PRELIMINARY – PLEASE DO NOT CIRCULATE

On Returns Differentials*

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Abstract

We categorize and analyze the first three waves of research on U.S. returns differentials. We also discuss (and update) an assessment of this literature by BEA. While estimates of U.S. returns differentials have ranged from exorbitant to very small, the evidence points to a modest differential in favor of the United States. The differential owes primarily to a differential in direct investment *yields*, so we examine those and show that the DI yield differential and, hence, the overall U.S. returns differential, owes to a wedge between U.S. firms' domestic and foreign earnings. This wedge is, in turn, well explained by country-specific factors such as tax rates and risk. The small differential between yields earned by foreign MNCs in the US and those earned by U.S. firms domestic operations is well explained by the relative youth of the MNCs. In sum, the differential is small, and whatever differential exists owes to well-understood differences in the earnings of U.S. MNCs abroad and foreign MNCs in the US.

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"Go to the BEA website. Find the latest annual balance of payments data for the United States…Find the latest net international investment position data for the United States…Is the United States still privileged?" (Feenstra and Taylor 2008 page 661)

"[T]here is convincing evidence that statistical adjustments, not the over-performance of U.S. investments or exchange rate effects, would explain large net positive valuation gains by the U.S. and part of the excess return implied in the U.S. net foreign assets." (Habib 2010 page 10)

"Habib (2010) confirms the existence of excess returns of about 3% for the US on the period 1981-2008 and points out the singularity of the US in its ability to earn excess returns for long periods of time." (Gourinchas, Rey, and Govillot 2010 page 3)

1. Introduction

As the above quotes suggest, anyone hoping to understand the exorbitant privilege—a common term for the apparent excess return that U.S. investors earn on their foreign portfolios compared to what foreigners earn on their U.S. portfolios—by reading the literature will quickly realize that such an exercise is hopeless because there is no consensus on the exorbitant privilege's size or existence. A leading international economics textbook instructs undergraduate students to gather off-the-shelf data from the Bureau of Economic Analysis (BEA) and convince themselves that there is an exorbitant privilege. An economist at the ECB writes that statistical adjustments, not actual returns, produce the illusion of an exorbitant privilege. Leading researchers then cite the ECB study as evidence of the existence of a privilege. The lay person ends up totally confused. This is too bad, as it is an important topic; indeed, much of Obstfeld (2010) is dedicated to issues related to returns differentials.

We hope to alleviate this confusion in two ways. First, we categorize and analyze the burgeoning literature on cross-border returns differentials. An assessment of that literature points to direct investment (DI) *yields* as the only source of whatever returns differential exists. Our second contribution is an analysis of the DI yield differential. Before starting, it is useful to lay

out some terminology. While it is unusual to do so in the introduction of a paper, for this topic precision in language is necessary.

Total Returns are comprised of two components, *Yield* and *Capital Gains*. Yield is the return attributable to income streams (e.g., coupon payments, dividends, earnings on DI), whereas capital gains are the returns attributable to price movements. We will be exact in our use of these terms. If we write "yield", we are referring to the returns attributable to income streams, not capital gains. If we write "returns", we are referring to total returns (unless we include the modifier "capital gains").

Returns differentials, which can describe differentials in yield, capital gains, or both, can be decomposed into three components: the composition, return, and timing effects. The first two—the composition and return effects—capture average characteristics of U.S. cross-border claims and liabilities. The *composition effect* is positive if U.S. claims on foreigners are weighted toward asset classes with higher average returns; Gourinchas and Rey (2007a) showed convincingly that there is a positive composition effect for the US. The *return effect*, at the heart of the exorbitant privilege view, is positive if U.S. investors earn higher average returns within each asset class. The *timing effect*, the focus of Curcuru, Dvorak, and Warnock (2010), is driven by reallocations among different asset classes and captures the covariance between current weights and subsequent returns; foreigners' returns in the US are degraded by poor timing when switching between bonds and equities.

With these definitions, we will note that discrepancies in the literature tend to be about different views of the *return effect* (whether U.S. investors earn higher within-asset-class average returns on their foreign portfolio than foreign investors earn in the US). The composition effect is not controversial. It is clear that U.S. foreign assets are weighted toward equity and DI, whereas

foreigners' U.S. assets are weighted toward bonds. If equities tend to outperform bonds, the composition effect will be positive for the US. Of course, as is evident to anyone with a portfolio, over some (rather lengthy) periods bonds have outperformed equities; over those time periods the composition effect can be negative for the US. For the timing effect, to date there is only one estimate of roughly 50 basis points per year in favor of the US (Curcuru, Dvorak, and Warnock 2010).

On average returns differentials, we distinguish between three waves of research. A first wave of work backed international returns out of IIP data and found very large differentials in favor of the United States, differentials that exceed three percent per year. In the second wave either data issues from the first wave were addressed or direct readings of returns were used; doing so produces much smaller differentials of 1-1.5% per year. A third wave produced differentials that were as large as those in the first wave. Officials at BEA have recently weighed in: The current vintage of IIP data should not be used to back out returns, and when returns are calculated carefully the differential is small (about 1-1.5%) and almost entirely due to a differential in DI *yields*.

If indeed whatever differential exists is due to a differential in DI yields, any discussion of U.S. returns differentials should focus not on where they do not exist (portfolio equity, debt, other), but rather on DI. There is a long-standing literature on the DI differential (see papers from Landefeld et al. 1992 to Bosworth et al. 2008); we lean on that literature and provide additional and updated analysis. To understand the wedge between yields on U.S. direct investment abroad (USDIA) and foreign direct investment in the United States (FDIUS), we first show that there is nothing special about USDIA; when comparing apples with apples the earnings of U.S. firms in their foreign operations are in line with the earnings of the foreign operations of firms from other

countries (ACDIA). We then show that there is also nothing special about FDIUS, other than that it tends to be young, and young firms or new enterprises tend to have lower earnings. When FDIUS is seasoned, it earns about what the domestic operations of U.S. firms (USIUS) earn. If there is nothing special about USDIA (relative to ACDIA) and nothing special, other than age, about FDIUS relative to USIUS, why are there such large differentials between USDIA and FDIUS? Taxes and risk. There are strong incentives for U.S. firms to book earnings not at home, where corporate taxes are high, but abroad in low-tax jurisdictions. Tax issues could add 2% per year to USDIA yields. If in addition an adjustment for risk is made, the difference between USDIA and USIUS is less than 1%. Age explains the difference between FDIUS and USIUS; taxes and risk explain most of the wedge between USIUS and USDIA; and, thus, age, taxes, and risk explain most of the DI yield differential.

In sum, the evidence indicates that the U.S. returns differential is not 3-4% per year, but more like 1-1.5%. What differential exists is mostly in DI *yields*. A literature that has evolved over three decades shows that age, taxes, and risk explain that differential.[1]

2. The Returns Differential Literature: Three Waves and an Assessment

2.1 The First Wave

The main papers in the first wave of the returns differential literature are Lane and Milesi-Ferretti (2005), henceforth LMF1; Gourinchas and Rey (2007), henceforth GR1; Meissner and Taylor (2006, MT); and Obstfeld and Rogoff (2005, OR). This first set of papers—probably with GR1 and LMF1 leading the way and MT and OR following—used readily

[1] We do not focus on another interesting aspect of the literature, the information content of the differential, be it from the cyclical component (Gourinchas and Rey 2007b) or from the total differential (Evans and Fuertes 2011).

available (revised) series to calculate an implied returns differential. The total return on U.S. claims or liabilities using the revised series can be calculated as follows:

$$r_t^R = \frac{A_t^R - A_{t-1}^R - FLOW_t^R}{A_{t-1}^R} + \frac{INC_t^R}{A_{t-1}^R} \qquad (1)$$

where A^R_t is the position (claims or liabilities) at the end of period *t*, $FLOW^R_t$ is flows (U.S. flows abroad or foreign flows into the U.S.) during period *t*, and INC^R_t is income (interest, dividend, and DI earnings) during period *t*. The superscript R denotes *revised*, indicating that all variables are of the latest vintage. The first term in (1) is returns owing to capital gains, while the second term is the income yield.

Estimates of the yield (the second term in (1)) do not tend to vary much across researchers. But there are substantial differences in estimates of capital gains (the first term) and, more precisely, the dollar amount of valuation changes (the numerator of the first term). Call that *Val* (for valuation changes):

$$Val_t^R = A_t^R - A_{t-1}^R - FLOW_t^R \qquad (2)$$

The logic behind (2) is straightforward. For any account, if for example you know the end-2008 amount (A_{t-1}), the end-2009 amount (A_t), and the contributions made during 2009 ($Flows_t$), you can figure out the investment gains or losses (Val_t). Then, given Val_t you can calculate the percentage (capital gains) returns as

$$KG\ Returns_t = 100 * Val_t / A_{t-1} \quad (3)$$

The first wave of research on external returns applied this logic to U.S. International Investment Position (IIP) data. In that context, *A* is the U.S. international position and *Flows* are U.S. net capital outflows. In theory, one could use (1) - (3) to produce an estimate of the returns the U.S. is earning on its international assets and liabilities. Estimates summarized in Table 1 range from 2.7% to 3.7% per year favoring U.S. claims. Returns computed using (1) - (3) seem to indicate that in every asset class U.S. investors manage to outperform foreign investors in the U.S., and much of the favorable differential results from higher capital gains rates.

The problem that the first wave of papers did not anticipate is that in practice (2) cannot be used to compute a reasonably accurate estimate of *Val*, and thus there is no basis for applying (3). The reason is that *A* and *Flows*, because they have completely different revisions policies and come from different data collection systems, are not consistent with one another. In the IIP data it need not be the case that *Flows* plus *Val* are equal to the change in *A*. This contrasts sharply with normal accounts, in which contributions plus investment gains/losses should equal the change in the balance.

In the IIP this inconsistency between *A* and *Flows* is represented by an "other changes" term, *OC*. *OC* is similar in spirit to the statistical discrepancy in the Balance of Payments (BOP) data. With it:

$$A_t = A_{t-1} + Flows_t + Val_t + OC_t \quad (4)$$

and the first wave of papers can be seen as computing implied (capital gains) returns using not *Val* but *Val* + *OC*:

$$KG\ Returns_t = 100 * (Val_t + OC_t) / A_{t-1} \qquad (5)$$

Applying (5) produces rather large returns differentials favoring U.S. claims on foreigners because, as it turns out, in the U.S. IIP presentation *OC* has been on average more positive for U.S. claims than for U.S. liabilities. This is not an artifact of the older sample period. Even in the current vintage of data (i.e., recent data that incorporate all past revisions) *OC* is on average positive for the U.S. and drives the return differential strongly in favor of the U.S.[2]

2.2 The Second Wave

A second wave of papers realized the impact *OC* might have on estimates of returns differentials. The second wave consisted primarily of Lane and Milesi-Ferretti (2009, LMF2); Curcuru, Dvorak, and Warnock (2008, CDW); and Curcuru, Thomas, and Warnock (2009, CTW). LMF2 shines the light on *OC* and carefully assesses how much might be attributed to true *VAL* and how much might be discrepancies in the data. CDW identifies the main source of the *OC*—inconsistent position and flow data resulting from disparate revisions policies affecting different items in the accounts—then constructs an estimate of the returns differential after removing this inconsistency.

Compared with the estimates computed in the first wave of papers, both LMF2 and CDW provide substantially lower estimates of the capital gains portion of the U.S. returns differential (Table 2). CDW estimates that capital gains differentials for debt and equity were 0.2% and -2.3% per year, respectively; their combined differential was a relatively modest 0.7% per year.

[2] Gian Maria Milesi-Ferretti points out that for the U.S. *OC* has been positive on net in 19 of the past 20 years.

LMF2 estimates that the aggregate capital gains differential is only 0.6% per year—only about one-fifth the magnitude of the estimates in the first wave of papers.

LMF2 and CDW both end in a puzzle: If returns differentials are smaller, there is an unexplained disconnect in the international accounts—if *OC* represent missing net outflows rather than valuation adjustments, where are the offsetting inflows needed to balance the BOP? CTW addresses this disconnect by investigating various known holes in the accounts and finds that some of the needed offsets might be explained by under-reporting of U.S. exports and the omission of foreign purchases of U.S. real estate from the international accounts. However, some of the puzzle remains.

We place a fourth paper in the second wave—Gourinchas and Rey (2007b), henceforth GR2—although we readily admit that we are not sure where it belongs. We put it in the second wave because it did not use (1)-(3) to compute returns, but rather relies on market returns (similar to the CDW approach). Note that GR2 report total returns, whereas the others in Table 2 are capital gains returns, so there is a disconnect in our table. But as can be seen in the table, GR2 produces returns that no one would describe as exorbitant. The aggregate capital gains returns differentials are actually negative, as negative differentials for FDI and equity are not offset by positive (but near zero) capital gains differentials for debt and other.[3]

Comparing the first and second waves of papers, one might conclude that there appeared to be an exorbitant privilege, but that it was largely a function of statistical oddities, and when direct readings of returns are used U.S. capital gains returns differentials are positive but near zero.[4] But then came a third wave of papers.

[3] The returns differentials for GR2 are not reported in that paper, but can be computed from http://socrates.berkeley.edu/~pog/academic/IFA_data.xls. We thank Alberto Fuertes for pointing this out to us. See also Evans and Fuertes (2011), in which an aggregate returns differential of 0.0% is computed for 1973-2008.
[4] Including the yield differential of about 1-1.5%, the overall returns differential was roughly 1-1.5%.

2.3 A Third Wave

Whereas the second wave of papers produced very low U.S. returns differentials, a third wave—Forbes (2010), Habib (2010) and Gourinchas, Rey, and Govillot (2010, GRG)—produced higher estimates, reported in Table 3. Forbes (2010) uses the CDW methodology and finds a very high returns differential: 6.9% excess returns per year during 2002-2006. Habib (2010) finds U.S. excess returns of about 3.4% for the period 1981-2007; that most of the differential comes from capital gains; that no other country in a broad panel has a similarly large differential; and, consistent with GR1, that most of the U.S. returns differential comes not from a composition effect but from a within-asset-class return differential. GRG updates and improves the GR1 dataset, confirms the GR1 results, and finds that while in normal times the U.S. has an exorbitant privilege, in times of financial stress it has an exorbitant duty. Overall, however, they highlight a long-term average returns differential of 3.5% per year from 1973-2009 (GRG Table 1, Panel a).

How does this third wave square with the previous literature? Forbes found a high differential, but her very short sample is at a time when the dollar was depreciating (which adds to any underlying differential). She also reports returns with exchange rate movements stripped out; excluding exchange rate movements, the returns differential for the asset class at the heart of the exorbitant privilege view—bonds—is very small at only 0.3%. Although Habib (2010) acknowledges the findings of the second wave of literature, it uses equation (5) to calculate returns. GRG goes a step further and also estimates the returns differential after removing the *OC*. The result is a more modest 1.6% per year (GRG Table 1, Panel b), and the differential

drops dramatically for each asset class. Which is a better estimate of the returns differential: 1.6% or 3.5%?

2.4 An Assessment from BEA

Statisticians from the Bureau of Economic Analysis (BEA) have provided an answer to the question of how to best estimate the U.S. returns differential (Gohrband and Howell 2010, henceforth GH). GH resolves two questions confounding economists trying to construct estimates of the returns differential. What are "other changes" (the *OC*) and how much should be included in *Val*? And, what are the revised valuation adjustments for the components of the IIP?

To answer the first question of how much of the *OC* to include in *Val*, GH states:

> "Other changes" are changes in position that cannot be attributed to price changes, exchange rate changes, or financial flows . . . it is unlikely that significant price or exchange rate changes have been erroneously included in "other changes" . . . It is far more likely that financial flows that could not be identified from revisions to position estimates have been commingled with statistical changes in the "other changes" category.[5]

Thus, the answer from BEA—the compilers of the data used by economists to estimate the size of the returns differential—is clear: *OC* should not be included in the valuation adjustments used to calculate the returns differential.[6] Their estimate of the 1990-2005 returns differential is 1.7% per year (Table 4), of which 1.2% is from income yield and only 0.5% is from capital gains.

GH also provides data on revised valuation adjustments for the components of the IIP—data that until now were unavailable to researchers—and calculates returns differentials by asset class. The large aggregate yield differential is the result of a 4.8% per year advantage for FDI claims, with a modest differential in favor of debt and a disadvantage in equity (which contrasts

[5] Gohrband and Howell (2010), p. 17.
[6] "Other changes" for FDI include some capital gains and losses which should be included in valuation adjustments, but these data are not available.

starkly to some estimates from the third wave of literature at over 4%). We use the GH data (available through 2005) and their recipe to calculate returns through 2009 (also shown in Table 4). FDI yields are responsible for the bulk of the 2.0% annual differential for the 1990-2009 period.

In Table 5 we split the sample into two periods: 1990-2004 and 2005-2009. That split shows that the difference between the two periods is not in yields—over the last two decades the yield differential has averaged 1.4% with little variation (1.4% for 1990-2004 and 1.5% for 2005-2009)—but in capital gains. The capital gains differential, 0.0% for 1990-2004, was 2.3% over the past five years, owing to a substantial capital gains differential on equity. Equity markets performed poorly around the world (and more so in the U.S.) during this period, but dollar depreciation added to the returns on U.S. claims. This capital gains differential, not evident in the preceding 15-year period, creates a large overall differential for 2005-2009 (consistent with Forbes 2010). It is difficult to predict what the differential on equity capital gains will be in the future (positive, negative, or zero are three reasonable guesses), but what is apparently more stable is the aggregate *yield* differential. That differential owes entirely to a difference in DI yields, the topic we turn to next.

3. On the DI Yield Differential

Based on the most recent and improved estimates, excluding the extraordinary events of recent years the returns differential in favor of the US is less than 1.5%, and, as depicted in Figure 1 (and Table 4), owes primarily to a large advantage in DI income yields. This suggests that any discussion of the U.S. returns differential should focus squarely on DI. Not on the depth of U.S. financial markets, not on the U.S. government's ability to borrow internationally for

nothing, but on the earnings U.S. firms book on their foreign operation relative to the earnings foreign firms book on their U.S. operations.

Luckily there is a long, well-established literature to guide us. That U.S. firms earn more on their foreign operations than foreign firms earn on their U.S. operations—shown graphically in Figure 2—has been known for decades (Landefeld et al. (1992), Mataloni (2000), Gros (2006), Bosworth et al. (2008), McGrattan and Prescott (2010)).

To shed light on the excess DI yield, we take the following approach. First, we show that the yield U.S. firms earn on their foreign operations is not extraordinary, but almost exactly in line with the yield all foreign firms earn in those countries. Second, there is nothing special about the earnings foreign firms book in the United States; they are almost exactly in line with U.S. corporate earnings, and deviations are well explained by an age effect. Third, where there is a noticeable wedge is between U.S. firms' domestic earnings yields and USDIA. Most of this wedge, at the heart of the DI yield differential and thus the overall returns differential, owes to country-specific factors such as tax rates. While there is a lot of work behind each of these three statements, in what follows we present them in a concise way and leave the details to Curcuru and Thomas (2011).

3.1 U.S. firms' international earnings are not exorbitantly high

The first comparison we make is between USDIA earnings and the DI earnings made by firms from other countries. To do so we compare USDIA earnings yields in selected countries (computed from BEA income and position data)[7] with the aggregate earnings yield on all direct investment in the same set of countries (ACDIA), computed as the ratio of total direct investment

[7] BEA country-level DI positions do not include a current-cost adjustment, but the current-cost position values are available for the aggregates. We used the ratio of the aggregate current-cost to historical-cost position to adjust the country earnings yields to a current-cost basis.

income payments to the liabilities position reported in the IMF Balance of Payment Statistics. To ensure an apples-to-apples comparison, we include only countries in which earnings, like USDIA earnings, are measured using the IMF-recommended Current Operating Performance Concept (COPC). This criterion yields 8 foreign countries which accounted for 31% of USDIA in 2009.[8]

On their foreign direct investments in these countries, firms from other countries have done about as well as U.S. firms. The weighted-average USDIA and ACDIA earnings yields, where weights are the shares of the USDIA position in this country sample for each year, are very similar through time (Figure 3). The sample averages are also very similar; weighted-average yields over the sample period are 7.5% for USDIA and 8.6% for ACDIA. There is nothing special about USDIA: In their foreign operations, when doing an apples-to-apples comparison, U.S. firms' earnings are in line with the earnings of other firms' foreign operations.

3.2 Foreign firms' U.S. earnings are not exorbitantly low

The next comparison we make is between FDIUS earnings and the earnings made by U.S. firms on their domestic operations. Existing literature consistently reports that FDIUS underperforms other domestic operations and USDIA, despite the widespread belief that these earnings yields should be similar. However, this literature finds that a significant portion of the earnings yield differential is related to age (Lupo et al. (1978), Landefeld et al. (1992), Grubert et al. (1993), Laster and McCauley (1994), Feldstein (1994), Grubert (1997), Mataloni (2000), McGrattan and Prescott (2010)). FDIUS affiliates are generally younger than USDIA affiliates

[8] See http://www.imf.org/external/bopage/pdf/mar2000.pdf for a description of the COPC, which excludes earnings from capital gains and losses and includes reinvested earnings and intercompany debt payments. Including another six countries for which ACDIA income includes capital gains and losses and another six for which ACDIA is missing intercompany debt payments and/or reinvested earnings would increase coverage to 66% of USDIA and not change the conclusions that follow. See Curcuru and Thomas (2011) for estimates of the aggregate ACDIA yield including these countries.

or U.S. domestic operations. Younger firms have relatively high expenses because of restructuring and other start-up costs, as well as accelerated depreciation schedules for fixed assets. These higher expenses lead to low initial earnings yields that disappear as firms age. Further, retained earnings eventually replaces external financing as the major source of capital as affiliates age, which also results in lower expenses and higher yields (Feldstein 1994).

To gauge the extent to which age influences the FDIUS earnings yield, we regress FDIUS earnings on a proxy for firm age, AGE_t, and a measure of U.S. domestic earnings yields (USIUS) from 1983 to 2009: [9]

$$FDIUS_t = \underset{3.2\ (1.3)}{\alpha} + \underset{-7.3\ (3.1)}{\beta \times AGE_t} + \underset{0.5\ (0.2)}{\gamma \times USIUS_t} \qquad (5)$$

Coefficient estimates are shown below the equation, with standard errors in parentheses; the adjusted R^2 of the regression is 40%. FDIUS earnings are very much related to the age of investments. The age proxy in (5) is total outlays for new FDIUS in the previous 3 years scaled by the FDIUS position at *t*. Alternate age-related measures, such as new equity flows and new intercompany debt flows, are also significant (Curcuru and Thomas (2011), Table 4). The FDIUS return is particularly sensitive to new intercompany debt flows, and Figure 4 shows that the combination of USIUS (all assets) and AGE is a very good predictor for FDIUS yields. As shown in Table 6, the difference between FDIUS and USIUS earnings yields has averaged 0.6%; and, as shown by the regression, movements in FDIUS yields relative to USIUS are well explained by the age of FDIUS.

[9] Domestic earning yields are computed using the yield on not just non-financial corporate tangible assets (as in Bosworth et al. 2008), but on all assets (including financial assets). It is not entirely clear which measure of USIUS (using only tangible assets or including the yield on all assets) is more appropriate. FDIUS affiliates borrow and invest in the U.S. capital markets, so the FDIUS earnings yield is more similar to a U.S. earnings yield that includes earnings on financial assets. In regression (5) and Figure 4 we include all assets in computing the domestic yield, and use earnings reported by firms excluding the adjustments to depreciation made by BEA to aggregate income.

3.3 The Source of the Differentials: U.S. firms' domestic and foreign earnings

USDIA earnings yields are similar to yields on DI made by investors from other countries, but are significantly higher than USIUS earnings yields. Some of the difference between USDIA and USIUS yields is hardwired in the BOP because of the way taxes on foreign earnings are reported. In the BOP, U.S. taxes paid by U.S. parents on their foreign-generated income are not subtracted from cross-border income receipts because the tax is paid by the U.S. parent firm and not a cross-border transaction. U.S. parents receive a credit for foreign taxes paid, but usually still owe some U.S tax on repatriated earnings because the U.S. tax rate is generally higher. So the USDIA earnings yield generally overstates the after-tax earnings of the U.S. parent firm. Including the estimated U.S. tax liability generated by foreign affiliate earnings that were repatriated each year reduces the USDIA earnings yield by an average of 1 percentage point, shown in Table 6.

U.S. MNEs reinvest a substantial fraction of USDIA earnings—on average 60% of their earnings from 1999-2009—which lowers the current U.S. tax liability on their foreign earnings. However, the U.S. parent firm may not be certain, ex ante, how much of their foreign earnings they will need to repatriate, and may only choose projects with a return high enough to compensate them for the maximum potential tax liability. Therefore we also calculate the USDIA earnings yield adjusted for U.S. taxes on all foreign income that would be due had the affiliate distributed all of its earnings. Whereas our previous adjustment is likely a lower bound, this one can be viewed as an upper bound, as it might overstate the compensation required by MNEs for the uncertainty associated with repatriation needs and tax policies. This adjustment decreases the USDIA earnings yield an additional 1 percentage point per year, the third line in Table 6, bringing the total compensation for U.S. taxes to 2 percentage points per year.

The remainder of the wedge between USDIA and USIUS yields, which is between 1.6% and 3.1% (depending on the measure of USIUS and the tax assumption), can plausibly represent compensation for the additional risk associated with investing abroad. Curcuru and Thomas (2011) highlight risk adjustments that bring the gap between the risk- and tax-adjusted USDIA and USIUS (tangible assets) yields to an average of 0.9 percentage points per year. Age explains the difference between FDIUS and USIUS; taxes and risk explain the wedge between USIUS and USDIA; and, thus, age, taxes, and risk explain most of the DI yield differential.

4. Implications

In this section we discuss some implications of our analysis.

4.1 Returns Differentials vs. Dollar Amounts

We begin with something that should not be implied from our analysis, that small differentials are somehow unimportant. While the U.S. differential is much lower than some estimates, even a zero returns differential could be associated with a massive transfer of wealth between countries. Returns differentials tend to be averages of annual percentage returns. If percentage returns are high (say, positive 50%) for 10 years when cross-border positions are miniscule and then low (negative 50%) for the next 10 years when cross-border positions are much larger, the average returns differential is zero, but there would be a massive cross-border wealth transfer. While we have not focused on the dollar amount of transfers in this paper, it is clearly important.

4.2 Reconciling the U.S. BOP and IIP

As noted by LMF2 and analyzed at length in CTW, low estimates of the U.S. capital gains differential leaves us with a puzzle—a very large gap between reported net liabilities and those that would be implied by past current account deficits and measured capital gains rates. Cumulating from 1990, CTW estimated this gap to be $1.7 trillion as of 2007. After accounting for known holes in the U.S. collection system, such as unmeasured residential real estate transactions, CTW was able to narrow the gap, to $370 billion. However, their reconciliation resulted in a positive statistical discrepancy in the BOP of roughly $500 billion ($30 billion per year), representing additional unaccounted net inflows.

One could argue that estimates that still leave $500 billion unaccounted are less than ideal. True. But BOP figures released since the CTW suggest that the additional $30 billion per year—and even the total $500 billion—needed to square the accounts is not appear particularly large. In the ten quarters from 2008:Q1 through 2010:Q2 the statistical discrepancy totaled $400 billion, an average of more than $160 billion per year or 1/3 of the current account deficit. It appears that a small returns differential might indeed be consistent with reported BOP and IIP data.

4.3 International.

A third implication of our work is that one needs to be very careful when comparing returns across countries. We discuss this in more detail in the appendix; below is a summary.

The first three sections of this paper—and the entire literature it rests on—highlight some of the difficulties in interpreting the differentials for a single country. The same difficulties associated with statistical series breaks, inconsistent data collection systems and out-of-sync revision policies that give rise to influential "other changes" in the U.S. IIP also exist for other

countries. For example, *OC* for the euro area average 0.5% per year 2000-2009. Moreover, despite international standards put forth by the IMF and others, countries' income and holdings data are not necessarily compiled using the same methods. One example: Based on IMF BOP data, French FDI claims earned an average of 1.8% per year from 2000-2009—this is the value that is likely included in the Euro Area accounts. However, a presentation on the Banque de France website suggests that the return on French FDI equity capital claims was about 5% for this period. We were able to identify a likely reason for the discrepancy in this example—that French FDI income excludes intercompany debt payments and earnings reinvested in indirectly-owned affiliates. However, other unidentified issues undoubtedly lurk in the data.

If one ignores the caveats and computes returns for other countries via equations (1)-(3), the resulting differentials are much smaller than for the US and, indeed, often negative. For example, the average total differential from Habib (2010) is -1.5% (-1.1% excluding Finland). Further analysis using IMF data reveals that portfolio returns differentials across countries are similar to U.S. differentials (excluding *OC*), suggesting that DI yield differentials are responsible for the difference between the aggregate U.S. differential and that reported by other countries. However, as pointed out earlier, substantial differences in data definitions across countries make comparisons difficult for more than a handful of countries. We caution against such analysis unless one is willing to begin with a data reconciliation exercise.

5. Conclusion

In this paper we have provided a survey of the literature on returns differentials. The first wave of papers in this literature produced differentials in favor of the U.S. that are large enough that "exorbitant" is an apt descriptor. The second wave recognized that reported (and, especially,

revised) IIP and BOP data could not be combined to back out returns; this set of papers found much smaller differentials. Then a third wave found much higher differentials. Recently, the BEA has weighed in: Differentials are very small, with the exception of FDI. Researchers have recognized and analyzed the differential for FDI for decades. We build on that long-standing literature by showing that the FDI differential owes to a wedge between U.S. firms' reported earnings on their foreign and domestic operations. Foreign firms' (age-adjusted) earnings in the US are in line with U.S. firms' domestic earnings, and U.S. firms' earnings abroad are in line with other foreign firms' earnings in those countries. The only wedge is between U.S. firms' reported earnings on their foreign and domestic operations, and that wedge is plausibly explained by adjustments for taxation and risk.

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Table 1: Returns Differential Estimates from the First Wave of Literature

Source	Period		Aggregate			FDI	Debt	Equity	Other
			Total	Yield	Capital Gains[1]				
Gourinchas and Rey (2007a)[2]									
Table 1.1	1973-2004	Claims	6.8	..	..	9.7	4.1	15.5	4.1
		Liabilities	3.5	..	..	9.3	0.3	9.4	1.2
		Difference	**3.3**	**..**	**..**	**0.3**	**3.7**	**6.1**	**3.0**
Lane and Milesi-Ferretti (2005)[3]									
Table 5	1995-2004	Claims	7.2	..	..	..	4.3	10.1	..
		Liabilities	4.5	..	..	..	2.1	9.9	..
		Difference	**2.7**	**..**	**..**	**..**	**2.2**	**0.2**	**..**
Obstfeld and Rogoff (2005)									
Text	1983-2003	**Difference**	**3.1**	**1.2**	**1.9**	**..**	**..**	**..**	**..**
Meissner and Taylor (2006)									
Table 3 and 4	1981-2003	**Difference**	**3.7**	**1.7**	**2.0**	**..**	**..**	**..**	**..**

[1]Capital gains inferred from the difference between Total and Yield differential.
[2] Values are from Gourinchas and Rey (2007a) Table 1.1. In that paper they are labeled as real returns (although exactly how nominal returns were transformed into real returns is not stated), but in the associated file posted on the web (http://socrates.berkeley.edu/~pog/academic/wb_data.xlsx) they match series labeled nominal.
[3] Values from Lane and Milesi-Ferretti (2005) are real returns averaged over the three time periods in Table 5.
.. not available.

Table 2: Capital Gains Differential Estimates from the Second Wave of Literature

Source	Period		Aggregate	FDI	Debt	Equity	Other
Curcuru, Dvorak and Warnock (2008)							
Table II	1994-	Claims	..	..	6.1	9.6	..
	2005	Liabilities	..	..	5.9	11.9	..
		Difference	**..**	**..**	**0.2**	**-2.3**	**..**
Lane and Milesi-Ferretti (2009)[1]							
Table 7	1983-	Claims	2.1	0.6	0.8	10.3	..
	2007	Liabilities	1.6	0.5	0.3	9.1	..
		Difference	**0.6**	**0.1**	**0.6**	**1.2**	
Curcuru, Thomas and Warnock (2009)[2]							
Table 1	1990-	Claims	2.3	1.3	2.0	8.2	2.8
	2007	Liabilities	1.1	0.5	0.6	9.7	0.0
		Difference	**1.1**	**0.8**	**1.4**	**-1.5**	**2.8**
Memo: Gourinchas and Rey (2007b)[3]							
	1983-	Claims	6.8	8.4	8.5	10.4	5.5
	2004:Q1	Liabilities	7.5	9.0	8.2	12.5	5.2
		Difference	**-0.7**	**-0.6**	**0.3**	**-2.1**	**0.3**

[1] Capital gains from Lane and Milesi-Ferretti (2009) are averaged over the three time periods in Table 7.
[2] Curcuru, Thomas and Warnock (2009) aggregate and FDI capital gains include the value of "other adjustments" for FDI.
[3] Returns for Gourinchas and Rey (2007b) are average nominal *total* (i.e., yield plus capital gains) returns, thus not directly comparable with the capital gains returns in the rest of the table, calculated from http://socrates.berkeley.edu/~pog/academic/IFA_data.xls.
.. not available

Table 3: Returns Differential Estimates from the Third Wave of Literature

Source	Period		Aggregate			FDI	Debt	Equity	Other
			Total	Yield	Capital Gains				
Forbes (2010)[1]									
Tables 1,2	2002-	Claims	11.2	..	..	16.3	6.7	17.4	..
	2006	Liabilities	4.3	..	..	5.6	5.3	7.6	..
		Difference	**6.9**	**..**	**..**	**10.7**	**1.4**	**9.8**	**..**
Excluding ER Changes		Claims	8.6	..	..	12.9	4.9	12.0	..
		Liabilities	4.0	..	..	5.6	4.6	7.6	..
		Difference	**4.6**	**..**	**..**	**7.3**	**0.3**	**4.4**	**..**
Habib (2010)									
Table 2	1981-	**Difference**	**3.4**	**1.3**	**2.1**	**..**	**..**	**..**	**..**
	2007								
Gourinchas, Rey and Govillot (2010)[2]									
Tables 1, 3	1973-	Claims	6.3	..	..	..	..	..	..
Panel a	2009	Liabilities	2.8	..	..	..	..	..	..
		Difference	**3.5**	**..**	**..**	**5.0**	**4.7**	**4.2**	**0.2**
Gourinchas, Rey and Govillot (2010)[3]									
Tables 1, 3	1973-	Claims	5.0	..	..	..	..	..	..
Panel b	2009	Liabilities	3.4	..	..	..	..	..	..
		Difference	**1.6**	**..**	**..**	**1.9**	**2.5**	**1.2**	**-0.9**

[1] Returns in Forbes (2010) for components exclude holdings of foreign official investors but these are included in total returns.

[2] Includes OC.

[3] Excludes OC.

.. not available

Table 4: Recent Total Returns Differential Estimates

		Gohrband and Howell (2010) Tables D and E 1990-2005			1990-2009		
		Claims	Liabilities	**Difference**	Claims	Liabilities	**Difference**
Aggregate	Total	7.6	5.9	**1.7**	7.2	5.2	**2.0**
	Yield	5.0	3.8	**1.2**	5.5	4.1	**1.4**
	Capital Gains	2.7	2.1	**0.5**	1.7	1.1	**0.6**
FDI	Total	10.4	6.2	**4.2**	10.7	4.5	**6.1**
	Yield	6.9	2.1	**4.8**	10.2	3.9	**6.3**
	Capital Gains	3.4	4.0	**-0.6**	0.5	0.6	**-0.2**
Debt	Total	7.7	6.4	**1.3**	7.2	6.1	**1.1**
	Yield	7.0	6.3	**0.6**	6.7	6.0	**0.7**
	Capital Gains	0.7	0.0	**0.6**	0.5	0.1	**0.4**
Equity	Total	8.5	10.3	**-1.9**	8.0	8.3	**-0.3**
	Yield	2.5	2.1	**0.3**	2.5	2.1	**0.4**
	Capital Gains	6.0	8.2	**-2.2**	5.4	6.1	**-0.7**
Other	Total	4.3	3.9	**0.4**	4.4	3.7	**0.6**
	Yield	4.2	3.9	**0.3**	4.1	3.7	**0.4**
	Capital Gains	0.1	0.0	**0.1**	0.3	0.1	**0.2**

Notes: Gohrband and Howell (2010) aggregate and FDI capital gains include the value of capital gains that are included in "other changes" for FDI, and calculate returns using the market value of the FDI position. Our calculations use the Gohrband and Howell (2010) Table 3 estimates of income and capital gains for debt, equity, and other assets. For FDI we use the current-cost value of the FDI position and infer capital gains on a current-cost basis on FDI from BEA IIP Table 3, available online at http://www.bea.gov/international/xls/intinv09_t3.xls.

Table 5: Returns Differential Estimates for Two Sub-periods

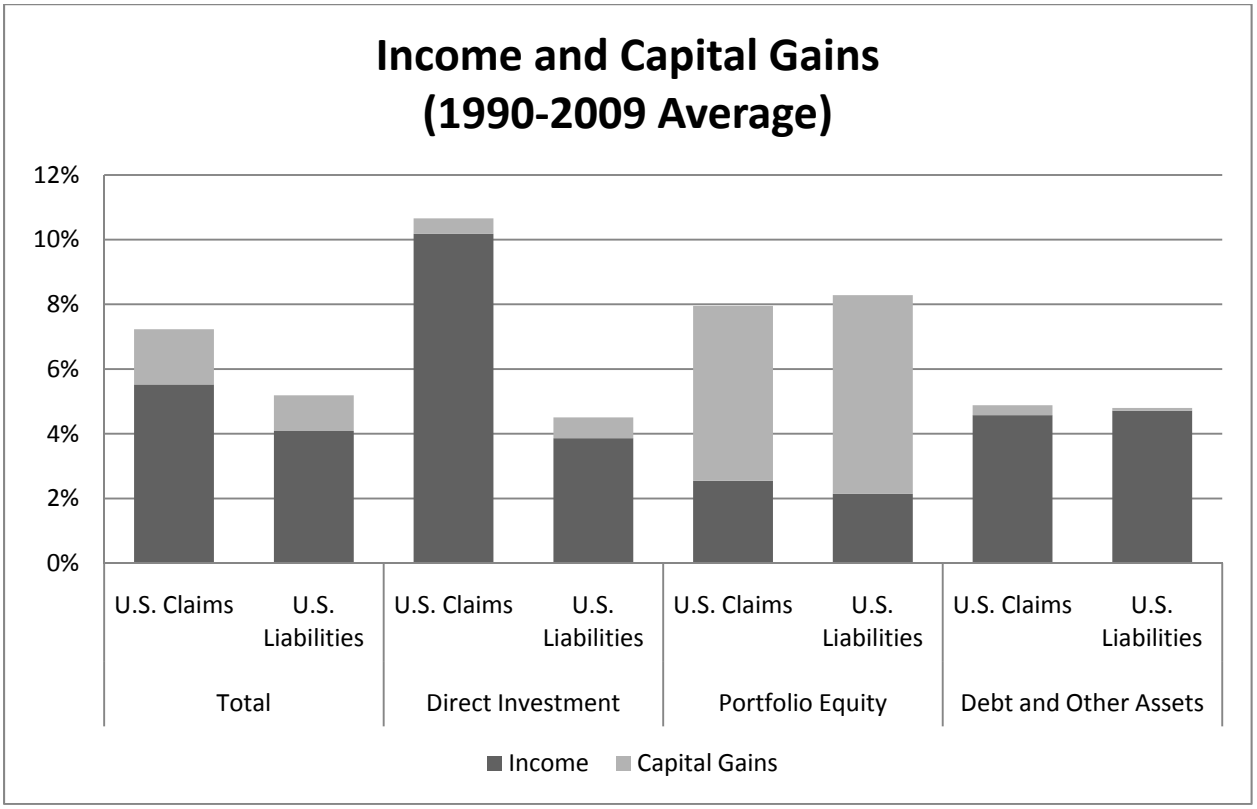
		1990-2004			2005-2009		
		Claims	Liabilities	**Difference**	Claims	Liabilities	**Difference**
Aggregate	Total	7.1	5.7	**1.4**	7.5	3.7	**3.8**
	Yield	5.4	4.1	**1.4**	5.3	3.8	**1.5**
	Capital Gains	1.6	1.6	**0.0**	2.2	-0.1	**2.3**
FDI	Total	9.7	3.9	**5.8**	12.3	6.6	**5.7**
	Yield	9.8	3.5	**6.4**	10.9	5.6	**5.3**
	Capital Gains	-0.1	0.5	**-0.6**	1.4	1.0	**0.4**
Debt	Total	8.0	6.6	**1.3**	4.6	4.3	**0.3**
	Yield	6.9	6.3	**0.7**	5.7	4.6	**1.1**
	Capital Gains	1.0	0.4	**0.6**	-1.1	-0.4	**-0.8**
Equity	Total	9.2	11.7	**-2.4**	8.3	1.1	**7.3**
	Yield	2.4	2.1	**0.3**	2.7	2.1	**0.7**
	Capital Gains	6.8	9.6	**-2.8**	5.6	-1.0	**6.6**
Other	Total	4.2	3.8	**0.4**	4.2	3.0	**1.2**
	Yield	4.1	3.7	**0.3**	3.5	2.9	**0.6**
	Capital Gains	0.1	0.0	**0.1**	0.7	0.1	**0.7**

Notes: Valuation adjustments based on data (and, to update, the recipe) from Table 3 of Gohrband and Howell (2010). Returns use the current-cost value of the FDI position.

Table 6: Average DI Earnings yields, 1990-2009

USDIA, before U.S. taxes	9.1%
USDIA, after U.S. taxes on repatriated earnings	8.1%
USDIA, after U.S. taxes on all earnings	7.1%
USIUS, tangible assets	5.5%
USIUS, all assets	4.0%
FDIUS	3.4%

Figure 1: Income Earnings yields and Capital Gains on U.S. Cross-Border Positions

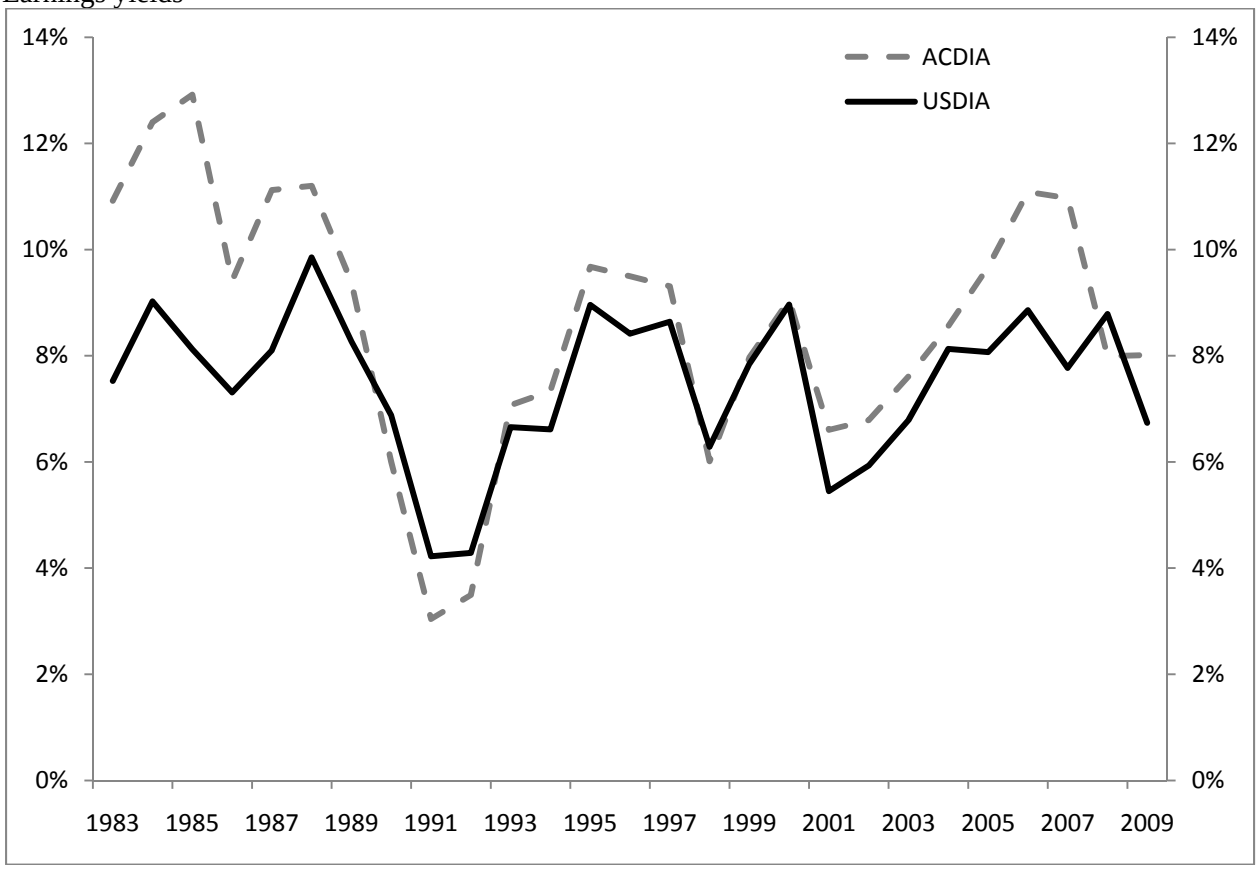


Graphical depiction of the returns presented in the right side of Table 4. Income is from the balance of payments reported by BEA. Income and capital gains are from Gohrband and Howell (2010). Direct investment valued at current-cost.

Figure 2: U.S. Direct Investment Abroad (USDIA) and Foreign Direct Investment in the United States (FDIUS) Earnings yields

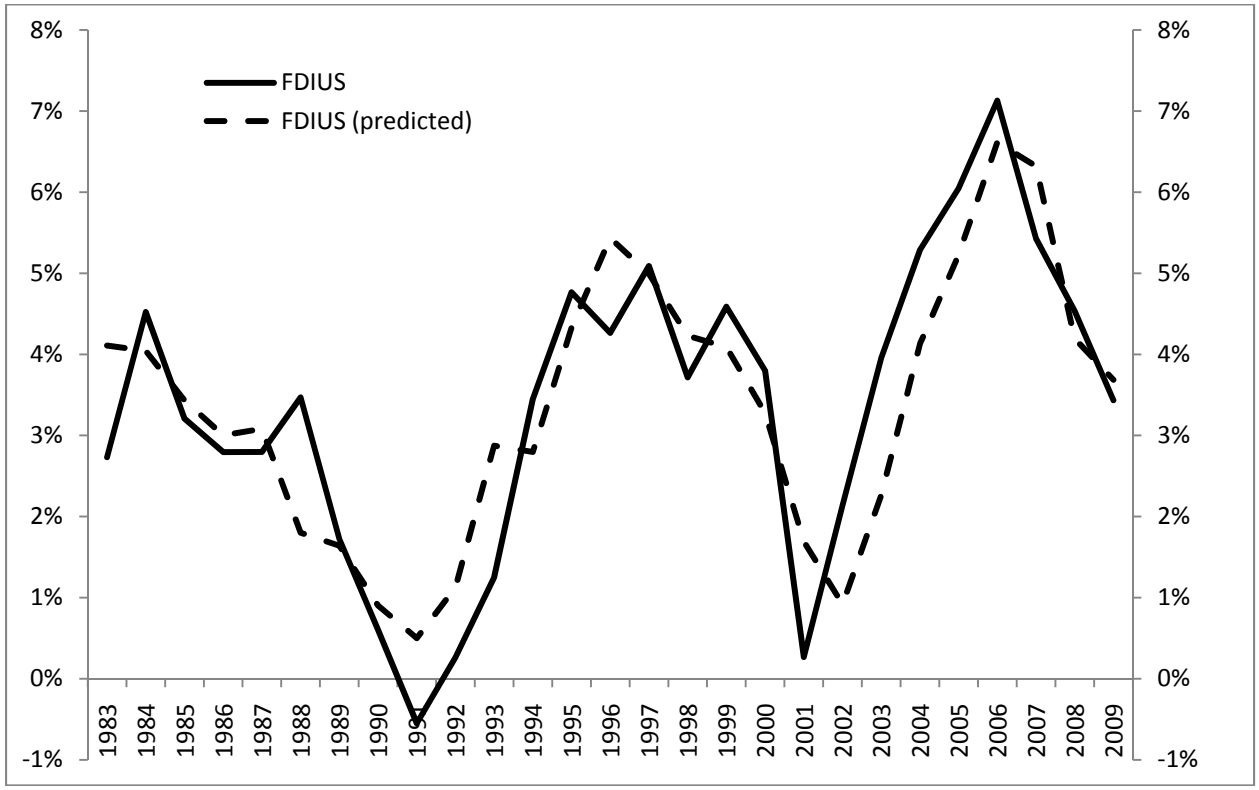
The USDIA series is the ratio of aggregate DI income receipts to the USDIA position at current-cost reported by BEA. The FDIUS series is the ratio of aggregate DI income payments to the FDIUS position at current-cost reported by BEA.

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



The series are returns of USDIA and ACDIA, constructed by weighting country-level returns by the (historical cost) share of USDIA investment in each country each year. Includes only those countries which fully apply the current operating performance concept to direct investment income reporting; these countries comprise 31% of USDIA in 2009. The ACDIA earnings yield is the ratio of total direct investment income payments reported by the IMF's BOP statistics to the liabilities position. The USDIA earnings yield in each country is computed using BEA income and position data. Only the historical-cost positionsare available for BEA country-level data, so we use the ratio of the current-cost position to the historical-cost position computed at the aggregate level to adjust the USDIA yields to a current-cost basis.

Figure 4: Foreign Direct Investment in the United States (FDIUS) adjusted for age-effects



The predicted FDIUS yield is estimated using Equation (5), but with AGE here being the previous 5 years of intercompany debt flows from the parent to the affiliate, scaled by the FDIUS position.

Appendix. International Evidence

For completeness we next discuss some international evidence on returns differentials. Because data issues across countries can be more severe than within countries, we begin with some caveats.

Caveats on international returns estimates

Caution must be exercised when comparing countries' returns estimates for at least two reasons. First, the same issues with statistical series breaks, inconsistent data collection systems and out-of-sync revision policies that give rise to influential "other changes" in the U.S. IIP also exist for other countries. Second, despite international standards put forth by the IMF and others, countries' income and holdings data are not necessarily compiled using the same methods.

Potentially large OC in the current vintage of data

Many countries—the U.S. included—do not have a unified collection system for all the data needed to compile the financial account. Euro Area accounts, for example, are compiled from data from individual countries, each with their own data collection systems and revision policies. Like the U.S., the Euro Area reports influential *OC* that have a noticeable impact on its returns differential. The average Euro Area returns differential from 2000-2009 excluding *OC* is -0.5% per year, about half the size of the differential computed when *OC* are included (Table A.1). The *OC* for FDI are particularly large and move the differential for this asset class from -1.1% to -2.6% per year, a decline of 150 basis points, while including *OC* improves the differential for 'other' assets by almost 80 basis points.

Differences in Data Collection Methodologies

Differences in data collection methodologies also confound cross-country comparisons of returns differentials. For example, there are three ways to value current DI positions: on a

historical cost basis, on a "current-cost" basis that adjusts the value of certain assets to current-period prices, and using equity market indexes to construct and estimate market value. The different methods can result in dramatically different position estimates, which, in turn, result in significantly different estimates of FDI returns. Moreover, differences in the methods used to compile FDI income make cross-country returns differentials comparisons particularly difficult. Some countries exclude reinvested earnings from their reported income, others exclude intercompany debt payments, some exclude both (Curcuru and Thomas 2011). These differences can have a tremendous influence on FDI earnings yields. For example, based on IMF BOP data, French FDI claims earned an average of 1.8% per year from 2000-2009—this is the value that is likely included in the Euro Area accounts. However, a presentation on the Banque de France website suggests that the return on French FDI equity capital claims was about 5% for this period.[10] The likely reason for this large difference is that French FDI income excludes intercompany debt payments and earnings reinvested in indirectly-owned affiliates. The omission of reinvested earnings will have a particularly large downward effect on FDI claims yields in high-tax countries, which tend to have large amounts of FDI in low-tax countries where they reinvest a high portion of their earnings.[11] This results in the understatement of the FDI yield differential for these countries.

Estimates of Returns Differentials across Countries

With these caveats in mind, we examine the returns differential estimates for different countries reported in LMF1, MT, and Habib (2010), summarized for selected countries in Table A.2. The total returns differential is negative for most countries, and other than Australia and

[10] http://www.banque-france.fr/gb/stat_conjoncture/telechar/bdp/FDI-overview-1999-2009.pdf.
[11] Desai et al. (2006).

New Zealand, less than 30 basis points when it is positive. The average differential for the sample of countries from Habib (2010) sample is -1.5% (-1.1% excluding Finland).

While the average differential is much lower than the differential computed for the U.S., recall that the U.S. differential owes entirely to a differential in DI yields. Because only 8 countries, including the United Kingdom, Australia and New Zealand, report FDI returns on the same basis as the United States, additional work is needed before anyone can confidently conclude that the U.S. returns differential is unusually high.

Since FDI returns for most countries are not comparable with U.S. returns, in Table A.3 we report portfolio returns for the same selection of countries. The returns differential is positive for 7 out of the 14 countries and for the Euro area as a whole. The U.S. portfolio returns from Tables 2 and 3 of around 1-2% per year are in line with the differentials for other large developed economies including Australia, Canada, Japan, New Zealand, as well as the Euro Area.

Table A.1: Returns Differential Estimates for the Euro Area (16), 2000-2009

		Excluding Other Changes			Including Other Changes		
		Claims	Liabilities	Difference	Claims	Liabilities	Difference
Aggregate	Total	2.3	2.8	-0.5	2.4	3.3	-0.9
	Yield	3.6	3.7	-0.1	3.6	3.7	-0.1
	Capital Gains	-1.3	-0.9	-0.4	-1.3	-0.4	-0.9
FDI	Total	4.9	6.0	-1.1	4.4	7.0	-2.6
	Yield	5.7	6.0	-0.3	5.7	6.0	-0.3
	Capital Gains	-0.8	0.0	-0.8	-1.3	1.0	-2.3
Portfolio	Total	1.3	2.5	-1.2	1.2	2.4	-1.2
	Yield	3.5	3.6	-0.1	3.5	3.6	-0.1
	Capital Gains	-2.2	-1.1	-1.1	-2.2	-1.1	-1.1
Other Investment	Total	-1.5	1.9	-3.3	0.0	2.5	-2.5
	Yield	-1.0	3.0	-3.9	-1.0	3.0	-3.9
	Capital Gains	0.0	-1.1	1.1	0.0	-0.5	0.5

Notes: Returns are calculated using position, income, and valuation adjustments from the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/home.do.) "Other investment" includes reserve assets and other investment. Excludes financial derivatives.

Table A.2: Returns Differential Estimates for Selected Countries

			Aggregate		
Source	Period	Country	Total	Yield	Capital Gains
Lane and Milesi-Ferretti (2005)					
Table 3	1995-2004	Australia	2.6	..	..
		Canada	-1.1	..	..
		Japan	-0.2	..	..
		United Kingdom	0.2	..	..
Table 5	2000-2004	Euro Area	-2.2	..	..
Meissner and Taylor (2006) [1]					
Tables 3, 4	1981-2003	Canada	-0.1	-1.4	1.3
		France	0.2	0.8	-0.6
		Germany	-0.6	0.3	-0.9
		Italy	-0.3	-0.5	0.2
		Japan	0.1	1.1	-1.0
		United Kingdom	0.3	0.1	0.2
Habib (2010)					
Table A.2	1981-2007	Australia	1.3	-1.3	2.6
		Canada	-1.9	-1.5	-0.4
		Finland	-6.9	-1.3	-5.7
		France	-0.8	0.0	-0.8
		Germany	-1.1	-0.3	-0.8
		Hong Kong	-1.4	-0.5	-0.9
		Ireland	-3.9	-4.0	0.1
		Japan	-1.9	0.8	-2.7
		Netherlands	-2.4	-0.5	-1.9
		New Zealand	1.3	-2.9	4.2
		Norway	-0.9	-1.4	0.6
		Sweden	-1.5	-0.1	-1.4
		Switzerland	-1.3	1.2	-2.5
		United Kingdom	0.2	0.0	0.1
Table 1	1981-2007	Euro (10)	-1.8	-1.3	-0.5

Notes:
[1]Capital gains for Meissner and Taylor (2006) inferred from the difference between total and yield differential.
.. not available.

Table A.3: Portfolio Returns Differentials for Selected Countries

Country	Period	Total	Yield	Capital Gains
Australia	1985-2007	3.1	-0.1	3.1
Canada	1981-2007	2.7	-3.1	5.8
Finland	1994-2007	-0.6	3.5	-4.1
France	1988-2007	0.3	2.5	-2.2
Germany	1981-2007	0.6	1.7	-1.1
Hong Kong	2001-2007	-1.2	1.9	-3.0
Ireland	1998-2007	-1.1	-0.3	-0.9
Japan	1991-2007	4.3	3.4	0.9
Netherlands	1981-2007	-4.4	-0.6	-3.8
New Zealand	1992-2007	10.1	0.9	9.2
Norway	1999-2007	-2.9	0.3	-3.2
Sweden	1997-2007	-5.6	-0.5	-5.1
Switzerland	1983-2007	-2.4	1.3	-3.7
United Kingdom	1984-2007	0.5	-0.9	1.5
Euro Area	1999-2007	1.2	-0.1	1.3

Notes: Return calculations use position data from the updated and extended version of dataset constructed by Lane and Milesi-Ferretti (2007) and flow and income data from the IMF BOP data base.