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RETURNS ON FDI: DOES THE U.S. REALLY DO BETTER?

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**ABSTRACT**

According to the U.S. external accounts, U.S. investors earn a significantly higher rate of return on their foreign investments than foreigners earn in the United States. This continued strong performance has produced a positive net investment income balance despite the deterioration in the U.S. net asset position in recent years. We examine the major competing explanations for the apparent differential between the rates of return. In particular, almost the entire difference occurs in FDI, where American firms operating abroad appear to earn a persistently higher return than that earned by foreign firms operating in the U.S. We first review a number of explanations in the literature for this differential. We then offer some new evidence on the role of income shifting between jurisdictions with varying rates of taxation. Using country-specific income and tax data, we find that about one-third of the excess return earned by U.S. corporations abroad can be explained by firms reporting "extra" income in low tax jurisdictions of their affiliates.

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## **Returns on FDI: Does the U.S. Really Do Better?**

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Over the past quarter century, the United States has undergone a striking shift from the world's largest creditor nation, with a net international investment position equal to 11 percent of GDP, to its largest debtor, with a net indebtedness of \$2.6 trillion or -20 percent of GDP at the end of 2006 (Table 1). Yet, net income from U.S. foreign investments remained positive throughout this transition.<sup>1</sup> This surprising state of affairs is highlighted in figure 1. According to official data, the strong continued income account performance reflects the fact that U.S. investors earn a significantly higher rate of return on their foreign assets than foreigners earn in the United States. But despite considerable recent research, analysts do not agree on whether the U.S. really does do better, and if so, why.

Some scholars argue that published data are implausible and suggest possible errors in the reported data for either income flows or estimated net asset position. For example, Hausmann and Sturznegger (2006) argue that the value of the U.S. foreign asset position is understated, leading to overstatement of the return on outward FDI. In particular, they believe that U.S. trade statistics fail to capture the full amount of U.S. exports of intangible capital. In contrast, Gros (2006a, 2006b) points to asymmetries in the data sources used to construct estimates of income and payments on foreign direct investment. He believes that U.S. payments to foreigners, and thus the return on inward FDI, are understated. Gourinchas and Rey (2007) change the presentation of the data to emphasize the total return (inclusive of capital gains) and conclude that the U.S. earns a premium because it acts as an international venture capitalist, borrowing in relative safe short-term liabilities while investing in riskier long-term assets.

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<sup>1</sup> We are indebted to our discussant for alerting us to the substantial upward revisions to net investment income in the June 2007 balance of payments release. For 2001-2006, the newest release incorporates average cumulative upward revisions of \$40 billion over the initial estimates.

The purpose of this paper is to examine in greater detail some of the competing explanations for the apparent differential between the rates of return on U.S. foreign assets and liabilities. In particular, we focus on the rate of return on foreign direct investment (FDI). As we show, almost the entire return differential occurs in FDI, where American firms operating abroad appear to earn a persistently higher return than that earned by foreign firms operating in the U.S. We first review a number of explanations in the literature for this differential. We then offer some new evidence on the potential role of income shifting between jurisdictions with varying rates of taxation.

In summary, we do not believe that the differential in returns is an illusion of bad data, as alleged by much of the recent discussion. While the Bureau of Economic Analysis (BEA) --the statistical agency that collects and reports the relevant data -- is handicapped by unreliable source data, we believe that the existing accounts it puts together are superior to suggested alternatives. However, we argue that the current literature places too little emphasis on the potential role for tax-related income shifting. In particular, we find statistically significant evidence of a substantial diversion of income to low-tax jurisdictions, suggesting that the reported earnings on FDI are distorted by efforts to avoid U.S. corporate taxation.

The following section examines the official statistics on the balance of payments (BOP) and the international investment position (IIP) of the United States. Section three discusses the main competing explanations, some of which assert that the official measures are incorrect. Section four contains our argument on tax considerations. Section five concludes.

### **What do the published data show?**

The official statistics on the U.S. external position are surprising in two respects. First, despite the enormous size of the nation's external indebtedness, the net debt has actually grown more slowly than would have been expected from a simple summation of the annual current account deficits, which are now in the range of \$700-800 billion per year. The cumulation of past current account balances would suggest a net liability position of about -\$5.5 trillion at the end of 2006, compared to an actual value of -\$2.6 trillion (Table 1).<sup>2</sup> Second, as mentioned above, the

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<sup>2</sup> The 2007 release of the asset position data includes a new category for financial derivatives, but only for year-end 2005 and 2006. To preserve historical comparability, we exclude the contribution of financial derivatives from the totals reported in Table 1, Table 2 and Figure 1 and cited throughout the paper. In 2006 including financial

United States has experienced no deterioration in its net foreign investment income despite the emergence of the large negative asset position.

These two puzzles raise a number of questions that have direct bearing on the sustainability of the U.S. position. Why have the large current account deficits failed to lead to a larger buildup of net liabilities? What accounts for the missing \$2 trillion? And why has the U.S. continued to do so well on its net investment income? To some observers these two puzzling facts seem inconsistent with the gloom and doom that dominates discussions of the deteriorating U.S. trade position and predictions of a near-term financial crisis.

The Balance of Payments Division of BEA publishes two consistent sets of accounts covering external holdings. The transactions accounts (BoP) provide annual and quarterly data on the normal balance of payments items, including inward and outward investment and the capital income that stems from that investment. The international investment position (IIP) shows the gross asset and liability position of the U.S. In principle, all of the items in both sets of accounts are valued at their current market transaction price. A complication arises with FDI, however, because many foreign affiliates are not actively traded and therefore lack a current market price.

The IIP provides two alternative estimates of FDI at current market value: *current cost* and *market valuation*.<sup>3</sup> The current-cost method incorporates market values for the financial components of the IIP but values the tangible asset portion of FDI at current replacement cost using country-specific capital-goods price indexes. This is consistent with the methodology used to value domestic tangible assets in the Federal Reserve's flow of funds accounts.<sup>4</sup> The market valuation concept short-circuits all of the underlying adjustments to balance sheets of foreign affiliates by directly incrementing net equity positions in line with country-specific equity market indexes. In contrast to much of the literature, we choose to emphasize the current cost method in our empirical analysis for two reasons. We find it more consistent with the valuation methods used to compute rates of return on domestic capital. Furthermore, we are uneasy with the

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derivatives would raise both total foreign assets and liabilities by approximately \$1.2 trillion. See Bureau of Economic Analysis (2007).

<sup>3</sup>See Landefeld and Lawson (1991).

<sup>4</sup>Tangible assets comprise about one-quarter of foreign affiliates' net stockholder equity.

assumption implicit in the market valuation methodology that changes in the value of foreign affiliates parallel changes in their host country aggregate stock exchanges.

Table 1 demonstrates the puzzle of the missing \$2 trillion by contrasting the current-cost valuations of US foreign assets and liabilities with simple summations of the corresponding flows. The top panel of the table shows cumulative foreign investments for the United States of \$8.5 trillion in 2006. The 2006 current cost valuation of these assets abroad was \$12.5 trillion, implying that the United States had valuation gains of \$4.1 trillion on these investments. In contrast, the middle panel shows that foreign investments in the United States had a valuation gain of just \$1.2 trillion on a larger cumulative asset position of \$13.9 trillion. These valuation changes arise from a combination of asset price changes in the host country, exchange rate changes, and a miscellaneous category called 'other valuation changes'.<sup>5</sup>

It is apparent from the table that valuation effects are larger for equity investments than for either FDI or other assets. The explanation is quite straightforward, reflecting the fact that cash payouts to equity holders (dividends) are only a small portion of the total return. Furthermore, the valuation effects are larger on the asset side both because U.S. investments in foreign equity markets are somewhat greater than foreign equity investments in the United States and because the foreign market price gains have been larger. The greater surprise is that U.S. investors appear to have had valuation gains on their other investments (FDI and non-equity), while foreign investments in the U.S. appear to have had substantial valuation losses.<sup>6</sup> A small portion of the difference can be traced to exchange rate effects, but the differences in the non-equity component are largely due to inconsistencies in the source data that the BEA uses to construct the transactions flows and the end of year investment positions. In recent years the surveys have shown larger than expected U.S. holdings of foreign assets and smaller liabilities.<sup>7</sup>

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<sup>5</sup> The category of other valuation changes reflects breaks in data series and the gain or loss associated with the sale of the interest in a foreign affiliate at a price different than had been recorded in the accounts. While the category is quite large in the aggregate, historical information is not available on its distribution across asset categories.

<sup>6</sup> The difference in the valuation adjustment for FDI assets and liabilities may be due in part to divergent trends in capital goods prices. The United States adjusts the price indexes for rapid quality improvements in information technology (IT) capital with the result that the price index for capital goods declines relative to the general GDP deflator. That pattern of relative price change is much less evident in other countries with a smaller role for IT capital.

<sup>7</sup> A particularly large discrepancy arose with the December 2003 Treasury survey in which U.S. holdings of foreign bonds was reported at \$874 billion or 74 percent above the prior estimate based on flow information (Bach, 2005, p59).

The second puzzle is illustrated by combining the BoP capital income data with matching measures of assets and liabilities from the IIP so as to compute rates of return for U.S. investments abroad and foreign investments in the United States. To begin with, we have divided the data into two categories, FDI and all other investments. Surprisingly, figure 2 illustrates that U.S. and foreign investors have earned nearly identical rates of return on non-FDI assets over the past quarter century. Moreover, those returns appear to have declined in line with observed market interest rates. This close correspondence is unexpected in view of the common belief that foreign portfolio investments are concentrated in short-term U.S. government securities with low yields, whereas U.S. investments are relatively concentrated in equities and other high-yield assets. Part of the explanation is that low-yield foreign official holdings are only about 20 percent of total non-FDI liabilities, a smaller share than typically believed. In addition, equities are a large portion of U.S. assets, and as discussed above, cash dividends are a small share of their total yield. The total return, which includes both dividend income and capital gains, is significantly higher.<sup>8</sup>

Instead, the higher earnings on U.S. foreign investments can be traced to a much larger return reported for the FDI of U.S. resident business enterprises (USDIA), compared to foreign firms operating in the United States (FDIUS). As shown in figure 3, the differential has been large and persistent, averaging six percent over the 1977-2006 period. We have emphasized measures of the rate of return that are based on valuing physical plant and equipment at current replacement cost, but the alternative of adjusting owners' equity in line with country-specific equity indexes (market valuation) yields similar results.

The gap in FDI returns seems to suggest that U.S. firms use their capital more efficiently than their foreign counterparts. If so, it is interesting to ask whether U.S. firms have made unusually high returns abroad, or foreign firms operating in the U.S. have done especially poorly. As a benchmark measure, figure 3 also shows the after-tax return on domestic nonfinancial corporate capital over 1976-2005.<sup>9</sup> It consistently lies between the estimated returns on outward and inward FDI, suggesting both an above-average return on USDIA and a low reported return

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<sup>8</sup> The balance of payments and the national accounts both exclude capital gains and losses from the income flows. We will return to the measurement of total returns in a later section of the paper.

<sup>9</sup> The rate of return includes profits, net interest and rent in the numerator to avoid issues of distinguishing between the returns to bondholders and stockholders. The denominator measures mid-year tangible assets at replacement costs, and therefore the return is a real rate free of inflation effects.

for FDIUS. Until recently, most of the discussion and research has focused on the perceived low return on FDIUS. A belief that foreign-controlled corporations operating in the United States were shifting their income abroad in order to avoid U.S. taxation was a significant topic in the 1992 elections, and various explanations for their low returns were frequent topics of research.<sup>10</sup> More recently, the discussion has shifted to put a greater emphasis on the high return on USDIA.<sup>11</sup>

### **Competing Explanations**

The observation that the rates of return on outward and inward FDI differ by a substantial magnitude has been noted by many researchers. The on-going discussion revolves around five alternative explanations: (1) Differing characteristics of USDIA and FDIUS, (2) errors in accounting for exports of U.S. intangibles and a consequent underestimate of the USDIA asset position, (3) errors in the reporting of earnings on USDIA and FDIUS, (4) alternative measures of the return, and (5) tax incentives. We discuss the first four below, leaving the role of taxes to be evaluated in a subsequent section in which we offer some new empirical results.

*Differing characteristic of FDI.* The sharply differing rates of return on inward and outward FDI are longstanding and frequently noted in the research literature. In the 1990s, the basic assumption was the differences were real, and researchers sought explanations in different characteristics of the enterprises. Most frequently, the differential has either been attributed to the fact that American foreign subsidiaries have been in operation for a longer period of time than foreign subsidiaries in the United States, or to the claim that the risks of doing business may be greater for U.S. firms operating abroad than for foreign firms operating in the United States.

Landefeld and others (1992) reported that firms acquired by foreigners had below average rates of return at the time of purchase; and Grubert and others (1993) found that rates of return did tend to rise in the years following an acquisition within a dataset of individual foreign-controlled corporations in manufacturing. Mataloni (2000) also found strong maturation effects for a panel of manufacturing companies over the period of 1987-97. However, the size of the age effect is quite small relative to the total gap in the return on inward and outward FDI. Furthermore, while U.S. firms were investing greater amounts abroad in the years prior to 1980,

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<sup>10</sup> Mataloni (2000) and Grubert (1997).

<sup>11</sup> Hausmann and Sturznegger (2006), Buiters (2006), McGrattan and Prescott (2006), and Kitchen (2006).



the explosive growth of inward and outward FDI in subsequent years should have rapidly reduced the importance of any initial differences (Gros, 2006b, p. 9).

The hypothesis that the higher return on outward-FDI is due to the greater riskiness of investing in other countries has been evaluated by Huang and Mascaro (2004). They show that returns on outward FDI are more volatile and that outward FDI has a considerably higher sovereign risk rating. However, sovereign risk accounts for only about one third of the observed differences in rate of return, and the correlation between returns by country and sovereign risk is not statistically significant.

Neither of these two explanations seems to us sufficient to account for the magnitude and persistence of the differences between the returns on inward and outward FDI. However, Huang and Mascaro argue that taken together, these two effects may account for as much as two-thirds of the reported difference.

*Unrecorded Exports of Intangibles.* Hausmann and Sturznegger (2006) argue that a persistently higher return on outward relative to inward investment is implausible. They advance an alternative viewpoint that the value of overseas assets are understated because of large exports of intangibles to foreign affiliates that go unreported in official trade data. Trade in intangibles includes transfers of patents, trademarks, and financial assets, as well as more difficult-to-quantify concepts such as management and technical know-how. Hausmann and Sturznegger assert that these intangibles cannot be directly measured, but that their magnitude can be deduced by their impact on other flows (i.e. income receipts), similar to the methods used by astronomers to deduce the existence of ‘dark matter.’ Thus, they capitalize net investment income at an assumed 5 percent rate and compare it to the official IIP.<sup>12</sup> This calculation suggests that the net IIP should be raised by about \$3.1 trillion at the end of 2004. A revision of that magnitude would largely eliminate the cumulate current account deficit since 1980.

The Hausmann and Sturznegger assumption of a constant 5 percent return on U.S. assets and liabilities is also implausible. There is no reason for assuming that the return has been constant, much less that it has had a value of 5 percent. However, their analysis does draw attention to the difficulties of accurately measuring the flow of trade in intangibles. Intangibles have no geographic location and can only be defined in terms of the residence of their owners. In principle, the balance of payments includes transactions in intangibles between a parent and its

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<sup>12</sup> Cline (2005) performs a similar calculation using the ten-year Treasury bond rate.

foreign affiliates, both as part of services trade and as an element of FDI. Yet in practice, the decision of whether or not to transfer ownership to a foreign affiliate is largely independent of any production process or economic transaction. The output of the intangible capital can be attributed to a specific location almost at will. Robert Lipsey (2006) has expressed concern that this ‘phantom’ production and trade could erode the value of the economic accounts.

The historical cost valuation on the investment position is the cumulative sum of past FDI flows plus accounting adjustments. Thus, any undervaluation of flows would also be incorporated in the firm’s balance sheet. In theory, the alternative market valuation of FDI should correct for any systematic undervaluation of the flows. However, most affiliates are privately held and do not trade on organized exchanges. Recall that the BEA estimates a market value for U.S. affiliates by applying the ratio of market value to book value for a broad group of traded corporations in the host country. Thus, there is no built-in correction of asset levels that would adjust for errors in measurement of the flows. On the other hand, critics of the dark matter argument, such as Buiter (2006) and Higgins and others (2007), point out that no evidence has been presented to suggest that intangibles are a larger element of outward FDI than of the investments of foreign firms in the United States. Furthermore, not everyone agrees that the estimates of the investment income flows are better than those for the investment positions.

*Mis-measured Earnings.* Daniel Gros (2006a, 2006b) also believes that the finding of a sustained yield advantage on outward FDI is implausible. But in sharp contrast to Hausmann and Sturznegger, he argues that it is the income data that is wrong. In particular, he focuses on the fact that U.S. firms reinvest a large portion of their earnings on outward FDI, whereas foreign firms report little or no reinvestment of earnings. Second, he believes that the low return on foreign FDI in the United States cannot be reconciled with the fact that the average rate of return on foreign portfolio equity investments is nearly equal to that earned by U.S. investors. In effect, foreigners earn a return comparable to their U.S. counterparts until they invest more than 10 percent in a U.S. corporation – the threshold for the definition of FDI.<sup>13</sup>

Gros also rejects tax avoidance as an explanation for the low return on inward FDI. He believes this would imply continuous declines in U.S. export prices relative to import prices, and thus a deterioration in the terms of trade that he does not observe to be true. Instead, he points to

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<sup>13</sup> The argument is a bit of an overstatement because, although 10 percent constitutes the dividing line between portfolio and direct investment, the bulk of FDIUS is in majority-owned affiliates.

the inclusion of reinvested earnings as the source of the difference and favors focusing on dividend repatriation rather than on earnings to compare returns on inward versus outward FDI. Eliminating the reinvested earnings component would eliminate about two-thirds of the reported return on outward FDI thereby substantially narrowing the rate of return gap.

Like Hausmann and Sturzenegger, Gros presents no evidence that the reported returns on FDI are wrong, only that he regards the differential as implausible. However, his discussion does highlight an important inconsistency in national reports of FDI. Although the 5<sup>th</sup> edition of the Balance of Payments manual adopted a measure of income from FDI that includes reinvested earnings, not all countries have done so. However, Gros cannot resolve the puzzle of large FDI return differentials by simply excluding the reinvested component. The low return on FDIUS is not just a reporting problem because it is also reflected in the audited tax returns of foreign-controlled U.S. corporations.<sup>14</sup> Furthermore, because U.S. firms only pay taxes on repatriated foreign income, it is not surprising that they reinvest a large portion of that income. More fundamentally, we believe that Gros is too quick to reject tax avoidance as a contributor because he adopts too narrow a perspective on the potential for shifting income among jurisdictions.

***Alternative Measures of the Return.*** The BOP accounts, as with the national income accounts, exclude capital gains and losses. Excluding valuation changes is consistent with a desire to focus on resource use and resource transfers. However, the exclusion seems less relevant for financial transactions in which earnings are often reinvested and incorporated in asset price changes. The resulting interest in valuation effects and in measures of total return explains a large part of the increased focus on the asset and liability positions reported in the IIP.<sup>15</sup> However, the measures of the returns on FDI and other financial assets and liabilities that we described previously exclude those valuation elements.

As discussed earlier in connection with the data in table 1, valuation effects are large and quite favorable to the United States. Table 2 provides a more detailed perspective on the BEA data by separating the total valuation change into three components: asset price changes, exchange rate changes, and other valuation changes due to coverage changes and inconsistencies in the basic source data on stocks and flows. We have consolidated the data for 1990 to 2006 into

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<sup>14</sup> We present the tax return data in table 3 in the section on tax policy and income shifting.

<sup>15</sup> See as well the important research of Lane and Milesi-Ferretti (2001, 2003) to create measures of the IIP for a large number of countries. The importance of wealth valuation effects is also highlighted in Tille (2005).

three comparable subperiods. As shown, the combined revaluations have consistently favored the asset side of the accounts. A large portion of the net change, however, can be traced to revaluations that are due to the ‘other valuations’ category. The effect of exchange rate changes has been negative over the period as a whole, but it is highly variable. It is also noteworthy that the net effect of price changes varies substantially between the versions with FDI at current and market valuations. Thus, we infer that the greatest differences revolve around the question of how to value FDI, a category for which we have no direct market measure. An important shortcoming of the BEA data is that it is not possible to disaggregate the valuation changes at the level of individual asset categories.

Gourinchas and Rey (2007) address these issues by constructing their own measures of the U.S. external position that emphasize the total return (inclusive of capital gains and losses) instead of nominal receipts and payments. Particularly for the years after 1980, their measures of aggregate investment flows and stocks are very similar to those of the BEA.<sup>16</sup> However, they use a quite different methodology for calculating the returns on assets and liabilities. Instead of supplementing the official estimates of capital-income receipts and payments with estimates of capital gains/losses, they fully replace the income flows with their own estimates of total return, which are based on the performance of country-specific market indexes and the country composition of U.S. investments. Similarly, on the liability side, U.S. payments to foreigners are based on the total return estimates of U.S. market indexes.<sup>17</sup>

For FDI, Gourinchas and Rey exclude the income reported by BEA on both inward and outward FDI and replace it with their measures of the total return derived as explained above from the country-specific equity market indexes. In effect, they switch the focus from a debate about the sources of a differential rate of return on inward versus outward FDI to a focus on the simpler question of whether or not foreign equity markets outperform those of the United States.

In their version of the accounts, the United States earns a slightly higher return on its FDI, but the advantage is substantially smaller than that of non-FDI assets. In striking contrast to the returns shown in figure 2, the Gourinchas-Rey data show the United States advantage to lie

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<sup>16</sup> The capital flow data are virtually identical to those of the BEA with some reclassification; and except for FDI, they benchmark their asset positions to those of the BEA in the 4<sup>th</sup> quarter of every year. The FDI flows are identical to those of BEA.

<sup>17</sup> We were unable to obtain the Gourinchas and Rey data for direct comparison with that of the BEA, but the appendix to their paper provides a very thorough documentation of their methodology.

outside FDI, since it substantially outperforms other countries in its investments in each of the categories of equity, debt, and bank credit. However, we cannot compare their measure of returns, excluding the capital gain or loss, to the income and payments data from BEA because only the total return is reported in their published paper.

The alternative set of international accounts constructed by Gourinchas and Rey reflects an argument similar to that of Gros in that they reject BEA's FDI income data and replace it with a series that largely eliminates any difference in the returns on inward versus outward FDI. The resulting focus on the relative performance of equity markets assumes away the possibility that affiliates may do better or worse than the average firm in the host country. They posit instead an alternative puzzle of why the United States does so well on its non-FDI investments.

We agree with Gourinchas and Rey about the importance of developing effective measures of the total return on international financial investments. However, we do not understand why they went so far in rejecting the BEA data on capital incomes. In addition, Curcuru and others (2007), using a methodology similar to that of Gourinchas and Rey, conclude that the United States does not earn substantially higher returns within the two categories of bonds and stocks. We favor a less extreme approach in which BEA would publish the three components of the official valuation measure -- price change, exchange rate changes, and statistical discontinuities -- for each of the major asset categories. Researchers could then use either the nominal or the total return, depending on the specific circumstances.

### **Tax Policy and Income Shifting**

The influence of taxation on decision making by multinational corporations has long been a major topic of economic research. A recent survey by James Hines (1997) highlights the wide range of those studies, and the consistent evidence that taxes do have important consequences. However, most of the studies have focused on the effects of taxation on the location of investments. Less attention has been paid to the issue of greatest interest in the present context: Do firms shift income from the United States to jurisdictions of relatively low tax rates?<sup>18</sup> We are not only concerned about the extent to which tax incentives affect the placement of FDI, but also

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<sup>18</sup> Huizinga and Laeven (2006) conduct such an analysis for European multinational firms operating within Europe. They find evidence of substantial tax-related profit shifting.

about whether those incentives lead firms to disproportionately assign income to low-tax jurisdictions beyond an amount implied by their investment decisions.

There are two important mechanisms by which firms might shift reported net income. The first, which has attracted most of the attention, relies on the adjustment of cross-border transfer prices among affiliates within the same corporation. Governments try to control tax-induced transfer price adjustment by requiring the use of prices based on comparable arms-length transactions. However, this process involves substantial ambiguities. The second similar mechanism involves the transfer of intangible capital between a parent corporation and its affiliates. The use of the capital, in the form of manufacturing or marketing knowledge, is allocated to affiliates in low-tax jurisdictions at a price below the appropriate arms-length royalty.

Although it is within the U.S. customs union, Puerto Rico is a striking example of the potential for income shifting. Until recently, Section 936 of the Tax Reform Act of 1976 made income earned in Puerto Rico completely exempt from U.S. taxation. The provision was intended to encourage U.S. firms to establish manufacturing facilities on the island -- but it also created strong incentives for income shifting. Mainland pharmaceutical firms, for example, correctly reported a low value for raw materials exported to the island and a high value for final products exported from the island. Much of the difference between the two reflected the rent the companies earned on research and development for new patented drugs, the whole of which was attributed to the Puerto Rican affiliates. In effect, R&D expenses were recorded in the United States where the tax rate was high, while the returns were recorded in Puerto Rico where the tax rate was zero. This income-shifting is estimated to account for a 17-31 percent overstatement of Puerto Rico's GDP in 2004.<sup>19</sup> Grubert and Slemrod (1998) report rates of return in excess of 100% on tangible assets for the Puerto Rican affiliates of corporations in pharmaceuticals and electronic equipment.

Honohan and Walsh (2002) find comparable evidence of extraordinary returns by multinationals with large amounts of intangible capital operating in Ireland, another low foreign tax jurisdiction.<sup>20</sup> Microsoft provides a particularly good example, as it operates an affiliate in

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<sup>19</sup> Bosworth and Collins (2006), pp.23-29.

<sup>20</sup> Honohan and Walsh (2002), pp.39-44 and their appendix.

Ireland that receives much of its revenue from sales outside the United States. In 2004, the Irish affiliate reported assets of \$16 billion and profits of \$9 billion.<sup>21</sup>

***Existing Literature.*** Broad evidence of income shifting by U.S. multinationals is provided by Grubert and Mutti (1991). Their analysis of the profitability of U.S. affiliates as a function of host countries' statutory tax rates for 1982 found a significant and large negative correlation, implying that firms declared more income in low-tax countries. Similarly, Hines and Rice (1994) analyzed the reports of U.S. nonbank majority-owned affiliates in 1982 and found a negative relationship between local tax rates and profits, controlling for the capital and labor inputs. In the early 1980s, however, the U.S. corporate tax rate was not particularly high relative to those of the countries in which its FDI was concentrated. Thus, it was uncertain whether tax shifting would result in a net reallocation of income away from the United States.

A link to the U.S. parent was provided by Harris and others (1993) who reported that firms with affiliates in low-tax jurisdictions had lower U.S. tax ratios. In addition, Bernard and others (2006) used a new dataset with customs records of exports and export prices that distinguished between sales to foreign affiliates and arms-length transactions. They found that exporters consistently charged lower prices to affiliates, and that the difference varied inversely with the tax rate in the destination country. They estimated a loss of \$15 billion in the trade balance for 2004, or about six percent of U.S. FDI income.

Related research focused on foreign-controlled corporations operating in the United States has not found evidence that income shifting is a major contributor to the low reported return on inward FDI. Foreign firms do appear to have consistently earned a below average rate of return over the past quarter century (figure 3). However, Mataloni (2000) found no significant negative correlation between the returns earned by foreign-controlled corporations and their reliance on intra-firm trade. Grubert (1997) used data from U.S. corporate tax returns to examine the behavior of foreign-controlled corporations over the period of 1987-93.<sup>22</sup> He concluded that a large portion of the difference between the returns of foreign-controlled and domestic corporations can be accounted for by non-tax factors. Furthermore, he found that firms with less than 50 percent foreign ownership also had low relative rates of return. Since income-shifting

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<sup>21</sup> "Irish Subsidiary Let's Microsoft Slash Taxes in U.S. and Europe." *Wall Street Journal*, November 7, 2005, p. A1, Column 5.

<sup>22</sup> The paper is an update of an earlier article by Grubert and others, 1993.

would seem to be more difficult in the presence of other stockholders, he viewed this finding as a significant argument against the hypothesis.

In table 3, we present more recent information on the income of domestic and foreign-controlled corporations, as shown in the Statistics of Income data of the Treasury (see Hobbs, 2006). One interesting characteristic is the much higher incidence of negative or zero income among foreign-controlled corporations than domestic corporations (30.2 versus 12.7). This fact plays a dominant role in accounting for the overall difference in the rate of return on net worth between the domestic and foreign-controlled firms (columns 3 and 6). Notably, if the comparison is restricted to firms with positive net income, domestic and foreign firms have roughly equivalent rates of return. However, panel b shows that this restriction has the greatest impact on the comparison of firms in the financial sector (FIRE), where the rate of return of foreign firms is substantially higher. The negative positive earnings differential for domestic relative to foreign firms remains in industries such as manufacturing and wholesale trade.

*New results.* We re-examine the issue of income shifting using more recent data from the BEA's survey of U.S. multinational corporations. For the years 1999-2004 we have income and balance sheet data for U.S. majority-owned foreign affiliates in 51 countries. We constructed effective tax rates for each country, smoothing the data by taking three-year centered moving averages.<sup>23</sup> We then estimated simple gravity-style equations in which the log of income from country  $i$  was related to the log of the country's GDP, the log of its distance from the United States, the ratio of total trade to GDP as a measure of openness, and the effective tax rate.

As shown in figure 4, the effective tax rate on foreign firms often is quite different from the top statutory domestic tax rate in the host country.<sup>24</sup> These differences reflect other aspects of the tax law, such as depreciation allowances and the common practice of granting preferences to foreign investors. For example, the effective tax measure more clearly highlights the low tax applied to FDI in the Netherlands and Luxembourg. At the same time, it indicates the importance of excluding oil-exporting countries where the effective tax is very high.<sup>25</sup> We also

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<sup>23</sup> The calculation was suppressed in those situations in which the net income was negative. For 1999 (respectively, 2004), the tax rate was set equal to the centered three-year average for 2000 (respectively, 2003).

<sup>24</sup> The statutory tax rates are from the World Tax Database compiled by the Office of Tax policy Research at the University of Michigan: <http://www.bus.umich.edu/OTPR/otpr/introduction.htm>

<sup>25</sup> We believe the high effective tax rates reported in oil producing countries may be due to firms' grouping royalty payments in with foreign taxes. Such payments are conceptually quite different from tax payments, and we



find a consistent pattern of decline in the effective tax rates between the two subperiods (figure 5). Countries have reacted to the international competition by reducing the taxation of corporations.

How do tax rates abroad compare to those in the U.S.? Table 4 reports the average effective tax rate across the sample of countries, weighted by the stock of FDI. As shown, the U.S. tax rate was roughly 15 percentage points above the weighted foreign rate during 1999-2001. The 2002 tax reduction lowered the gap slightly, but the United States tax rate has remained considerably above the average of the countries in which its multinational corporations invest.

The basic regression results for exploring cross-country differences in FDI income are reported in table 5. The first three columns report the results for FDI income of the U.S. parent companies. The first two of these use annual data for 1999-2004 giving a total of 290 observations, with the caveat that the tax rate is a centered moving average as described above.<sup>26</sup> In column 1, the estimated coefficient on tax rate is negative and highly significant, a result that is very much in line with the prior finding that U.S. corporations are sensitive to tax considerations in the allocation of their investments.

Column 2 reports the same specification but with the country-specific stock of direct investment included on the right hand side.<sup>27</sup> Importantly, the tax rate coefficient remains negative and statistically significant even when the accumulated investment stock is controlled for. We interpret this finding as reflective of income-shifting since firms seem to go beyond the simple redistribution of their investments to reallocate income to low-tax jurisdictions. The last three columns repeat the regressions using total affiliates' income and equity, with no adjustment for the U.S. parent's share. The results appear quite robust to this alternative formulation.

We used the regression results of table 5, column (2) to estimate the magnitude of net income shifting. Thus, we show in column (1) of table 6 the level of FDI income that would be predicted each year using each country's effective tax rate, summed over the 51 countries in our

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therefore exclude the three oil-producing outliers in figure 4 (United Arab Emirates, Norway, and Nigeria) from the regressions reported below.

<sup>26</sup> Because of concerns about correlations of the error term across years, but with a common country, columns 3 and 6 report the same specification as columns 2 and 5, but with all of the data converted to two non-overlapping subperiods.

<sup>27</sup> Direct investment is measured here at historical cost, as the BEA does not provide a geographical breakdown of direct investment position at either current cost or market value.

sample.<sup>28</sup> The same calculation is repeated in column (2) but with every country assumed to have the U.S. tax rate instead of its own effective tax rate. Since the U.S. tax rate consistently exceeds the average tax rate abroad (table 4), the “predicted income” in column (2) is consistently below that for column (1). The difference between the two values is our estimate of the net income shifted out of the United States, and is shown in column (3). The 51 countries accounted for 81.5 percent of FDI income receipts in 2004.<sup>29</sup> We find that U.S. firms reported an “extra” \$28.5 billion earned abroad in 2004, or an average of 15 percent of total receipts over the 6 years. Thus, income shifting on outward FDI could account for as much as 1-1.5 percentage points of the return on FDI assets shown in figure 3, equal to about one-third of the gap between the return earned on outward investment and the benchmark return of nonfinancial corporate capital.

## **Conclusion**

Whether the United States can continue to earn positive or near-zero net investment income will have a direct impact on the size of the current account imbalance over the short to medium term. The fact that the U.S. has done so to date, despite a large and growing net international indebtedness position, has provoked a stream of research on the sources of the rate of return differential. Such explanations have focused on observable characteristics of firms, data quality issues, and the importance of including valuation changes in the measure of the return.

We argue here that tax-induced income shifting is an important part of the story. Using country-specific income and tax data, we find that about one-third of the excess return earned by U.S. corporations abroad can be explained by firms reporting “extra” income in low tax jurisdictions of their affiliates. We caution, however, against more extreme attempts to reconcile the return puzzle by restating the official balance of payments figures. The official data may exaggerate the U.S. FDI premium, but its size and persistence suggest that the return differential is quite real.

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<sup>28</sup> Due to data limitations the number of countries included was below 51 in some years.

<sup>29</sup> The geographical distribution of direct investment income is reported without a current cost adjustment and net of withholding taxes. In 2004 these adjustments reduced aggregate income earned on direct investments abroad by \$23 billion.

We conclude by stressing the importance of the BEA's expanding the accounts to document the separate contributions of price changes, exchange rate changes and revaluations at the level of individual asset categories. At least three research papers (Curcuru et al, 2007, Gourinchas-Rey, 2007, and Tille, 2003) have produced unofficial measures; but only the BEA can produce consistent estimates that would facilitate analysis based on both nominal and total returns.

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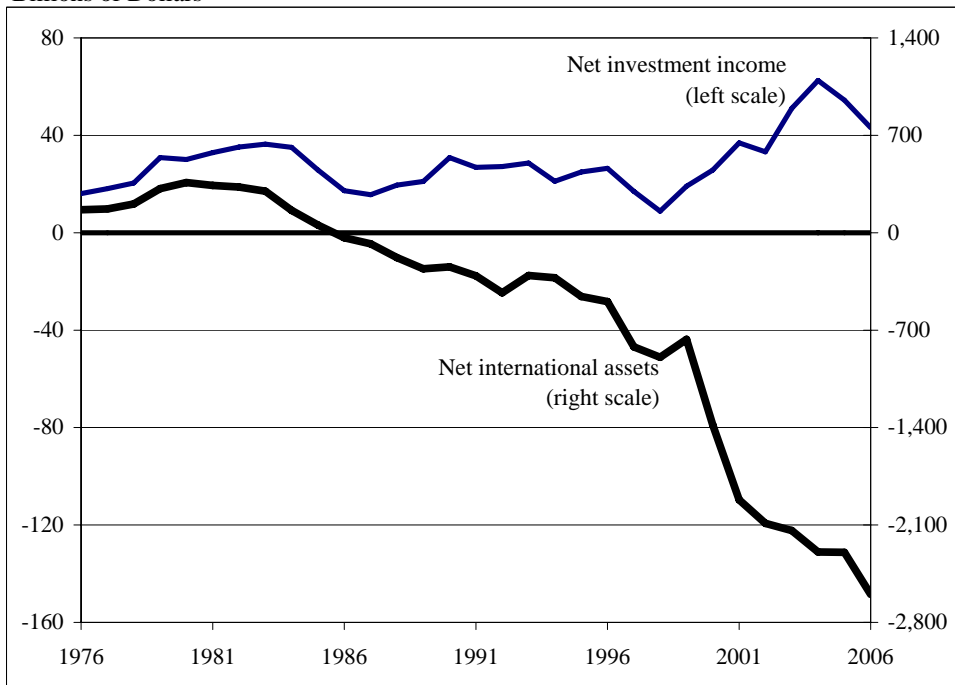
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**Figure 1. U.S. Net Investment Income and International Assets, 1976-2006**

Billions of Dollars



Source: BEA, U.S. *International Transactions Accounts and International Investment Position at Yearend*. Available at: <http://www.bea.gov/international/index.htm>

**Table 1. U.S. Investment Position at Current Cost and Cumulative Valuation, 1980-2006**

Billions of dollars

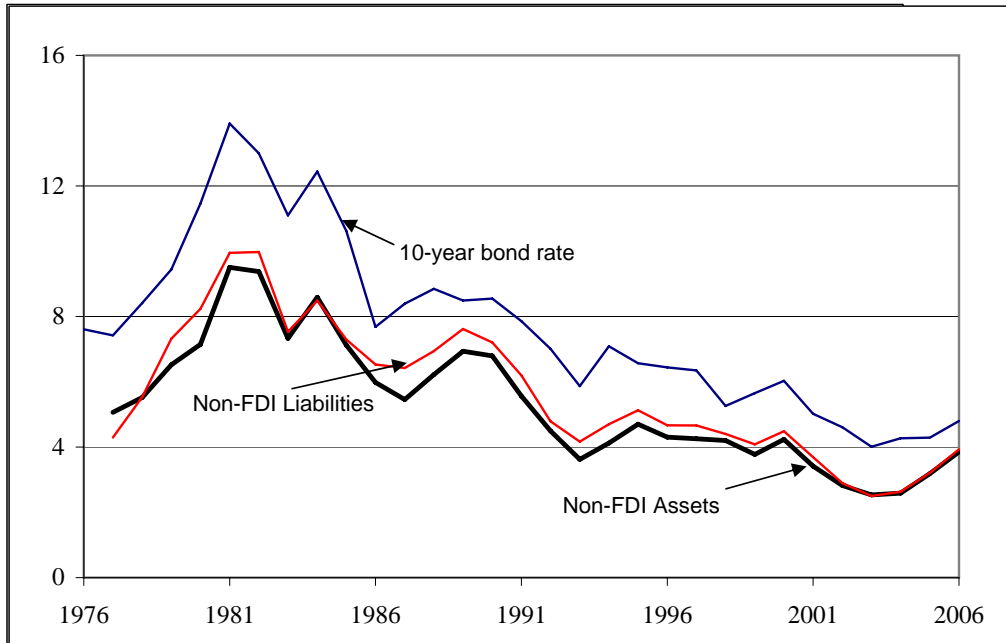
	Total assets		Foreign Direct Investment		Equity Investments		Other Assets	
	Current Cost Valuation	Cumulative Value	Current Cost Valuation	Cumulative Value	Current Cost Valuation	Cumulative Value	Current Cost Valuation	Cumulative Value
<b>U.S. Investments Abroad</b>								
1980	930	930	388	388	19	19	523	523
1990	2,179	1,876	617	612	198	53	1,365	1,211
2000	6,239	5,064	1,532	1,685	1,853	756	2,854	2,624
2006	12,517	8,454	2,856	2,638	4,252	1,355	5,410	4,461
Valuation Gain	4,063		218		2,896		950	
<b>Foreign Investments in the United States</b>								
1980	569	569	127	127	65	65	377	377
1990	2,424	2,196	505	488	222	102	1,697	1,606
2000	7,620	6,973	1,421	1,668	1,554	574	4,645	4,731
2006	15,116	13,943	2,099	2,419	2,539	1,043	10,478	10,482
Valuation Gain	1,173		-319		1,496		-4	
<b>Net Investment Position</b>								
1980	361	361	261	261	-46	-46	146	146
1990	-245	-320	111	124	-24	-48	-333	-396
2000	-1,381	-1,908	111	17	298	182	-1,790	-2,107
2006	-2,599	-5,489	756	219	1,713	312	-5,068	-6,021
Valuation Gain	2,891		537		1,400		954	

Source: Computed by the authors from the International Investment Position at Current Cost and a cumulative sum of flows as reported in the Balance of Payments. The cumulated flows are benchmarked to their 1980 valuation. As explained in the text, the 2006 valuation data exclude the category of financial derivatives.



**Figure 2. Rate of Return on Non-FDI Assets and Liabilities, 1976-2006**

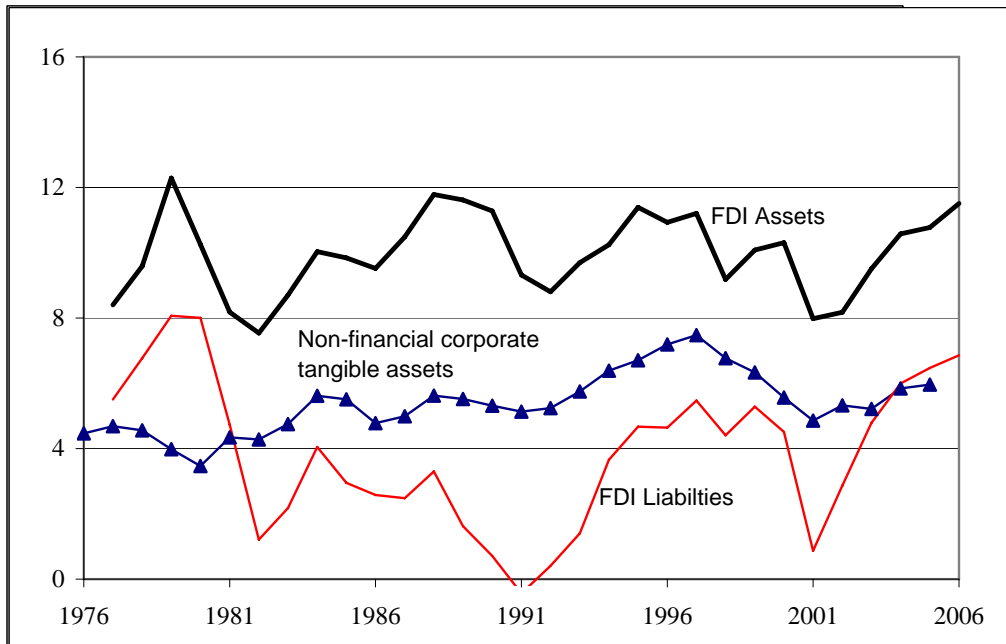
Percent



Source: Computed by the authors as the annual income as a percent of the mid-year estimate of assets and liabilities. The 10-year bond rate is the constant maturity yield on U.S. government securities. All of the data are from the sources listed in figure 1.

**Figure 3. Rate of Return on FDI and Corporate Capital, 1976-2006**

Percent



Source: authors' calculations from sources given in figure 1 and *Flow of Funds Accounts of the United States*. The domestic corporate rate of return is for nonfarm nonfinancial corporations, and it is defined as the sum of after-tax economic profits and net interest as a percent of tangible assets.

**Table 2. Valuation Changes on the International Investment Position, 1990-2006**

USD Billions

	With FDI at Current Cost				With FDI at Market Value			
	Total	Price	Exchange Rate	Other Revaluations	Total	Price	Exchange Rate	Other Revaluations
<i>Net</i>								
1990-95	299	-73	42	330	239	-157	77	319
1995-2000	180	-5	-370	555	-208	15	-563	340
2000-06	2,235	924	311	1,000	2,905	1,604	470	832
<i>Outward</i>								
1990-95	464	169	57	237	663	331	94	237
1995-2000	582	840	-419	161	1,416	1,867	-607	156
2000-06	2,593	1,281	408	904	2,690	1,324	561	804
<i>Inward</i>								
1990-95	165	243	15	-93	424	488	17	-81
1995-2000	402	845	-49	-394	1,625	1,852	-43	-184
2000-06	358	357	96	-96	-216	-280	91	-27

Source: BEA, Changes in selected major components of the international investment position, 1989-2006. As explained in the text, the 2005 and 2006 data exclude the category of financial derivatives.

**Table 3. Rate of Return, Domestic and Foreign-Controlled Firms, 1995-2003**

Percent

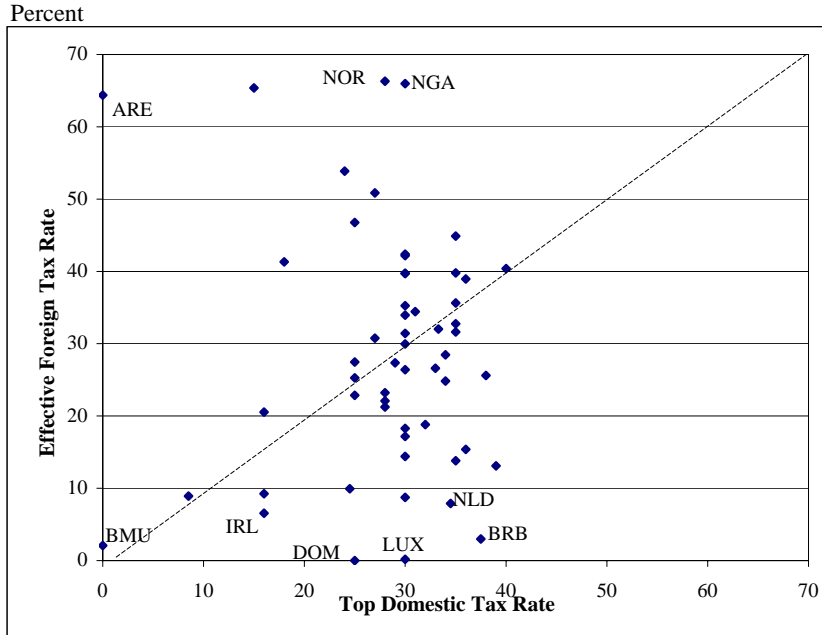
	All firms			Firms with positive net income		
	Domestic Controlled	Foreign Controlled	Differential (1-2)	Domestic Controlled	Foreign Controlled	Differential (4-5)
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. All Sectors</i>						
1995	7.1	4.0	3.1	9.8	10.1	-0.4
1996	6.9	3.7	3.3	9.5	9.2	0.3
1997	6.6	4.1	2.5	9.0	8.6	0.4
1998	5.2	2.3	2.9	7.9	8.3	-0.3
1999	5.0	2.8	2.2	7.7	8.5	-0.8
2000	4.4	2.3	2.1	7.9	8.2	-0.3
2001	2.8	-0.8	3.6	6.8	7.1	-0.3
2002	2.7	-0.6	3.2	6.4	7.6	-1.1
2003	3.4	0.8	2.6	6.3	6.4	-0.1
<i>Panel B. All Sectors excluding FIRE</i>						
1995	10.8	5.1	5.7	15.8	10.9	4.9
1996	11.0	3.5	7.5	16.0	9.1	6.9
1997	10.8	3.6	7.2	16.3	8.6	7.7
1998	8.1	2.3	5.8	13.9	8.9	5.0
1999	7.1	2.5	4.6	13.3	9.3	4.0
2000	5.4	2.1	3.3	12.4	8.3	4.1
2001	3.2	-1.1	4.3	11.1	7.3	3.8
2002	3.1	-0.5	3.6	10.9	8.3	2.6
2003	4.9	0.5	4.4	11.1	7.2	3.9

Memo: 1995-2003 average share of total net worth in firms reporting zero or negative income (all sectors).

Domestic Controlled	12.7
Foreign Controlled	30.2

Source: U.S. Department of Treasury, Statistics on Income, and authors' calculations.

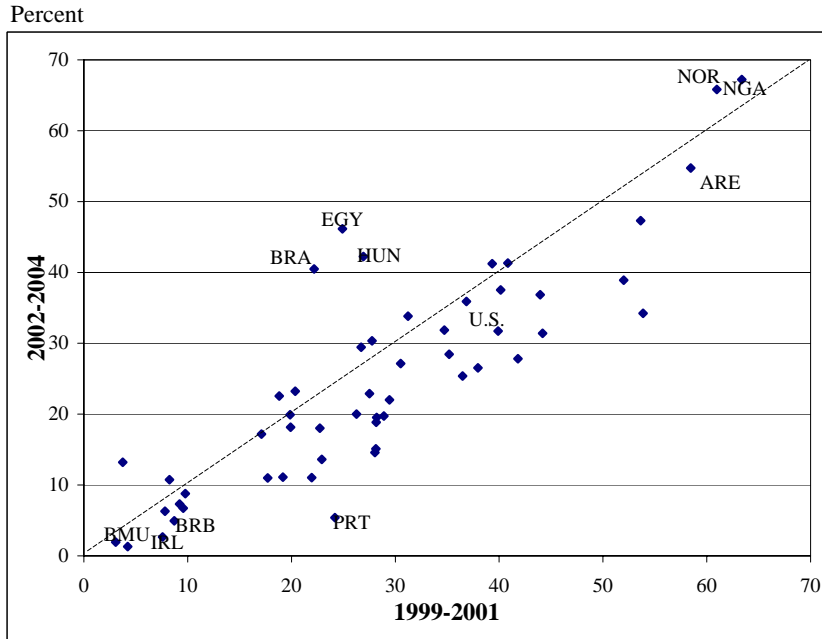
**Figure 4. Correlation between Effective Foreign Tax Rate and Top Domestic Tax Rate**



Source: Authors' calculations based on BEA, Financial and Operating Data, Tables III.E 5 and III.E 6, various years; University of Michigan World Tax Database.

Note: Effective foreign tax rate is computed as total taxes paid divided by the sum of taxes paid and net income, averaged over 2001-2003. Top domestic tax rate is for year 2002.

**Figure 5. Average Effective Tax Rates, 1999-01 and 2002-04**



Source: Authors' calculations based on BEA, Financial and Operating Data, Tables III.E 5 and III.E 6, various years.

Note: Effective tax rate is based on total taxes paid and total income earned over years 1999-2001 and 2002-04, respectively.

**Table 4. Weighted Average Corporate Tax Rates**  
Percent

	Rest of World <sup>a</sup>	United States <sup>b</sup>
1999	26.3	39.5
2000	25.9	42.2
2001	24.7	37.9
2002	22.8	31.4
2003	19.0	32.8
2004	18.8	31.0

Source: Authors' calculations based on data from BEA, Financial and Operating Data, Tables III.E 5, III.E 6; BEA, NIPA table 1.14.

a/ Weighted annually by FDI stock in each country. The underlying tax rates are three-year centered moving averages.

b/ Annual average.

**Table 5. OLS Regressions of Foreign Income**

	Log Direct Investment Income			Log Foreign Affiliate Income		
	Annual (1)	Annual (2)	3 year average (3)	Annual (4)	Annual (5)	3 year average (6)
Tax Rate	-0.032 (6.84)	-0.015 (4.78)	-0.016 (2.92)	-0.045 (9.80)	-0.018 (5.90)	-0.014 (3.55)
Log GDP	0.78 (19.28)	0.12 (2.79)	0.09 (1.28)	0.83 (22.47)	0.23 (6.15)	0.20 (3.75)
Trade/GDP	0.009 (8.48)	0.003 (3.93)	0.002 (1.69)	0.007 (6.95)	0.001 (1.88)	0.002 (1.64)
Log Distance	-0.57 (5.77)	-0.15 (2.14)	-0.02 (0.19)	-0.49 (5.33)	-0.04 (0.59)	-0.07 (0.76)
Log DI Stock		0.77 (19.52)	0.83 (13.26)			
Log equity					0.73 (21.16)	0.75 (15.09)
Constant	2.48 (2.79)	-0.27 (0.45)	-1.47 (1.58)	2.37 (2.94)	-1.46 (2.75)	-1.08 (1.38)
Adjusted R-squared	0.63	0.85	0.87	0.70	0.88	0.91
Observations	290	285	97	284	284	100

Source: BEA, Financial and Operating Data, Tables III.E 5, III.E 6, and III.B 1-2, various years; BEA, U.S. Direct Investment Abroad Historical Data, Tables 11\_9905 and 13\_9905; World Bank, World Development Indicators; and authors' calculations.

T statistics are reported in parentheses.

**Table 6. Income Earned on U.S. Outward FDI**

USD Millions

	Predicted income, country tax rate <sup>a</sup>	Predicted income, U.S. tax rate <sup>a</sup>	"Extra" Income	Share of total Income Covered (percent)
1999	83,414	66,698	16,716	86.4
2000	91,760	72,826	18,934	86.4
2001	97,615	76,059	21,556	81.7
2002	115,322	98,176	17,145	87.1
2003	131,371	106,703	24,667	86.4
2004	146,737	118,185	28,552	81.5

Source: Authors' calculations.

a/ Based on regression coefficients from column 2 of table 5.