

The U.S. Net Income Puzzle*

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October 29, 2010

PRELIMINARY AND INCOMPLETE

Comments Welcome

Abstract

A longstanding puzzle is that the United States is a net borrower from the rest of the world, yet continues to receive income on its external position, because the USDIA yield reported in the U.S. balance of payments has historically been significantly higher than the FDIUS yield. The long-run sustainability of the U.S. current account deficit will depend, in part, on the long-run behavior of this income. We find that most of the difference in yields disappears when after adjustments for the U.S. taxes owed by the parent on foreign earnings and the sovereign risk associated with investing abroad. The USDIA yield is very close to that earned by other foreign investors on their FDI. FDIUS yields have been close to domestic yields in recent years, but we attribute some of their historically low return to off-market pricing of FDIUS of intercompany debt. Taken together, our results suggest the difference in yields underlying the net income puzzle is an accounting feature that should remain as long as there is a difference in tax rates between the United States and the countries in which U.S. firms invest.

JEL Classification: F21, F23, F3

Key Words: Foreign direct investment, returns differentials, U.S. current account

*The views in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of any other person associated with the Federal Reserve System.

I. Introduction

A longstanding puzzle is that the United States is a net borrower from the rest of the world, yet somehow manages to, on net, receive income on its external position. So at first glance it appears that the United States is basically borrowing from the rest of the world for free. This puzzling divergence between net income and the net position has puzzled economists for almost a quarter-century:

“Clearly, if our investments abroad are yielding a positive return, their capital value must be positive not negative. Is this a defect of the figures on current flows, or is it a defect of the balance-sheet figures? The only obvious reconciliation is to assign the whole of the statistical discrepancy as an unrecorded negative net investment income, but even that does not seem satisfactory...” (Milton Friedman, 1987)¹

Figure 1 illustrates this puzzle. Net investment income receipts reported in the U.S. balance of payments (BOP), the top line, have continued to grow even while the net liabilities position, the bottom line, has also grown. From 1990-2009 U.S. entities on net received from foreign sources \$1 trillion more than was paid to foreign entities. These net income receipts, equal to 32 percent of the goods and services balance of the current account in 2009, provide a significant stabilizing force for the current account. The long-run sustainability of the U.S. current account deficit will depend, in part, on the long-run behavior of external income. So for years economists have been searching for solutions to this income puzzle so they can better predict what will happen to the current account in the long run.

Several existing studies have noted that this positive income differential owes entirely to the difference between the yields (income divided by the position valued at current cost) on direct investment claims and liabilities (Bosworth et al. (2008), among others). The average yield on all U.S. cross-border claims from 1990-2009, the dark portions of the first columns in Figure 2, was 1.3 percentage points per year higher than that paid on all U.S. cross-border liabilities.² This difference in yields is large enough to move the income balance in favor of U.S. claims despite the net liability position. The next columns show that the main driver of this positive difference is direct investment; the average yield received on

¹ Personal correspondence with Charles Thomas, June 1987.

² Returns are computed using the methodology outlined in Curcuru, Dvorak and Warnock (2008) and Curcuru, Thomas and Warnock (2009).

U.S. direct investment claims is a surprising 6.4 percentage points per year higher than that paid on U.S. liabilities. In contrast, for portfolio equity and debt the average yields on claims and liabilities are nearly identical.³ While several factors contributing to the difference between the yields received on U.S. direct investment abroad (USDIA) and paid on foreign direct investment in the United States (FDIUS) have been identified, most remains unexplained.

In this paper we offer several new explanations, and new approaches to old explanations, to determine how much of the difference between USDIA and FDIUS yields can be explained, and how much is, in fact, a puzzle. We start by assessing whether the USDIA and FDIUS yields are each reasonable by comparing them with similar yields. We compare USDIA yields in each country with that earned by investors from *all* countries on their direct investment abroad (ACDIA) in the same country. One might expect that yield earned on USDIA in each country should be about the same as that earned by investors from other countries. We also compare the FDIUS and USDIA yields with that earned by U.S. companies on their U.S. operations (USIUS). While we agree with other authors that the FDIUS and USIUS yields should be about the same (Bosworth et. al (2008), among others), there should be a wedge between USDIA and USIUS yields because of the uncertainty surrounding tax policies, domestic financing and investment needs, sovereign risk, and other factors. Our final comparison is between the USDIA and FDIUS yields, and once again there should be a wedge, but it is unclear how large this wedge should be. For these yields we analyze differences in funding structures and industry composition to see how much they contribute to the difference in yields.

We find that U.S. investors have done about as well on their direct investments abroad in each country as other investors from other countries. The USDIA and ACDIA yields in each country are, on average, very similar, and the aggregate USDIA yield is very similar to a U.S.-position-weighted ACDIA yield. While there is some variation between countries, USDIA yields appear reasonable by this measure.

³ Capital gains, which play an important role in recent work on the sustainability of the U.S. current account deficit, are also slightly higher for claims because of differences in the composition of cross-border claims and liabilities. U.S. claims are more heavily weighted toward direct investment and equity which earns higher capital gains, U.S. liabilities have a larger share of debt, which earns lower capital gains. Curcuro, Dvorak and Warnock (2008) and Gourinchas and Rey (2008a). We briefly discuss how our results relate to issues of sustainability in the conclusion.

Next, we present updated data that reveals FDIUS has performed about as well as other investments in the United States in recent years. While several earlier studies showed that FDIUS consistently underperformed domestic investments, we find that from 2003 to 2007 the FDIUS yield was near or above the USIUS yield. This is consistent with earlier studies that found that age effects (discussed in the next section) were responsible for the relatively low FDIUS returns in the past, and suggests that the stock of FDIUS has matured. At least in recent years, FDIUS yields appear reasonable by this measure.

We also find that on a tax- and risk-adjusted basis U.S. firms do only slightly better on their direct investment abroad relative to domestic investments. Most previous studies have compared the yields of domestic firms net of U.S. taxes to the yields on USDIA before U.S. taxes. In contrast, we perform these comparisons using the after-tax USDIA yield. U.S. parents only pay U.S. taxes on affiliate earnings that are repatriated to the United States, and receive a credit for foreign taxes paid on that income (see discussion in section IV). Subtracting the U.S. tax liability generated by foreign affiliate earnings that have been repatriated, as in Hines (1996) and Bridgeman (2008), results in a 1 percentage point per year decrease in USDIA yields. U.S. parents repatriate 60% of their earnings, on average, but may not be certain prior to choosing a project how much they will need to repatriate out of affiliate earnings to support domestic operations, and may only choose projects that offer returns that compensate for the maximum tax liability. So we also adjust returns for U.S. taxes that may eventually be due on reinvested earnings, viewing this as an upper-bound on the U.S. tax liability expected by the U.S. parent. This adjustment reduces the gap between USDIA (unadjusted) and USIUS yields by an additional 1.1 percentage points per year. A final adjustment to USDIA yields takes into account the additional sovereign risk of investing in countries with a credit rating below the AAA-rating held by the United States. This risk adjustment narrows the gap between USDIA (unadjusted) and USIUS yields to only a fraction of the original difference—about one-half of a percentage point per year. Therefore, subject to the caveat that we are using the upper-bound of U.S. tax liability, the difference between USDIA and USIUA yields is very small after adjustments for tax liabilities and risks.

In the previous sections we showed that the USDIA yield is reasonable given ACDIA yields, and that in recent years the FDIUS yield is reasonable given USIUS yields; so is the large difference between the USDIA and FDIUS yields also reasonable? Some difference is expected because, as discussed above, the USDIA yield is not net of U.S. taxes, and there are differences in the sovereign risks of the countries where these investments are located. There are also differences in the way foreign parents fund their U.S. affiliates and U.S. parents fund their foreign affiliates; foreign parents fund their affiliates using a much larger share of intercompany debt, and U.S. parents use a much larger share of reinvested earnings. Because of the different tax benefits offered by these funding strategies, they may contribute to the differences in yields. In addition, differences in industry composition identified by previous authors have become more extreme, so we add industry composition to our reconciliation of USDIA and FDIUS yields in the final section.

We find that the funding structure plays a small role in the difference between USDIA and FDIUS yields. The interest rate that FDIUS affiliates pay on loans from their foreign parent is higher than the rates paid on other types of intercompany debt. Because interest payments on intercompany debt are an expense for the firm paying interest, the additional interest paid to the parent lowers the U.S. tax liability. Because FDIUS affiliates borrow quite a bit from their parents, this has a small but noticeable downward effect on the FDIUS yield reported in the BOP, but increases the after-tax return to the foreign parent. Were FDIUS affiliates to pay the same rate of interest to their foreign parent that they receive on loans from their foreign parents the reported FDIUS yield would be higher by an average of 0.6 percentage points per year.

We find that differences by industry, and in particular the high share of firms classified as holding companies, play a prominent role in the yield differential. A holding company is a company that invests in and/or manages other companies, and many multinationals include holding companies as intermediate firms between the parent company and foreign subsidiaries because several jurisdictions offer attractive tax treatment (Desai et al. (2003b)). There is a large difference between the yield earned by USDIA holding companies and that earned by FDIUS holding companies that is the result of both an

above-average USDIA yield and a below-average FDIUS yield. Over one-third of the USDIA position is classified as holding companies, so the yields earned by these affiliates significantly boost the aggregate return. Holding companies pay very little in foreign taxes because they are twice as likely to be located in low-tax jurisdictions as investment in other industries.

Overall, we are able find potential explanations for a substantial portion of the gap between USDIA and FDIUS yields responsible for the net income puzzle. Combining the results, the adjustment for the maximum U.S. tax liability narrows the gap between USDIA and FDIUS yields from 5.9 to 3.3 percentage points per year. The adjustment for the high return on FDIUS intercompany debt payables narrows the gap by an additional 0.6 percentage points per year to 2.7 percentage points. A further adjustment for the higher sovereign risk of USDIA narrows the gap by an additional 1.0 percentage points to only 1.7 percentage points per year. This remaining difference remains a puzzle, at least for now.

A potential criticism of this paper is that we use aggregate income and positions to compute yields, which may mask significant heterogeneity in the underlying data. It would obviously be better to directly access BEA's data on foreign direct investment. Unfortunately, government statute forbids access to these data by individuals from other government agencies, including the authors of this paper.

The paper proceeds as follows: Section II summarizes existing literature, Section III discusses aggregate USDIA yields and how they compare with the yield on direct investment liabilities reported by other countries; Section IV compares the yield on domestic operation of U.S. firms with FDIUS and USDIA yields; Section V compares the USDIA and FDIUS yields directly and looks at the role of industry composition; and Section V concludes.

II. Existing Literature

The literature focusing on the direct investment income puzzle tends to focus on either what is commonly viewed as an abnormally-high USDIA yield, or abnormally-low return FDIUS yield. Several studies find that FDIUS yields have been consistently lower than yields on domestic investments (Landefeld et al. (1992), Mataloni (2000), Bosworth et al. (2008), McGrattan and Prescott (2010), among others). This led

at least one author to suggest that foreign firms have been “taken to the cleaners” on their U.S. investments (Gross (2006)). There is less of a consensus about whether USDIA yields are reasonable. Landefeld et al. (1992) found the USDIA yield was similar to that earned by all U.S. businesses between 1983 and 1991. Using different methodologies, several authors including Bosworth et al. (2008) and McGrattan and Prescott (2010) conclude that the return on USDIA has been consistently higher than that earned by U.S. corporations.

Bosworth et al. (2008) provides an excellent review of the literature discussing the direct investment income puzzle, so below we only briefly introduce the main strands of research. This research has focused the role of firm characteristics (firm age, industry and the size of intangible investments), transfer costs, and tax havens.

Firm Characteristics

Early literature focused on the role of firm characteristics such as age and industry of the firm in the unusually low return on FDIUS. Several studies attributed some of the difference between USDIA and FDIUS yields to age effects (Grubert et al. (1993) and Grubert (1997) among others) because the age of USDIA affiliates was generally older than FDIUS affiliates. Relatively young firms typically have higher expenses, because establishing a new business incurs startup costs, and a large share of depreciation of capital assets can be expensed soon after acquisition. These expenses will disappear over time, and also as business experience is acquired over time, performance should improve as firms age. Mataloni (2000) found that the return on assets of all foreign-owned non-financial companies was consistently below that of U.S. owned nonfinancial companies in 1988-97, but the gap narrowed over time and appeared to be related to age effects.

The industry mix of FDIUS has not appeared to play a large role in the low return on FDIUS relative to the return on domestic investments. Mataloni (2000) found that the return on assets was below that of U.S. companies for 22 out of 30 non-financial industries, suggesting that the low FDIUS return was not the result of a higher share of investment in low profit industries.

Recent work has linked the higher return on USDIA to intangible investments (defined in Bridgeman (2008) as patents, trademarks, trade secrets, organizational knowledge, etc.). The market value of USDIA is much larger than the book or historical value, suggesting that these firms hold a large amount of intangible assets. Further, the U.S. trade statistics do not account for the amount of intangible capital so it remains unmeasured. Hausmann and Sturznegger (2006) infers from the positive net income that the actual value of the U.S. foreign asset position including intangibles is much better than reported, although Buiters (2006) challenges the methodology used.

Other work estimates the magnitude of the effect of intangible investments on the USDIA and FDIUS returns. Bridgeman (2008) estimates the amount of intangible investment in FDI and estimates that including intangibles reduces the gap between the USDIA and FDIUS yield by two-thirds. McGrattan and Prescott (2010) further explore the role of intangible investments, and find that the FDIUS yield is roughly correct given the incentive to undergo expensive research and development capital in the US, which raises costs and lowers yields, while the USDIA yield is higher than can be explained by the level of intangible investment. Part of this is an age effect, as USDIA intangible investments were older than FDIUS intangible investments.

Transfer costs

Several studies including Landefeld Lawson and Weinberg (1992) and Lester and McCauley (1994) explore whether U.S. payments to foreigners, and thus the FDIUS yield, are understated because of favorable transfer costs of goods and services between the U.S. affiliate and foreign parent. However, little concrete evidence on the existence of transfer pricing effects has been found. Mataloni (2000) concluded that the effect of transfer costs was minimal because there was little effect on FDIUS returns of high share of imports from parent. Similarly, Grubert (1997) infers that transfer pricing effects must be limited because firms with a relative low share of foreign ownership (between 25 and 50 %) exhibit the same low profitability as 100% foreign owned companies.

Tax Issues

The literature on tax considerations that influence investments by multinational firms is vast. Many studies have examined the corporate structure of multinationals, and in particular where they locate subsidiaries and intermediate holding companies, and have found ample evidence that tax considerations play a large role. Borga and Mataloni (2001) find that USDIA position and related flows are increasingly not representative of where the production of goods and services by foreign affiliates actually occurs because of the extensive use of intermediate firms in low-income-tax jurisdictions. Desai et al. (2006) find that large multinationals with heavy investment in research and development and a relatively large amount of intrafirm trade are most likely to have affiliates located in tax havens. Bosworth et al. (2008) find evidence of a substantial diversion of income to low-tax jurisdictions, accounting for 1-1.5% or one-third of the difference in returns. Feldstein (1994) suggests that USDIA yield was higher because of a lower after-tax cost of capital abroad.

Other Areas of Research

Other explanations for the low return on FDIUS include a lower cost of capital in the home country or to gain access to the U.S. market or scarce raw materials (Landefeld et al. (1992)), and several high-profile U.S. investments by foreigners in the 1980's which had particularly poor results (Laster and McCauley (1994), Jorion (1996)). Other explanations for the large gap between USDIA and FDIUS yields include the compensation for the additional risk of investing in countries with a lower sovereign credit rating than the United States (Hung and Mascaro (2004)), an exorbitant privilege earned by the U.S. on its external claims and liabilities (Gourinchas and Rey (2008)), and the mistaken inclusion reinvested earnings in income (Gros (2006)).

III. Direct Investment Liabilities Reported by Other Countries

As noted in the introduction, one might expect that yield earned on USDIA in each country should be about the same as that earned by investors from other countries. To see if this is indeed the case, in this

section we compare USDIA yields in each country with that earned by investors from *all* countries on their direct investment abroad (ACDIA) in the same country.

We perform this comparison for each country that comprises more than 2.5% of the total USDIA position. The ACDIA yield is the ratio of total direct investment income payments reported by the IMF's BOP statistics (if available) to the liabilities position (at current-cost) in either the IMF's BOP statistics or the updated and extended version of the dataset constructed by Lane and Milesi-Ferretti (2007). The USDIA yield in each country is computed using BEA income and position data. BEA country-level data does not include a current-cost adjustment for income and only the historical-cost position is available, but the current-cost adjustment and position values are available for the aggregates. We used the ratio of the yield (at current cost) to yield (at historical cost) computed at the aggregate level to adjust the country yields to a current-cost basis. Several countries with either the BOP income was not available (Luxembourg, Bermuda, Cayman Islands, Singapore) or for which the income and position data did not make sense (France) were excluded.

We find that U.S. investors have done about as well on their direct investments abroad in each country as investors from other countries (Table 1). The USDIA and ACDIA yields in each country are, on average, very similar. For the United Kingdom and the Netherlands, where over 25% of USDIA investments are reported, the USDIA yield is actually *below* the ACDIA yield. This is also true of investments in Ireland and Australia. For other countries, such as Canada, Switzerland, Japan, and Mexico, the return on USDIA is higher than that earned on all direct investment liabilities. When U.S. investors venture abroad, they do about as well as investors from other countries when they venture abroad.

The average aggregate USDIA yield for these countries since 2000 is almost identical to an ACDIA aggregate yield constructed using the USDIA position weights (the last line of Table 1). Figure 3 shows that this is a recent phenomena; from 1988 to 1999, the USDIA yield in these countries (dotted line) was higher than the ACDIA yield (grey line), so over a longer sample period USDIA in these countries outperformed direct investment made by investors from other countries by 0.5 percentage points per year,

on average. The USDIA yield for all countries (black line) is above that for the 9 countries in Table 1, which represent over half of the total USDIA position. Therefore countries not in the sample, such as Bermuda or Luxembourg (where a large share of USDIA investments are in holding companies, as discussed in Section V), have a higher return than the sample countries.

IV. Domestic Operations of U.S. Firms

Many authors have noted that the FDIUS yield is lower than that earned on U.S. operations more generally, while the USDIA yield is higher (Figure 4 and Bosworth et al. (2008), Bridgeman (2008), McGrattan and Prescott (2010), among others).⁴ While we agree with other authors that the FDIUS and USIUS yields should be about the same, there should be a wedge between USDIA and USIUS yields because of the uncertainty surrounding tax policies, sovereign risk, and other factors.

IV.A Compared with the return on FDIUS

Existing literature consistently reports that FDIUS underperforms USIUS, despite the widespread belief that these yields should be about the same. However, updated data show that in many recent years foreign investors have done about as well on their direct investments in the United States as U.S. firms. Figure 4 shows that between 2003 and 2007 the FDIUS yield was near or above the USIUS yield.

The closing of the gap between FDIUS and USIUS yields is consistent with a decline in age effects noted by Mataloni (2000) and others. It might also be the result of the final unwinding of several high-profile but underperforming U.S. investments by foreigners in the 1980's, particularly Japanese investors (Jorion 1996). The gap widened briefly during the equity market downturn associated with the

⁴ The USIUS yield reported in this paper is constructed using Flow of Funds data and is similar to the return on all U.S. non-financial corporate tangible assets in Figure 3 of Bosworth et al. (2008) with two small changes: we subtract the FDIUS income and position to limit the return to U.S. firms, and we use the current-cost value of real estate. The USIUS yield averages 6.6% between 1990 and 2009, slightly higher than an average yield computed using the Bosworth et al.(2008) method, which averages 6.3% for the same sample period.

sharp decline in internet stocks in 2001, but the long-term trend for this gap has clearly been a narrowing trend.

IV.B Compared with the return on USDIA

In the previous section we showed that USDIA yield is consistent with ACDIA yield, and Figure 4 shows that it is significantly higher than the both the FDIUS and USIUS yields. Given the uncertainties in tax policies, sovereign risk, and other factors, is not clear how large a wedge there should be between the earnings U.S. firms require from their U.S. operations and the earnings they require from their foreign operations. In this section we explore possible reasons for the size of the wedge between the return on USDIA and USIUS. We start with some background information on tax considerations for multinational firms, and discuss how the after-tax income earned by U.S. parent firms compares with that reported in the BOP.

Return to the U.S. Parent Firm

The tax regulations covering multinational investments are incredibly complex, and the influence that these regulations have in the design of multinational corporate structure is the subject of many papers (see the section “International Taxation for Beginners” in Hines (1999) for a good overview). In brief, the United States has a “worldwide taxation” policy which taxes income generated by U.S. multinationals regardless of where it is earned, though firms receive a credit for taxes paid to foreign jurisdictions on that income. In contrast, most other countries have a policy of “territorial taxation” and only tax income generated by domestic activities. U.S. parent firms do not pay U.S. taxes on the income generated by their U.S. affiliates until this income is paid to the parent in the form of dividends. So for U.S. firms, there is a particularly large incentive to create corporate structures which generate income in low income-tax jurisdictions, because this income can be reinvested in foreign affiliates without incurring the relatively high additional U.S. tax liability.

From the parent firm's perspective, the decision to undertake an investment depends on the projected return net of estimated tax liabilities and other expenses. Further, different types of projects have different types of risks, and the expected return for the project should also include compensation for these risks. So in judging the reasonableness of the USDIA yield, we focus on the yield net of U.S. taxes and an estimated compensation for additional risk. U.S. taxes paid by U.S. parents on their foreign-generated income are not subtracted from cross-border income receipts in the balance of payments because the tax is paid by the U.S. parent firm; in other words, income receipts are net of foreign taxes, but gross of U.S. taxes, which are generally higher (see Hines 1996). So, as implied in Bridgeman (2008), the USDIA yield generally overstates the after-tax earnings of the U.S. parent firm. In contrast, the U.S. taxes on the earnings of U.S. affiliates of foreign corporations are paid by the affiliate out of U.S. earnings, so BOP income payments are net of U.S. taxes and are closer to the income earned by the foreign parent.

On top of the additional yield required to compensate the firm for the U.S. tax liability, there are additional risks associated with USDIA that also require compensation. In theory, a firm should be indifferent between U.S. and foreign investments that have the same expected risk-adjusted yield. For U.S. investments the uncertainty arises primarily from profitability of the firms and U.S. corporate income taxes. The expected yield on USDIA should compensate for these risks, plus additional uncertainty arising from variable domestic financing and investment needs, sovereign risks, U.S. tax policy for foreign investments, and foreign tax policy.⁵ So we expect that the USDIA yield would be higher than the USIUS yield by an amount that represents a risk premium for all these additional risks associated with investing abroad.

Adjusted USDIA Yields

Adjusting the USDIA yield to include the U.S. tax liability generated by foreign affiliate earnings that have been repatriated moves it noticeably closer to the USIUS yield (which is net of U.S. taxes). Figure 5

⁵ See Desai et al. (2007) for more on repatriation risks.

repeats the USDIA yield from Figure 4 (the top solid line) and the USIUS yield, which was already net of U.S. taxes (the bottom dotted line). Two additional series plot the return to the U.S. parent after taxes are paid on the income that was repatriated each year (grey dashed line), and after taxes paid on all income including reinvested income (grey dash-dot line). U.S. firms reinvest a substantial fraction of USDIA earnings—on average 60% of their earnings from 1999-2009—which lowers their U.S. tax liability on their foreign earnings.⁶ After adjusting the USDIA yield for U.S. taxes paid on repatriated earnings, average yields fall by an average of about 1 percentage points per year (grey dashed line).⁷ The additional tax expense is modest because U.S. parent firms receive a credit for a portion of foreign taxes paid against their U.S. tax liability, so they only have to pay additional income tax roughly equal to the difference between the U.S. and foreign tax rates.⁸

Because the U.S. parent may not be certain, *ex ante*, how much of their foreign earnings they will need to repatriate, we calculate the USDIA yield adjusted for U.S. taxes on all foreign income that would be due had the affiliate distributed all of its earnings (grey dash-dot-dash). We concede that this might overstate the compensation required by firms for the uncertainty associated with repatriation needs and tax policies, and view this as an upper bound. This adjustment drops the USDIA yield an additional 1.1 percentage points per year.

A final adjustment to the USDIA yield that takes into account the additional sovereign risk of investing abroad further narrows the gap between the USDIA and USIUS yields. Hung and Mascaro

⁶ This average excludes reinvested earnings in 2005 because reinvested earnings were large and negative in that year because firms took advantage of temporary reduction in the U.S. tax liability on repatriated earnings contained in the American Jobs Creation Act of 2004.

⁷ Foreign tax rates are inferred from data in the Direct Investment Benchmark surveys, and average tax rates by industry are reported in Table 3. Desai et al. (2004b) report that in many foreign countries indirect taxes such as sales tax or value-added tax, can be much higher than income taxes. The foreign tax credit is only available on income taxes.

⁸ Return after U.S. taxes on repatriated income is calculated by subtracting U.S. taxes due on repatriated income (using the U.S. tax rates each year from KPMG (2010)) less a credit for estimated foreign taxes paid on all affiliate income. Foreign tax rates by industry from the 2004 benchmark survey (BEA (2007)) are shown in Table 2. If the foreign tax rate is higher than the U.S. tax rate, there is no additional U.S. tax liability. We credited all foreign taxes against the U.S. tax liability. In practice, the foreign tax credit may be smaller than our estimate because credits are only given for some taxes paid (see Desai, Foley and Hines 2004). However, to the extent that dividends are paid out of affiliates located in relatively high-tax countries, we are understating the foreign tax credit (see Desai et al. (2001)).

(2004) estimate the sovereign risk of USDIA projects as Baa, so we use the difference between the yields on AAA and Baa-rated corporate debt published Moody's as a proxy for the sovereign risk premium.⁹ The risk-adjusted yield (grey solid line) is very close to the USIUS yield for most years—the gap averages 0.6 percentage points per year.

To summarize the results from this section, we found that in many recent years foreign investors have done about as well on their direct investments in the United States as U.S. firms. We also found that simple adjustments for tax liabilities and sovereign risks significantly narrow the gap between foreign and domestic investments by U.S. firms. In the next section we turn to the difference between USDIA and FDIUS yields, focusing on differences in the funding structure and industry composition of these investments.

V. Difference Between USDIA and FDIUS Yields

In the previous sections we showed that the USDIA yield is reasonable given ACDIA yields, and that in recent years the FDIUS yield is reasonable given USIUS yields; so is the large difference between the USDIA and FDIUS yields also reasonable? Some difference is expected because, as discussed above, the USDIA yield is not net of U.S. taxes, and there are differences in the sovereign risks of the countries where these investments are located. There are also differences in the way foreign parents fund their U.S. affiliates and U.S. parents fund their foreign affiliates; foreign parents fund their affiliates using a much larger share of intercompany debt, and U.S. parents use a much larger share of reinvested earnings. Because of the different tax benefits offered by these funding strategies, they may contribute to the differences in yields. In addition, differences in industry composition identified by previous authors have

⁹The sovereign risk estimate calculated by Hung and Mascaro (2004) was based on the country distribution of USDIA in 2003. Since that year, there has been a large increase in the USDIA position attributed to holding companies in the Netherlands and Ireland. These holding companies are primarily intermediate firms that invest in other countries and industries, and so the current country distribution of USDIA is less representative of the country risk of these investments. As such, we assume the sovereign risk is the 2003 level computed by Hung and Mascaro (2004), which is likely a better representation of the actual sovereign risk than more recent geographical distributions of USDIA.

become more extreme. We focus on structural and industry differences between USDIA and FDIUS as a source for the yield gap in this final section.

V.A Funding Structure

In 2002 about 30% of investment by foreign parents in their U.S. affiliates was in the form of intercompany debt, while in 2004 intercompany debt comprised only 8% of investment by U.S. parents in their foreign affiliates.¹⁰ For tax purposes, interest payments on intercompany debt are an expense for the firm paying interest. In the case of loans by foreign parents to their U.S. affiliates, for example, these interest payments reduce earnings and thus the U.S. tax liability of the U.S. based affiliate.

We find that the rate FDIUS affiliates pay on loans from their foreign parent is higher than the rates paid on other types of intercompany debt. Estimates of the annual interest rates on cross-border intercompany debt in Figure 6 are inferred using loan balances and interest payments from benchmark surveys, and we add intercompany debt flows to the inter-survey years to construct an annual time series of returns. FDIUS receivables and USDIA payables (grey solid and black dashed lines) both represent payments associated with loans from firms located in the United States to firms located abroad. The rates of return on these loans were fairly similar over the sample period, averaging 2.7% for FDIUS receivables and 2.2% for USDIA payables. This is not true of the interest rates associated with FDIUS payables and USDIA receivables, which both represent payments associated with loans from firms located abroad to firms located in the United States. The interest rate on FDIUS payables (solid black line) was substantially higher than rates all the other rates shown, averaging 4.1% per year. In 2001, when the return on FDIUS in Figure 4 was particularly low, the rate on FDIUS payables is over twice as high as the other rates.

This high rate on intercompany debt is a type of favorable transfer pricing. These differences are unusual because tax and accounting regulations require that the interest rates associated with these loans

¹⁰ Desai et al. (2004a) find that affiliates located in countries with relatively high tax rates had a higher debt-to-asset ratio, presumably to take advantage of the tax deductibility of interest payments.

be consistent with arm's length market prices. Were FDIUS affiliates to pay the same rate of interest to their foreign parent that they receive on loans from their foreign parents the reported FDIUS yield would be higher by an average of 0.6 percentage points per year.

V.B Industry Composition

We find that the difference between USDIA and FDIUS yields varies across industries, but generally favors USDIA. The first line in Table 2 shows that the difference between the average returns (on a historical-cost basis) between USDIA and FDIUS was 5.9 percentage points per year.¹¹ The returns by major industry, shown below, reveal a return advantage in favor of USDIA in every industry except for depositary institutions. Firms classified as holding companies play a prominent role in the aggregate difference between USDIA and FDIUS yields. A holding company is a company that invests in and/or manages other companies. Holding company yields, shown in the second line, averaged an amazing 9.7 percentage points per year higher than that earned by FDIUS holding companies. This large difference is the result of both an above-average USDIA yield and below-average FDIUS yield. The only industry with a larger difference in returns is mining, which includes large petroleum importers; that industry recorded an average yearly difference equal to 11 percentage points.

In recent years there have been significant changes in industry composition. The most dramatic difference is grown share of income attributed to holding companies. In 1999 just under 30% of total reported USDIA income was attributed to holding companies, but by 2009 this share had grown significantly to just under half of total income (grey solid line in Figure 7). This is partly the result of the increasing share of USDIA classified as holding companies, which increased 25% in 1999 to over 35% in 2009, but also because of the higher return shown in Table 2.¹² Further, holding company affiliates accounted for half the reinvested earnings in 2009 (Ibarra-Caton (2010)).

¹¹ Because BEA does not provide current-cost adjustments at the industry level, the returns presented in this section are slightly different than the current-cost estimates used in the previous sections.

¹² See also Chart A in Ibarra-Caton (2010).

What is behind this dramatic increase in USDIA holding companies? An increasing number of multinational corporations include holding companies as intermediate firms between the parent company and foreign subsidiaries because several jurisdictions offer attractive tax treatment (Desai et al. 2003a). For example, the Netherlands does not tax foreign business profits derived from subsidiaries.¹³ Because of tax treaties between the Netherlands and many other countries, the total tax rates paid by foreign subsidiaries of Dutch holding companies are very low. So multinational firms create a corporate structure where the parent firm owns a Netherlands holding company, which in turn owns one or many foreign affiliates.¹⁴ This structure allows U.S. multinationals to reinvest earnings from profitable foreign affiliates in other foreign affiliates with a minimal tax burden because the earnings never have to pass through the United States where they would incur a U.S. tax liability.

As discussed in the previous section, the USDIA return calculated using BOP income only includes a portion of the total tax liability incurred by the parent firm. Accounting for the entire tax liability cuts the DI yield gap in half.¹⁵ The first column of Table 3 reports the foreign tax rate inferred from the 2004 USDIA benchmark survey (BEA (2008)). Overall, foreign affiliates of U.S. parents paid 14.1% of their income in foreign taxes. There is a great variation by industry, however, ranging from 1% paid by holding company affiliates to 41.8% paid by mining affiliates. The gap between USDIA and FDIUS yields narrows a bit to 5 percentage points per year, shown in the third column, after USDIA yields are adjusted for taxes paid on income that was repatriated (see section IV.B for details of this calculation). The gap narrows further to 3.3 percentage points per year, shown in the last column, after USDIA yields are adjusted for the U.S. tax liability on the portion of foreign earnings reinvested in the foreign affiliate.

¹³ Also, the Netherlands does not tax royalty income. The website of the Netherlands Foreign Investment Agency advertises the Netherlands as “The European home of 1,750 North American firms” and includes testimonials from 44 U.S. and Canadian companies including Sun Microsystems, Nike, Abbott, and Boeing (<http://www.nfia.com>).

¹⁴ See Figure 1 in Desai et al. (2003b) for common ownership structures used by firms located in tax havens.

¹⁵ We assume that firms receive a credit for only a fraction of foreign taxes paid. As previously discussed, this likely understates the tax credit the gap is likely wider than we report.

The high share of holding company structures in low-tax jurisdictions explains why USDIA holding company affiliates pay so little in foreign taxes. More than a quarter of the USDIA holding company position is located in the Netherlands (Figure 8). An additional 21% is in low tax jurisdictions Bermuda, the Cayman Islands and Ireland. These shares are about double the levels for other industry types in these locations.

Even after accounting for potential tax liabilities, holding companies still contribute substantially to the outsized return earned by U.S. firms. However, despite the large impact of holding and mining companies to difference between USDIA and FDIUS yields, by standard measures of composition effects, the difference in yields is not the result of an industry composition effect, it is solely the result of differences in yields. This does not completely resolve the question of the role of industry composition, however, because holding companies might be concentrated in an industry such as mining that earns unusually large returns. We leave this issue for further research using the firm-level data from the benchmark surveys.

In summary, in this section we found evidence of transfer pricing that widens the gap between USDIA and FDIUS yields, and wide gaps that narrowed significantly for most industries after we adjusted yields for U.S. taxes paid by the parent firms. The adjustment for the maximum U.S. tax liability narrows the gap between USDIA and FDIUS yields from 5.9 to 3.3 percentage points per year. The adjustment for the high return on FDIUS intercompany debt payables narrows the gap by an additional 0.6 percentage points per year to 2.7 percentage points. A further adjustment for the higher sovereign risk of USDIA from the previous section would narrow the gap by an additional 1.0 percentage points to only 1.7 percentage points per year. This remaining difference remains a puzzle, at least for now.

V. Conclusion

So what do our results imply for the sustainability of the current account deficit? A substantial part of the difference between USDIA and FDIUS yields is an accounting feature that should remain as long as there is a difference in tax rates between the United States and the countries in which U.S. firms invest.

But further study of how our results impact the sustainability models presented in Kitchen (2007), Gourinchas and Rey (2007a), and others.

This study suggests several areas of future research. Individual holding companies should be studied to look for clues as to why they pay such a low tax rate, what they actually do, and why they earn such an outsized return. We were unable to satisfactorily resolve the role of industry composition, because holding companies might be concentrated in an industry such as mining that earns unusually large returns. In addition, each of the results we present could be better studied using the firm-level data from the benchmark surveys. We leave these issues for others with access to the firm-level data.

As a final open question, we ask if it makes sense to continue to label companies as U.S. companies or foreign companies. For example, if a firm headquartered in the United States does most of its business and generates most of its earnings from other countries; does it make sense to think of that company as a U.S. company? We encourage statisticians to think about alternative presentations that recognize this changing business landscape.

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Table 1: U.S. Direct Investment Abroad (USDIA) Yield vs. All Countries Direct Investment Abroad (ACDIA) Yield for selected countries

Country	USDIA	ACDIA	Difference	Share of U.S. DI Position
United Kingdom	5.4%	6.3%	-0.9%	15.3%
Netherlands	10.9%	12.7%	-1.8%	11.2%
Canada	9.4%	7.8%	1.6%	9.3%
Switzerland	13.1%	9.0%	4.0%	4.4%
Germany	6.9%	4.5%	2.4%	3.8%
Japan	10.2%	7.7%	2.6%	3.5%
Ireland	18.0%	22.5%	-4.4%	3.5%
Mexico	10.0%	4.7%	5.2%	3.1%
Australia	7.6%	8.5%	-1.0%	2.7%
Weighted Average of Returns for 9 Countries Listed Above:				
	9.2%	9.2%	0.0%	56.9%

All values are 2000-2009 averages. Direct investment valued at current cost. The ACDIA yield is the ratio of total direct investment income payments reported by the IMF's BOP statistics to the liabilities position (at current-cost) in the updated and extended version of the dataset constructed by Lane and Milesi-Ferretti (2007). DeNederlandsche Bank income data are used for the Netherlands. The USDIA yield in each country is computed using BEA income and position data. BEA country-level data does not include a current-cost adjustment for income and only the historical-cost position is available, but the current-cost adjustment and position values are available for the aggregates. We used the ratio of the yield (at current cost) to yield (at historical cost) computed at the aggregate level to adjusted the country yields to a current-cost basis. The last line of the table presents returns weighted by the historical cost share of USDIA investment in each country each year.

Table 2: Yields and Position Shares by Industry

	Yield			Share of Position	
	USDIA	FDIUS	USDIA - FDIUS	USDIA	FDIUS
All Industries	10.8%	4.9%	5.9%	100%	100%
Returns by industry:					
Holding companies	12.7%	3.3%	9.7%	33.4%	6.8%
Manufacturing	11.0%	6.1%	4.7%	19.3%	33.6%
Finance and insurance	6.4%	2.4%	4.4%	19.4%	13.0%
Wholesale trade	16.4%	8.5%	7.4%	6.2%	14.1%
Mining	19.2%	8.0%	11.0%	5.0%	2.9%
Information	8.3%	0.4%	8.1%	3.6%	8.7%
Depository institutions	0.4%	2.7%	-2.8%	3.4%	5.9%
Professional, scientific, and technical services	10.9%	2.1%	8.9%	2.4%	2.6%
Other industries	8.8%	4.6%	4.1%	7.4%	12.2%

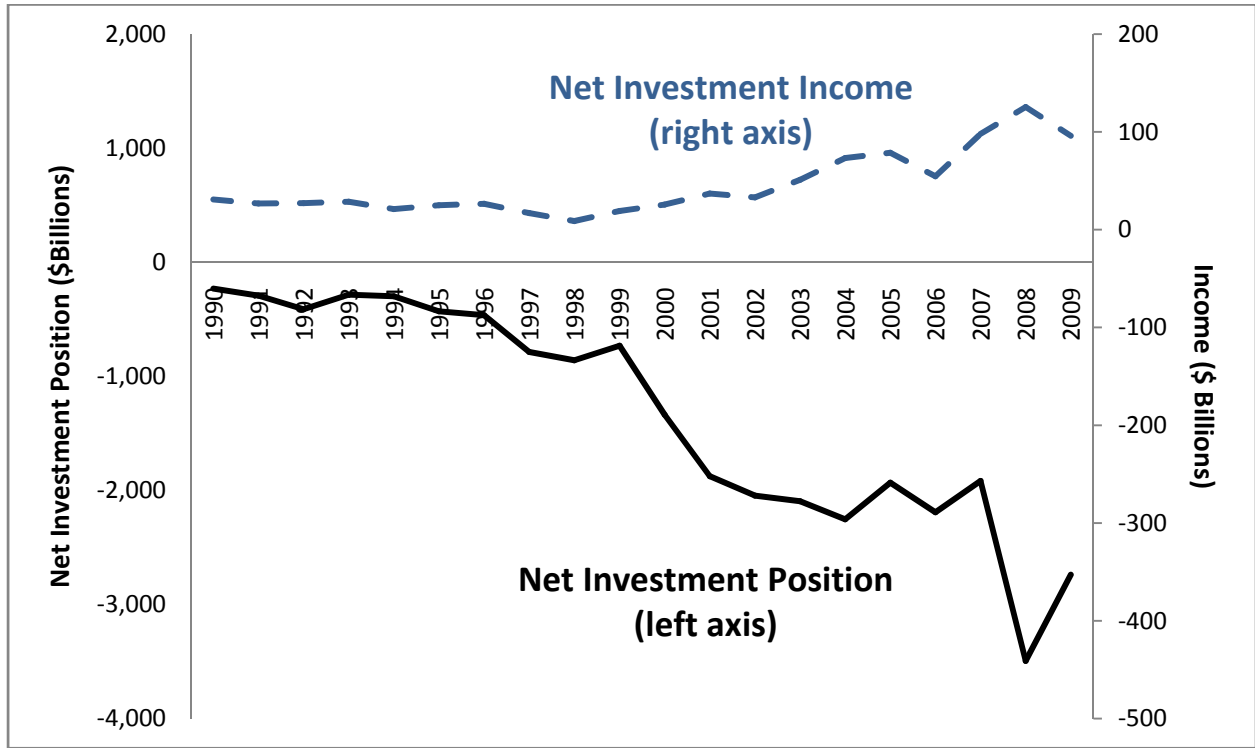
The USDIA series is the ratio of aggregate DI income receipts to USDIA position reported by BEA, the FDIUS series is the ratio of aggregate DI income payments to FDIUS position reported by BEA. Income is reported without a current-cost adjustment. Direct investment position is valued at historical cost basis. All values are 2000-2009 averages.

Table 3: USDIA Yields After U.S. Taxes, by Industry

	Foreign Tax Rate	Yield after U.S. taxes on repatriated income		Yield after U.S. taxes on all affiliate income	
		USDIA	USDIA – FDIUS	USDIA	USDIA – FDIUS
All Industries	14.1%	9.9%	5.0%	8.1%	3.3%
By Industry:					
Holding companies	1.0%	10.9%	7.6%	7.9%	4.6%
Manufacturing	22.2%	10.5%	4.4%	9.2%	3.1%
Finance and insurance	15.9%	6.0%	3.6%	5.0%	2.6%
Wholesale trade	17.1%	15.5%	7.0%	12.9%	4.4%
Mining	41.8%	19.2%	11.2%	19.2%	11.2%
Information	21.5%	8.3%	7.9%	6.8%	6.4%
Depository institutions	14.1%	-1.9%	-4.6%	-0.1%	-2.8%
Professional, scientific, and technical services	19.3%	10.8%	8.6%	8.8%	6.7%
Other industries	24.1%	8.5%	3.8%	7.5%	2.9%

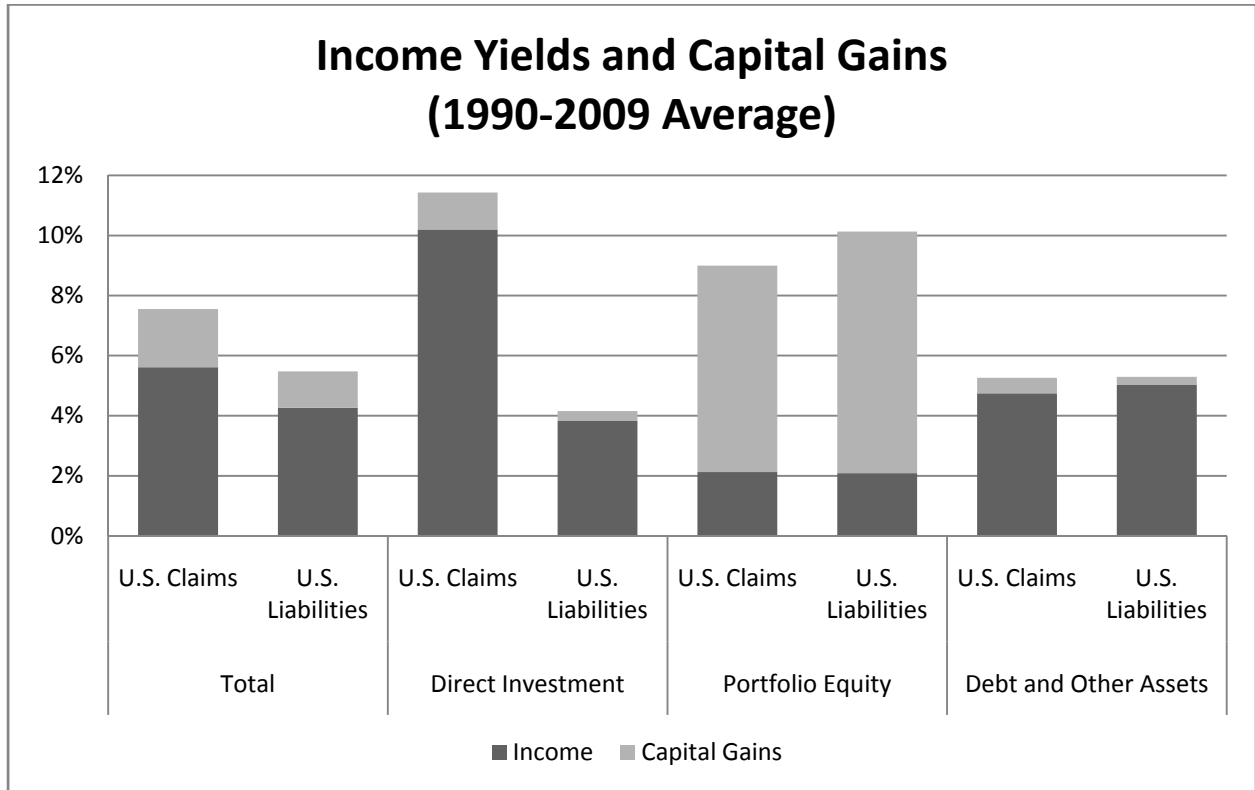
See notes to Table 1. Foreign Tax Rates inferred from 2004 benchmark survey (BEA 2008). FDIUS returns from Table 1. All values are 2000-2009 averages.

Figure 1: U.S. Cross-border Net Investment Income and Net Investment Position



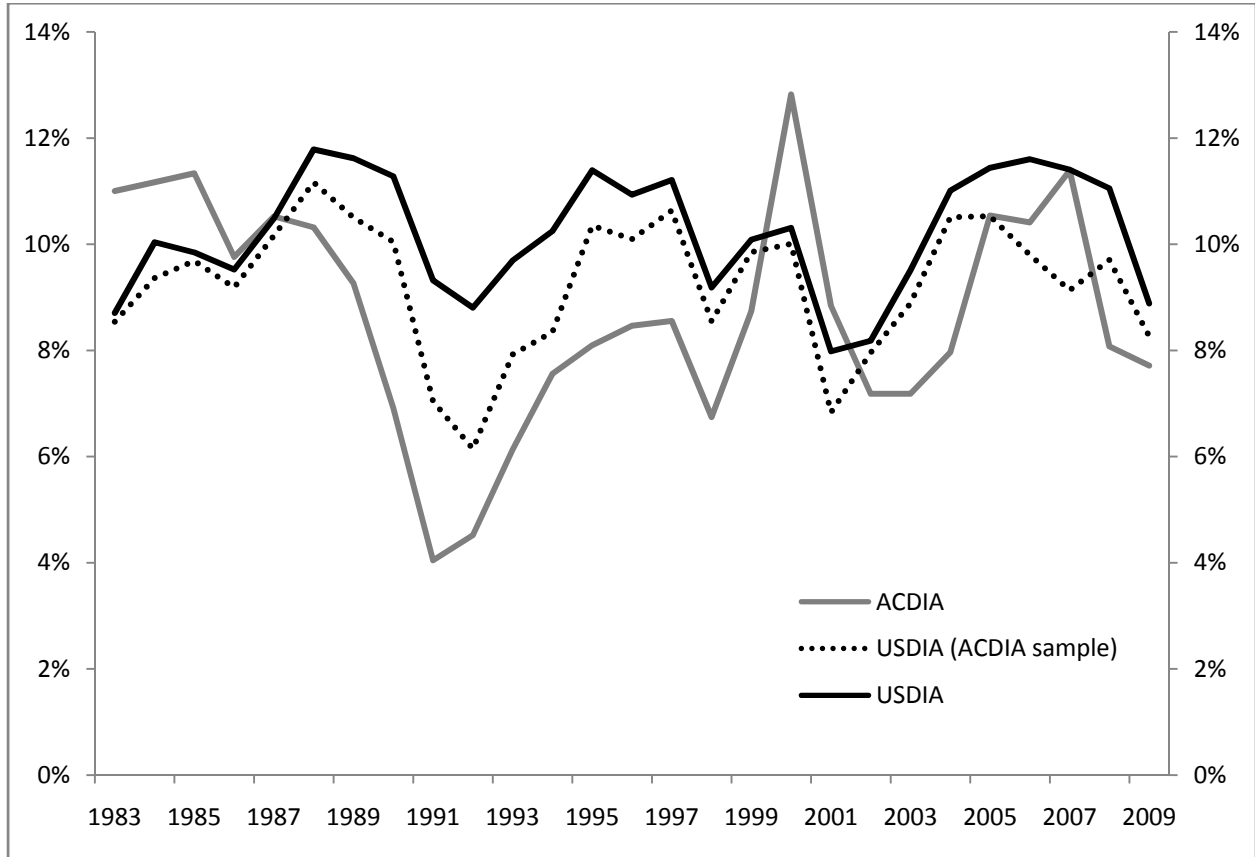
From the U.S. balance of payments and international investment position reported by BEA. Direct investment is valued at current-cost.

Figure 2: Income Yields and Capital Gains on U.S. Cross-Border Positions



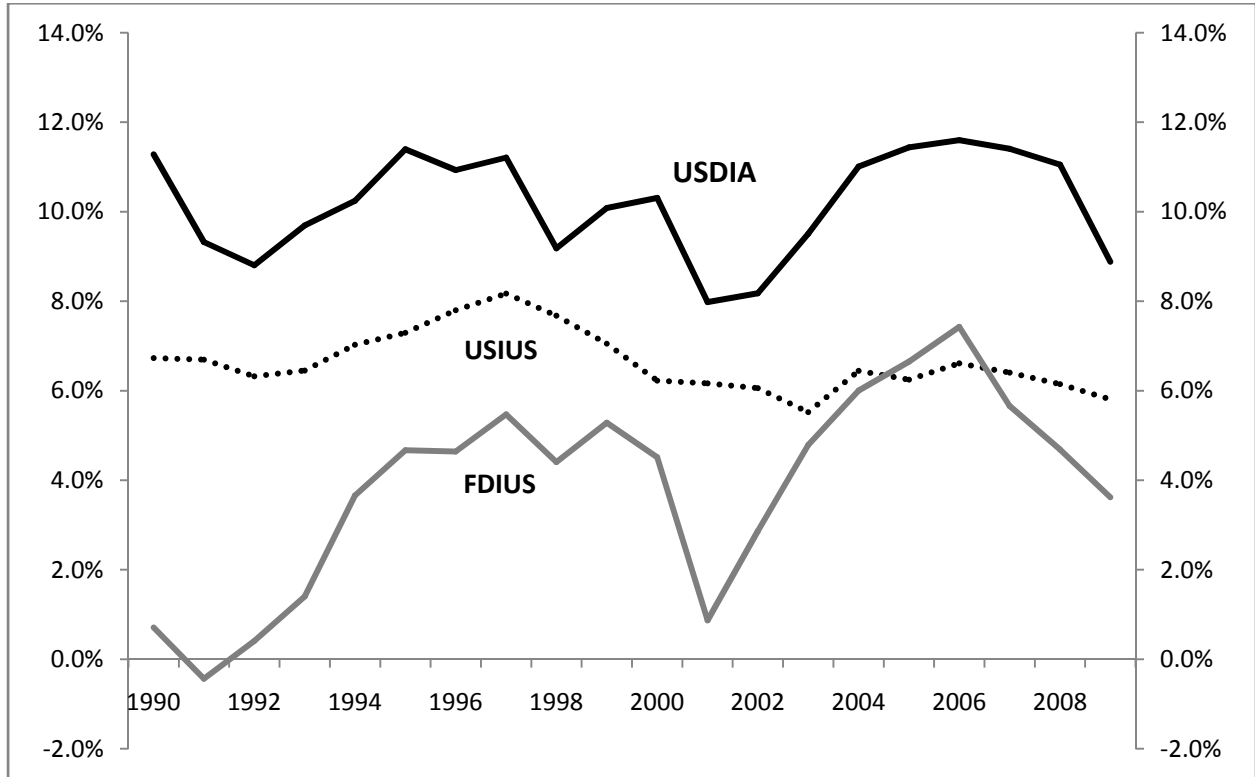
Income is from the balance of payments reported by BEA. Capital gains are calculated using the methodology detailed in Curcuro, Thomas and Warnock (2008). Direct investment valued at current-cost.

Figure 3: U.S. Direct Investment Abroad (USDIA) and All Countries Direct Investment Abroad (ACDIA) Yields



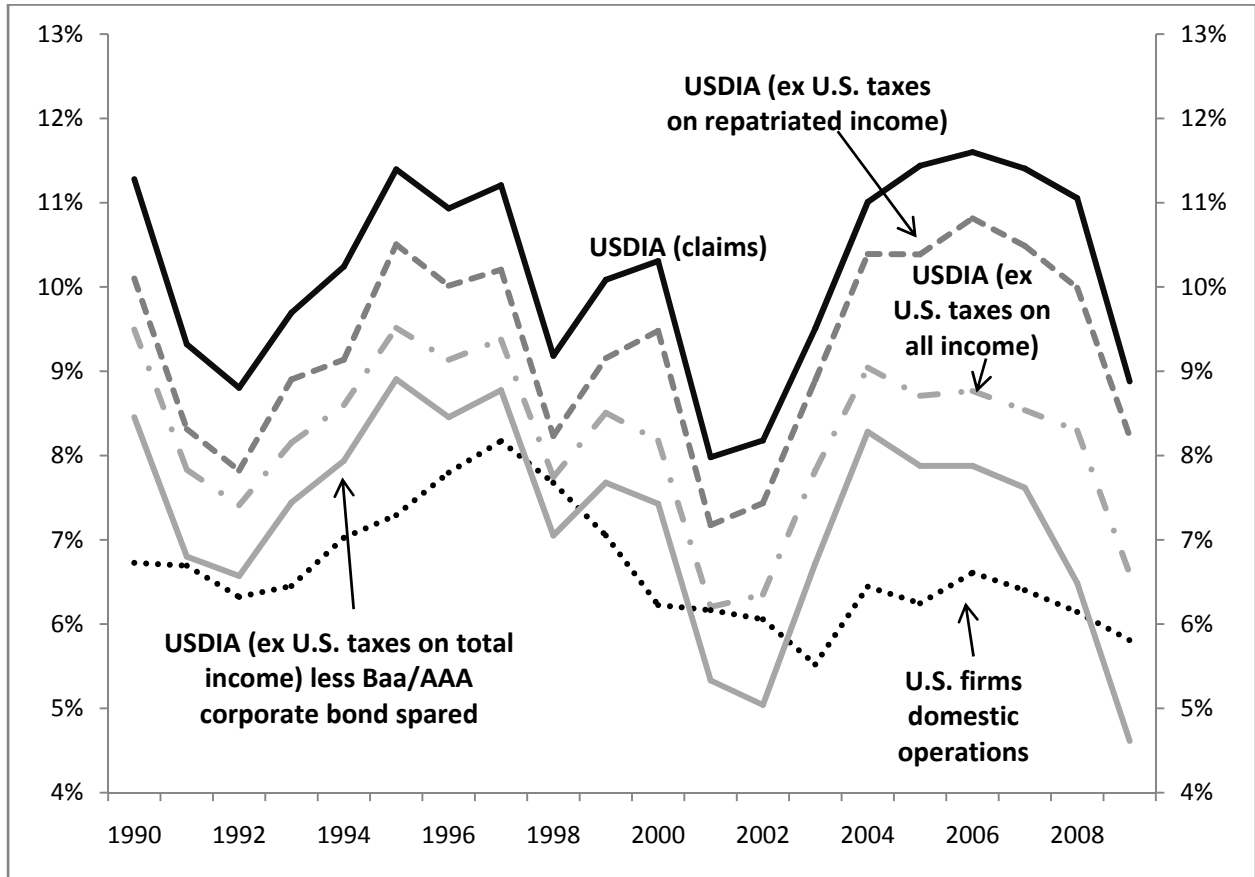
The ACDIA and USDIA (ACDIA sample) series are the series shown in the last line of Table 1. The USDIA series is the ratio of aggregate DI income receipts to USDIA position reported by BEA.

Figure 4: U.S. Direct Investment Abroad (USDIA) and Foreign Direct Investment in the United States (FDIUS) Yields vs. U.S. Investment in the United States (USIUS) Yields



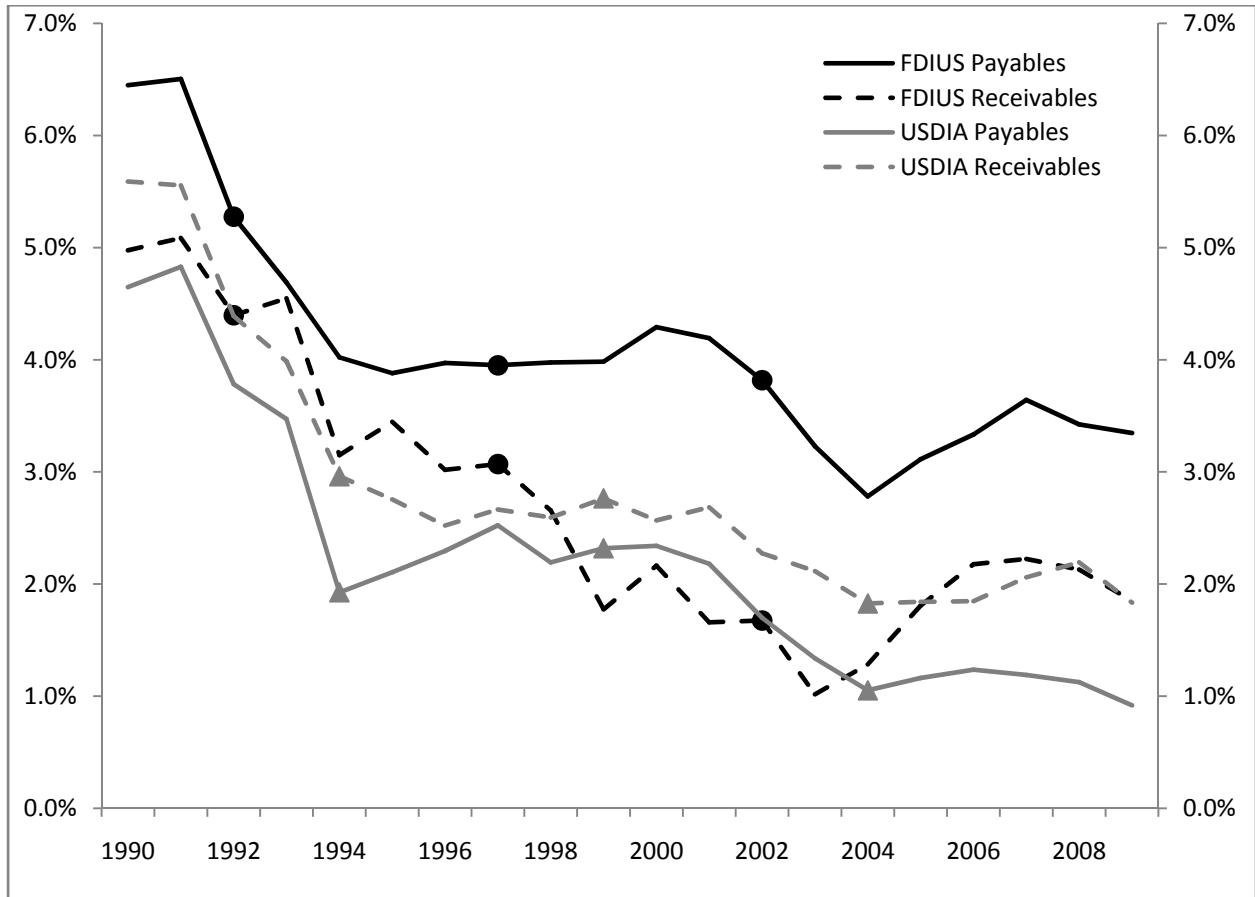
The USDIA series is the ratio of aggregate DI income receipts to the USDIA position at current-cost reported by BEA. The FDIUS series is the ratio of aggregate DI income payments to the FDIUS position at current-cost reported by BEA. The USIUS yield is constructed using Flow of Funds data and is similar to the return on all U.S. non-financial corporate tangible assets in Figure 3 of Bosworth et al. (2008) with two small changes: we subtract the FDIUS income and position to limit the return to U.S. firms, and we use the current-cost value of real estate.

Figure 5: Tax- and Risk-Adjusted USDIA Yields



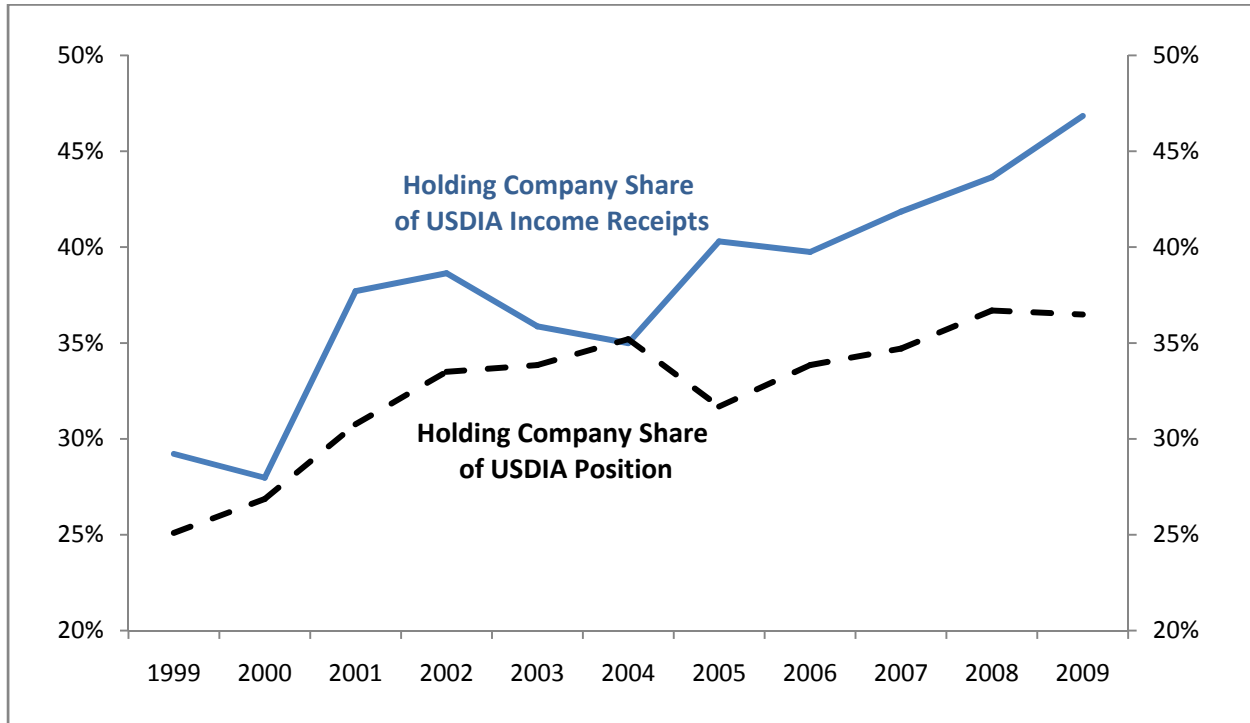
AAA and Baa corporate bond yields from Moody's Investor Services. Direct investment valued at current-cost. The USDIA return and USIUS yield are the series plotted in Figure 3. Details on the tax adjustments are given in the text.

Figure 6: Estimated Interest Rates on Intercompany Debt



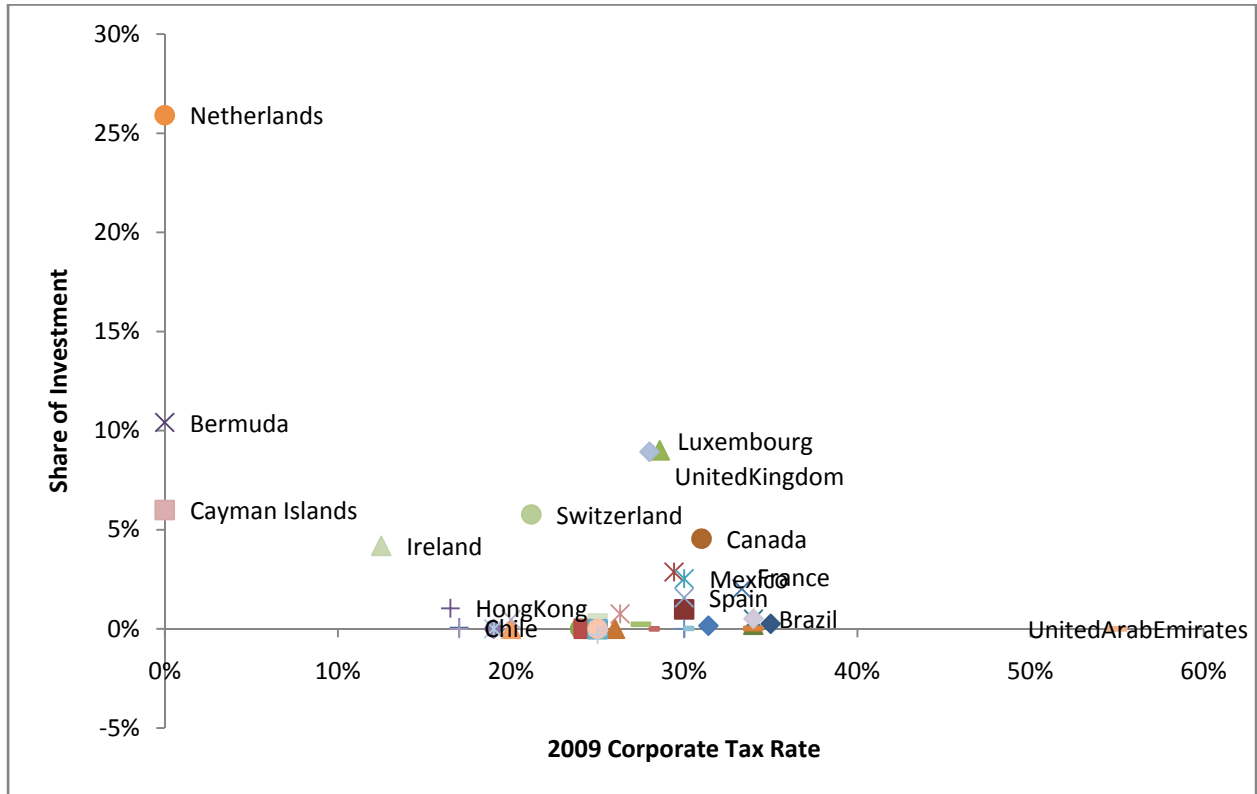
Interest rates on intercompany debt are calculated using the ratio of interest payments to the intercompany debt position. USDIA intercompany debt positions from the 1989, 1994, 1999, and 2004 benchmark surveys. FDIUS intercompany debt positions from the 1992, 1997, and 2002 benchmark surveys. Benchmark survey years are designated with a black circle (FDIUS) or grey triangle (USDIA). Between survey years, positions estimates are created using the debt flows.

Figure 7: Holding Company Share of USDIA Income Receipts and Position



Direct investment income and positions from BEA. Income does not include current-cost adjustment. Direct investment valued at historical-cost.

Figure 8: Corporate Tax Rate and Share of Position, 2010



Tax rates from KPMG (2010). Direct investment positions from BEA. Direct investment valued at historical-cost.