems here that we account for below.

25. The figures presented in Table 4 probably underestimate the potential for cross crediting in concurrent dividend payments and its use. This is because our sample does not include all the CFCs of each parent firm

for two reasons. First, as explained above, only the largest 7,500 CFCs were included in the sample. Second, as explained in the text and in Appendix B, some CFCs were dropped from the sample because average tax rates could not be calculated for them.

26. The figures reported in this paragraph are not presented in a table.

27. To divide the firms into the four cells that appear in Table 5 we used the following methodology. For simplicity, we use the 1984-1986 time period as an example. Firms that were in excess credit in 1984 and 1986 that had foreign tax credit carryforwards in 1986 were placed in the "always in excess credit" cell. Firms that were in excess limitation in 1984 and 1986 that did not have foreign tax credit carryforwards in 1986 were placed in the "always in excess limitation" cell. The set of firms that were in excess credit in 1984 and in excess limitation in 1986 were determined to have transited out of an excess credit state over the time period. We added to this group (the "transit from excess limitation to excess credit" cell) firms that were in excess limitation in both even years that had foreign tax credit carryforwards in 1986. The final cell, "transit from excess limitation to excess credit", contains the following two groups of firms: those in excess limitation in 1984 and in excess credit in 1986 and those in excess credit in 1984 and 1986 that had no foreign tax credit carryforwards in 1986.

28. Since the passage of the Tax Reform Act of 1986 may have made 1986 an anomalous year, we also weighted the figures in Table 5 for the 1984-1986 time period by foreign source income in 1984. In 1984, the total foreign source income of corporations in the sample was $37.5 billion. The proportion of foreign source income associated with parents remaining in the same credit position was 54.0 percent; 12.7 percent of foreign source income belonged to parents that remained in excess limitation and 41.3 percent was associated with parents that remained in excess credit. The remaining proportion of foreign source income belonged to parents that switched credit positions; 24.1 percent transited to an excess credit position and 21.9 percent transited to an excess limitation position. As Table 5 shows, these percentages do differ from those weighted by foreign source income in 1986. This may have been a result of anticipatory behavior on the part of U.S. corporations in response to the Tax Reform Act of 1986.

29. A small group of CFCs with extremely high (above ninety percent) calculated average tax rates were eliminated from the sample used to generate the results in Tables 6 and 7 because they appeared to be outliers.

30. A question arose as to how to classify those CFCs that paid a dividend that was large enough to change the foreign tax credit position of the parent. We opted to classify CFCs by the tax consequence of the first dollar of dividend payment made. Few enough CFCs in this position were in the sample that the results were not significantly changed by classifying CFCs by the tax consequence of the last dollar of dividend payment made.

31. Remittances from some CFCs incur a positive or zero U.S. tax liability but a *negative* global tax liability. This can occur because host country taxes are reduced by distributions of profits in countries with split rate systems. The ACT credit in the U.K. also decreases global tax when the firm is in excess credit.

32. Including Newlon (1987) and Sinn (1990).

33. Since CFC interest payments are an endogenous variable, it would be best to instrument them on some exogenous variable. However, we could not find suitable instrumental variables in our data.

34. These dummy variables were created using groupings of the IRS SOI industry classifications which correspond fairly closely to two-digit SIC classifications.

35. We have also estimated the same equation with parent industry effects, but the results were not significantly different from those reported in Table 7.

36. The income does bear shareholder level taxes when it is distributed to the U.S. parent corporation's own shareholders.

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APPENDIX A: Derivation of Tax Prices for Non-Classical Corporate Income Tax Systems

In this appendix we present the derivations of the tax prices for dividend payments from CFCs in countries with split-rate and imputation corporate income tax systems.

A.1 Tax Prices under Split-Rate Systems

Under split-rate systems there are different corporate tax rates for undistributed and distributed profits, denoted in the text as τ_u and τ_d, respectively. The total tax paid by CFC i to its country of residence before withholding taxes is

$$T_i = \tau_u(Y_i - D_i) + \tau_d D_i,$$

where Y_i denotes the CFC's pre-tax income, and D_i denotes its dividend payment to its U.S. parent corporation. Let τ_i represent the source country average tax rate on the CFC's distributed and undistributed profits before withholding taxes, equal to T_i/Y_i, which is the tax rate used for the dividend gross up and foreign tax credit calculation. If the parent is in excess credit, there is no additional U.S. tax to pay on dividends, and so the tax price of a dividend remittance must be zero. If the parent is in excess limitation the U.S. tax payable on the dividend remittance is

$$T_{US} = D_i\{(\tau-\tau_i)/(1-\tau_i) - \omega_i\}.$$

where ω_i represents the source country withholding tax rate on dividend payments out of the country. Differentiating this with respect to D_i yields the U.S. tax price of dividend remittances when the parent is in excess limitation:

$$dT_{US}/dD_i = (\tau-\tau_i)/(1-\tau_i) - \omega_i + (D_i/Y_i)(\tau_u-\tau_d)(1-\tau)/(1-\tau_i)^2.$$

The global tax liability created by a dividend remittance is the sum of the U.S. and the foreign tax liabilities. If the parent is in excess limitation, that sum is equal to

$$T_G = (\tau_d-\tau_u)D_i + D_i(\tau-\tau_i)/(1-\tau_i).$$

The global tax price is then

$$dT_G/dD_i = \tau_d - \tau_u + (\tau-\tau_i)/(1-\tau_i) + (D_i/Y_i)(\tau_u-\tau_d)(1-\tau)/(1-\tau_i)^2.$$

For a parent in excess credit, the global tax liability associated with the dividend payment is simply

$$T_G = (\tau_d-\tau_u+\omega_i)D_i,$$

so the tax price is

$$dT_G/dD_i = \tau_d - \tau_u + \omega_i.$$

A.2 Tax Prices under the U.K. Imputation System

Under the U.S.-U.K. tax treaty, the tax credit provided to U.S. shareholders for Advanced Corporation Tax (ACT) on distributed profits is one half of the credit given domestic shareholders. The United Kingdom applies its withholding tax to both the dividend payment and the ACT credit. The United States considers the tax credit paid to be part of the grossed-up dividend. In addition, for foreign tax credit purposes the United States treats the reduction by one half in the credit given to U.S. shareholders as an additional payment of U.K. corporate income tax by the U.K. CFC.

Denoting the tax credit given to U.S. shareholders for ACT as θ_i, actual CFC tax payments to the United Kingdom are

$$T_i = c_iY_i - \theta_iD_i + \omega_i(1+\theta_i)D_i,$$

where c_i is the rate of tax on undistributed profits. Taxes deemed by the United States to have been paid by the CFC before withholding taxes are

$$T_{dp} = c_iY_i + \theta_iD_i.$$

The average U.K. tax rate used for the dividend gross up and the foreign tax credit is

$$\tau_i = T_{dp}/Y_i.$$

Given these definitions, we can derive the U.S. tax liability on a dividend payment form a U.K. CFC after the foreign tax credit. If the U.S. parent corporation is in excess credit, the U.S. tax liability is zero. If the parent is in excess limitation, the U.S. tax liability is

$$T_{US} = (1+\theta_i)D_i\{(\tau-\tau_i)/(1-\tau_i) - \omega_i\}$$

Differentiating this expression produces the tax price of dividend remittances when the parent is in excess limitation:

$$dT_{US}/dD_i = (1+\theta_i)\{(\tau-\tau_i)/(1-\tau_i) - \omega_i - \theta_i(D_i/Y_i)(1-\tau)/(1-\tau_i)^2\}.$$

The global tax liability created by the dividend payment for a parent in excess credit is

$$T_G = \{(1+\theta_i)\omega_i - \theta_i\}D_i,$$

and the corresponding tax price is

$$dT_G/dD_i = (1+\theta_i)\omega_i - \theta_i.$$

The global tax liability for a parent in excess limitation is

$$T_G = (1+\theta_i)D_i(\tau-\tau_i)/(1-\tau_i) - \theta_iD_i,$$

and the associated tax price is

$$dT_G/dD_i = (1+\theta_i)\{(\tau-\tau_i)/(1-\tau_i) - \theta_i(D_i/Y_i)(1-\tau)/(1-\tau_i)^2\} - \theta_i.$$

APPENDIX B: Data Issues

B.1 Problems in Imputing CFC Specific Average Tax Rates from Tax Return Data

Calculating the tax price of dividend repatriations from the subsidiary information return (Form 5471) often requires more information than is reported. This is the case for CFCs that report negative earnings and profits, receive tax refunds from host countries, repatriate dividends in excess of current earnings and profits, and receive remittances from their own subsidiaries. As described below, to reduce measurement errors, we eliminated CFCs in some of these situations from our analysis. In other instances we opted to include observations after careful analysis.

We eliminated two groups of CFCs that are apt to have true gross up rates that differ from average foreign tax rates. The first group were CFCs with negative earnings and profits. For these CFCs, the rate used to gross up dividends for the purpose of the foreign tax credit is the rate that applied when the earnings from which dividends are distributed were generated. No information on this rate is available since it is a function of past tax rates.

Another problem arose due to the existence of negative CFC foreign income tax payments. CFCs may receive tax refunds from host countries which reduce tax payments on current earnings and profits. This causes no problem for the imputation of average tax rates for CFCs that paid positive foreign taxes but leaves us with an indeterminate gross up rate for CFCs with negative foreign income tax payments. Since there is insufficient information to impute a tax rate we also eliminated CFCs in this situation.

There are two nuances in the tax law that complicate the calculation of the gross up rate for CFCs. First, prior to 1987, if a CFC's dividend

payment exceeded its current year after-tax profits, then the excess was considered to have been distributed from the accumulated profits of previous years, starting with the next previous year and proceeding backwards. The gross up rate on the excess remittance is therefore calculated based on the foreign taxes that were paid on those prior year profits. Second, if a CFC itself receives dividend payments from a subsidiary of its own--termed a "lower-tier CFC"--then any dividend payment from the "first-tier" CFC to its U.S. parent is considered to be paid proportionately out of its own profits and the profits of the lower-tier CFC. Therefore, the gross up rate is based on a weighted average of the average tax rates of the first-tier CFC and the lower-tier CFC, with the weights determined by the fraction of the first-tier CFC's profits accounted for by the dividend from the lower-tier CFC. After careful analysis, we chose to include in our sample CFCs in both of these situations. Imputed average tax rates were calculated by dividing current year tax payments by current year earnings and profits. A description of the procedures we used to determine if the inclusion of these two groups of CFCs caused any bias in our results is contained in Sections B.2.1 and B.2.2 of this appendix.

In summary, we included in our sample CFCs that received dividend payments from lower-tier CFCs and CFCs that paid out dividends in excess of current year earnings and profits. Excluded from our sample are CFCs that made negative foreign income tax payments and CFCs that reported negative earnings and profits. Our sample consisted of 340 parents with positive worldwide income. These corporations owned 4,475 CFCs with assets large enough to be included in the top 7,500 CFCs. Of this group of CFCs, 884 had negative earnings and profits and 159 received tax refunds from host countries. Eliminating these CFCs resulted in a decrease of 601 million dollars of dividend remittances. These omissions accounted

for less than 5% of the almost 13 billion dollars of dividend payments from CFCs to parents included in the sample. Our sample was made up of the remaining 3,410 CFCs of which 333 paid out dividends in excess of current earnings and profits and 420 received dividends from lower-tier CFCs. Dividend remittances total 12.3 billion dollars; 2.8 million dollars of dividends were remitted from CFCs that paid out dividends above current earnings and profits and 6.2 million dollars of dividends were remitted from CFCs receiving dividend payments from lower-tier CFCs.

B.2 Potential Sources of Bias

B.2.1 CFCs that received dividends from lower-tier subsidiaries

CFCs receiving dividends from lower-tier CFCs may or may not remit dividends to U.S. parent corporations. To determine whether dividend remittance patterns differed between CFCs with lower-tier remittances and those without, we separated from the sample those CFCs for which lower-tier dividend payments comprised more than 10% of earnings and profits. We then generated Tables 3-6 for both samples and compared the results. Although CFCs that received substantial amounts of dividends from lower-tier CFCs were more likely to make dividend payments to U.S. parents and paid out more dividends, we found that the relationship between tax prices and dividend payments did not differ across the two samples. As a result we included in our tabulation and econometric work all CFCs that derived income from lower-tier dividend payments.

B.2.2 CFCs that paid out dividends in excess of current year after-tax profits

CFCs that paid out dividends in excess of current earnings and profits are also a potential source of measurement error. We compared

tabulations for this group of CFCs to all other CFCs paying dividends and determined that including this set of CFCs did not systematically bias our results.

Table 1
The Tax Price of Dividend Repatriations

	U.S. Tax Price	Global Tax Price
Under Classical Tax Systems		
Excess limitation parent	$(\tau-\tau_i)/(1-\tau_i)-\omega_i$	$(\tau-\tau_i)/(1-\tau_i)$
Excess credit parent	0	ω_i
Under Split Rate Tax Systems		
Excess limitation parent	$(\tau-\tau_i)/(1-\tau_i)-\omega_i+(D_i/Y_i)(\tau_u-\tau_d)(1-\tau)/(1-\tau_i)^2$	$(\tau-\tau_i)/(1-\tau_i)+\tau_d-\tau_u+(D_i/Y_i)(\tau_u-\tau_d)(1-\tau)/(1-\tau_i)^2$
Excess credit parent	0	$\tau_d-\tau_u+\omega_i$
Under Imputation Tax Systems		
Excess limitation parent	$(1+\theta_i)\{(\tau-\tau_i)/(1-\tau_i)-\omega_i-\theta_i(D_i/Y_i)(1-\tau)/(1-\tau_i)^2\}$	$(1+\theta_i)\{(\tau-\tau_i)/(1-\tau_i)-\theta_i(D_i/Y_i)(1-\tau)/(1-\tau_i)^2\}-\theta_i$
Excess credit parent	0	$(1+\theta_i)\omega_i-\theta_i$

Note: These tax prices should be adjusted to take into consideration the ability of U.S. corporations to carry back and/or carry forward excess foreign tax credits. Dividend remittances that increase the amount by which a corporation is in excess limitation (i.e., with positive tax prices) may be used in the future to absorb excess credits if the corporation transits to an excess credit position within the next two years. Therefore the tax price given will be an *overestimate* of the expected tax price. Dividend remittances that decrease the amount by which a corporation is in excess limitation have a negative current tax price which may *underestimate* the expected tax price if future periods are taken into consideration. Similarly, the current tax price of a repatriation that increases (decreases) the amount by which a parent is in excess credit may be an *underestimate (overestimate)* of the expected tax price if the corporation can absorb credits through carrybacks.

Table 2

Tax Payments of U.S. Parent Corporations in the Sample

(dollars in millions)

	Number of U.S. Parent Corporations	Assets	Total U.S. Taxable Income	Total U.S. Taxes Paid	Foreign Source Income	U.S. Taxes Paid on Foreign Source Income	Average U.S. Tax Rate on Foreign Source Income
By industry of parent:							
Mining	9	10,482	1,121	105	934	2	0.2%
Construction	5	15,009	163	9	148	0	0.0%
Manufacturing	243	1,471,945	63,531	10,425	43,283	1,014	2.3%
Transportation*	28	201,628	7,132	1,842	1,463	487	33.3%
Retail Trade	38	192,646	6,907	2,228	1,047	41	3.9%
Services	17	48,186	1,294	232	412	41	10.0%
By credit position:							
Excess limitation	212	971,325	38,294	9,656	14,697	1,585	10.8%
Excess credit	128	968,571	41,853	5,185	32,589	0	0.0%
Total	340	1,939,896	80,147	14,840	47,286	1,585	3.4%

Note:

* We combined the agriculture and transportation industries to preserve the confidentiality of the tax return information. These two industries have similar average U.S. tax rates on their foreign source income.

Table 3

Foreign Tax Rates and the Composition of U.S. Parent Corporation Income from CFCs in the Sample

(dollars in millions)	Number of CFCs	CFC Assets	CFC After-tax Earnings	Income from CFCs			
				Dividends	Interest, Rents and Royalties	Subpart F Income	Total
U.S. Parent in Excess Limitation:							
Total	1,827	122,683	11,514	2,658	1,182	1,093	4,933
with foreign tax rate:							
less than 20%	659	51,306	5,244	918	326	815	2,059
20 – 30%	170	13,326	1,385	345	152	69	565
30 – 40%	286	20,151	1,662	434	189	49	671
40 – 50%	443	22,125	2,233	688	295	95	1,078
50 – 60%	165	10,233	820	198	131	40	369
greater than 60%	104	5,542	171	76	89	26	191
U.S. Parent in Excess Credit:							
Total	1,583	221,454	19,780	9,650	3,843	1,499	14,993
with foreign tax rate:							
less than 20%	593	72,433	7,689	2,721	539	1,050	4,311
20 – 30%	163	24,757	1,594	1,202	193	83	1,479
30 – 40%	275	36,036	3,875	1,232	895	98	2,225
40 – 50%	325	51,751	4,397	2,524	1,773	183	4,479
50 – 60%	142	20,005	1,568	1,190	384	30	1,605
greater than 60%	85	16,472	657	781	59	55	895

Table 4

The Potential for and Extent of Cross Crediting in CFC Dividend Remittances to U.S. Parent Corporations in the Sample

	Number	Percent of Total Number	Number Receiving Dividends	Percent of Total Number Receiving Dividends	Dividends received (dollars in millions)	Percent of Total Dividends Received
Total U.S. Parent Corporations:	290	100.0%	204	100.0%	12,267	100.0%
U.S. Parents with both high and low tax CFCs:	212	73.1%	171	83.8%	11,905	97.0%
with dividends received from both high and low tax CFCs	111	38.3%	111	54.4%	11,488	93.7%
with dividends received only from high tax CFCs	34	11.7%	34	16.7%	196	1.6%
with dividends received only from low tax CFCs:	26	9.0%	26	12.7%	220	1.8%
and the parent has FTC carryforwards	11	3.8%	11	5.4%	146	1.2%

Note:

CFCs with average foreign tax rates greater than or equal to the U.S. statutory corporate rate in 1986 (46%) are classified as "high tax" CFCs. All other CFCs for which an average foreign tax rate can be calculated are "low tax" CFCs.

Table 5

Foreign Tax Credit State Transitions of U.S. Multinationals

Years	Totals	Percent Transit from Excess Credit to Excess Limitation	Percent Transit from Excess Limitation to Excess Credit	Percent Always in Excess Limitation	Percent Always in Excess Credit
	Number of				
Unweighted:	U.S. Corporations				
1980–1982	449	14.3%	22.9%	53.2%	9.6%
1982–1984	388	18.3%	20.1%	46.9%	14.7%
1984–1986	317	24.3%	21.8%	42.3%	11.7%
	Assets				
Weighted by Assets:	(dollars in millions)				
1980–1982	1,701,751	12.3%	26.9%	49.7%	11.1%
1982–1984	1,809,922	21.4%	16.4%	34.7%	27.6%
1984–1986	1,766,597	14.2%	34.1%	33.6%	18.1%
Weighted by	Foreign Source Income				
Foreign Source Income:	(dollars in millions)				
1980–1982	20,931	13.2%	34.4%	38.4%	14.0%
1982–1984	43,671	20.2%	21.7%	18.0%	40.1%
1984–1986	40,563	10.2%	42.5%	11.9%	35.4%

Notes: 1. Firms must have positive taxable income in both even years to be in each sample.

2. Weighted figures are weighted by assets or foreign source income in the last year of each sample period.

Table 6

The Tax Consequences of CFC Dividend Remittances to their U.S. Parent Corporations

	Number of CFCs	Number of CFCs Paying Dividends	Percent of CFCs Paying Dividends	CFC Dividend payments (dollars in millions)	Percent of Total CFC Dividend Payments	Ratio of CFC Dividends to Assets	Ratio of CFC Dividends to After-tax Earnings
FOR PARENTS WITH							
POSITIVE TAXABLE INCOME:							
By tax price of dividend:							
Increases U.S. taxes	1,014	193	19.0%	992	8.1%	1.4%	13.9%
Does not change U.S. taxes	1,548	485	31.3%	9,186	74.9%	4.1%	46.0%
Decreases U.S. taxes	777	303	39.0%	2,088	17.0%	4.4%	53.4%
Increases global taxes	2,218	623	28.1%	6,279	51.2%	3.1%	32.0%
Does not change global taxes	252	79	31.3%	1,624	13.2%	3.9%	50.2%
Decreases global taxes	869	279	32.1%	4,364	35.6%	4.4%	53.5%
Total	3,339	981	29.4%	12,267	100.0%	3.6%	39.6%
FOR PARENTS WITH TAX LOSSES:							
Low tax CFCs	761	107	14.1%	712	71.7%	1.6%	16.2%
High tax CFCs	305	58	19.0%	281	28.3%	1.8%	28.4%
Total	1,066	165	15.5%	992	100.0%	1.7%	26.4%

Table 7
Tobit Estimates of Tax Price Effects on CFC Dividend Remittances

	Dependent Variable: Ratio of CFC Dividends to CFC Assets					
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Tax price	-0.058	-0.160	-0.135	-0.217	-0.218	-0.216
	(0.016)[1]	(0.022)	(0.022)	(0.025)	(0.026)	(0.026)
Expected tax price variable[2]	--	-0.116	-0.100	-0.136	-0.137	-0.134
		(0.016)	(0.017)	(0.018)	(0.018)	(0.018)
Ratio of CFC earnings to CFC assets	1.039	1.056	0.944	1.053	1.054	1.046
	(0.024)	(0.025)	(0.024)	(0.026)	(0.026)	(0.026)
Years since CFC incorporation/10	0.035	0.032	0.028	0.039	0.038	0.037
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Ratio of parent dividends to parent assets	--	--	0.356	--	--	--
			(47.63)			
Ratio of CFC interest paid to CFC assets	--	--	--	--	-0.188	-0.170
					(0.166)	(0.167)
Excess credit dummy	--	--	--	--	0.023	0.022
					(0.011)	(0.012)
Parent dummies present	no	no	yes	no	no	no
Country dummies present	no	no	no	yes	yes	yes
CFC industry dummies present	no	no	no	no	no	yes
Intercept	-0.339	-0.326	-0.410	-0.318	-0.324	-0.371
	(0.014)	(0.013)	(0.159)	(0.020)	(0.021)	(0.030)

Table 7 (continued)
Tobit Estimates of Tax Price Effects on CFC Dividend Remittances

	Dependent Variable: Ratio of CFC Dividends to CFC Assets					
	(1)	(2)	(3)	(4)	(5)	(6)
Number of observations	3,116	3,116	3,116	3,116	3,116	3,116
Log likelihood	-1,086	-1,069	-741	-975	-975	-941
Parameter scale factor[3]	0.2636	0.2618	0.2520	0.2470	0.2470	0.2413

Notes:
1. Standard errors are in parentheses.
2. The expected tax price variable is as specified in equation (21).
3. Multiply parameter estimates by the parameter scale factor to obtain slope coefficients.