# On Returns Differentials*

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Abstract

We shed light on average U.S. returns differentials by categorizing and analyzing the first three waves of research on U.S. returns differentials and discussing (and updating) a BEA assessment of how to interpret the underlying data. While estimates of U.S. returns differentials have ranged from exorbitant to quite small, the evidence points to a modest differential in favor of the U.S. that owes primarily to a differential in direct investment *yields*. Recent research suggests that the bulk of the DI yield differential and, hence, the overall U.S. returns differential, owes to a wedge between U.S. firms' domestic and foreign earnings that can be attributed to country-specific factors such as tax rates, risk, and the relative youth of FDIUS firms. Our analysis suggests that the overall returns differential is small; the *income* puzzle (of positive net income flows to the U.S. even as its net international investment position is negative and substantial) owes to well-understood differences in the earnings of U.S. MNCs abroad and foreign MNCs in the U.S.; and the *position* puzzle (of a sizeable gap between the reported U.S. net international position and cumulated current account deficits) likely owes not to a large returns differential but to missing capital flows. We close with an initial assessment of the literature on the dynamics of returns differentials.

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## 1. Introduction

Returns differentials are at the heart of two puzzles in international macroeconomics, both depicted in Figure 1. The first is the position puzzle: The U.S. net international investment position (IIP) is far less negative than the large and persistent U.S. current account deficits would suggest (i.e., the reported IIP is less negative than cumulated current account deficits), leading Obstfeld (2012) to ask whether the current account is still meaningful. The second is the income puzzle: Even with a substantial, negative IIP, on net the US *earns* income on its net international position (i.e., the income balance is positive). Moreover, not only is U.S. net international income positive—it amounted to $165 billion in 2010—but over time it has improved even as the net investment position has deteriorated. Is the U.S. IIP much worse than reported? Does the U.S. have outsized earnings on its foreign positions? Are foreigners such bad investors that their U.S. positions earn substandard returns? When will the U.S. income balance finally turn negative (and how in the world can it be positive)? Is the current account a meaningful measure? The answers to all of these questions, as well as an understanding of the two puzzles, hinge at least some extent on return differentials.

Unfortunately for the lay person, the literature on returns differentials is quite confusing. A first wave of research backed international returns out of IIP and flow 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. These adjustments showed that for overlapping time periods estimates in the first wave were biased upwards by a few hundred basis points; capital gains differentials in the second wave are much smaller at 0.5-1.0% per year. Then the pendulum swung back when a third wave produced differentials that were as large as those in the first wave.

We aim to alleviate confusion surrounding returns differentials in three steps. Step one is the categorization and analysis of three waves of the burgeoning literature on average cross-border returns differentials, as well as BEA's assessment. Our assessment of the literature points to direct investment (DI) *yields* as the only source of whatever returns differential exists, so the second step is an examination of the literature on the source of the DI yield differential. In the third step we explore implications of our analyses of the overall differential and DI yields to shed light on two puzzles (the income and position puzzles) and frame the nascent literature on the dynamics of returns differentials.

Before starting, it is useful to lay out some terminology. While it is unusual to do so in the introduction of a paper, this topic requires precise language.

*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 (including exchange rate 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 their sum, 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.[1] 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 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, 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).

Our assessment of the returns differentials literature begins in Section 2, where we distinguish between the three waves of research on average returns differentials, mentioned above. Following the three waves officials at BEA weighed in: The current vintage of IIP data should not be used to back out returns, and when returns are calculated carefully the capital gains differential is small (about 0.5%) and the total differential is almost entirely due to DI *yields*. Thus, in Section 3 we focus on the literature on the DI differential. If whatever differential exists is due to a differential in DI yields, then discussions of U.S. returns differentials should focus on DI, not on asset classes such as portfolio equity and debt for which the differentials are

[1] A precise statement on the return effect is in Gourinchas (2006): "The remaining two thirds (of the U.S. excess return) arise from return differentials within asset classes. This reflects mostly the ability of the US to borrow at very low interest rates, a fact sometimes interpreted as evidence of the "exorbitant privilege" that the US enjoys from its unique position in the international monetary order, as the issuer of the world's reserve currency."

inconsequential. The literature attributes the wedge between yields on U.S. direct investment abroad (USDIA) and foreign direct investment in the United States (FDIUS) to differences in taxes, risk, and age. U.S. direct investment abroad (USDIA) earnings reported in the BOP are not net of the U.S. taxes paid on those earnings. Further, 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 so some of the U.S. tax liability is deferred. These tax issues add up to 1.8% per year to USDIA yields. An adjustment for the relative risk of investing outside the U.S. accounts for an additional 0.9%. Finally, the relative youth of FDIUS explains about 1.5%. Together, taxes, risk, and age explain much of the DI yield differential. Transfer pricing might also play a role.

In sum, the evidence indicates that the U.S. returns differential averages not 3-4% per year, but more like 1.5-2%, and even that owes primarily to a roughly 5% differential in DI *yields*. A literature that has evolved over three decades shows that age, taxes (some due to a pre- and post-tax difference in reporting norms), and risk explain that differential.[2] And, while a sizeable 2% aggregate yield differential exists (mostly in DI), the aggregate capital gains differential is small, averaging only 0.5% per year.

In Section 4 we explore the implications of our results for two puzzles (the income and position puzzles), as well as for the nascent literature on the dynamics of returns differentials. Our analysis implies that the U.S. net income puzzle—that the U.S. on net earns positive income on its negative $3 trillion net external position—is also the result of the relatively high yield earned on USDIA. The position puzzle—the large gap between reported net liabilities and those that would be implied by past current account deficits—appears to be the result of large

[2] We note that even with a small positive returns differential, the high yield earned on USDIA implies a substantial wealth transfer to U.S. firms. Because taxes and risk are behind its unusually high yield, unless there is a change in relative tax rates or the relative riskiness of investing in the U.S. or abroad, net investment income will continue to be a stabilizing force for the U.S. current account deficit.

statistical discrepancies between the current and financial accounts rather than large average returns differentials. In short, the income puzzle is no puzzle—it owes to a DI yield differential, and it is easy to see why USDIA earns more than FDIUS—and the position puzzle owes to something as mundane as a disconnect between the data collection systems for flows and positions. Finally, for the important new literature on the dynamics of returns differentials, we caution that while long time series are desirable, the analysis should start with the most accurate time series available.

Our work impacts a range of different literatures. It impacts the literature on the valuation effect of the current account (see, among many others, Devereux and Sutherland 2010). An important distinction in that literature is whether valuation effects are anticipated or unanticipated. To rule on that, as Devereux and Sutherland do, requires an accurate measure of returns differentials. Our work directly impacts the global imbalances literature. For example, the theoretical models in Mendoza, Quadrini, and Rios-Rull (2009) and Mendoza and Quadrini (2010) are in line with Curcuru et al. (2008) and this paper, in that they imply that the excess return for the U.S. comes out of the composition of the U.S. external portfolio (that is, the composition effect of being short in riskless assets and long on risky ones) rather than any magical ability to produce higher yields on seemingly homogeneous assets (a returns effect). Were such models inconsistent with the perceived empirical regularities, they may well be shunned. Empirical regularities impact what theory is written and, of that, which gets an audience, so it is important to get the regularities right. Another area our work impacts is the long-standing literature on FDI differentials. McGrattan and Prescott (2010) show that most of the reported DI yield differential could be attributable to mismeasurement (or non-measurement) of investment in intellectual property (IP). In their system measured income is somewhat low

(because investment spending is being expensed) and the measured capital stock is much too low (because past investment in IP has not been captured). This is consistent with our work, as the accumulated mismeasurement of the capital stock takes time and will be related to firm age. Finally, our work influences the way we think about the income and position puzzles. We show that these are not actually puzzles, but well-understood regularities in the data. This is an important distinction. Puzzles are something to explain and then move on. In contrast, regularities—especially those that involve significant magnitudes—must be accounted for in subsequent work.[3]

## 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 (2007a), 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 available (revised) series to calculate an implied returns differential. The total return on U.S. claims or liabilities can be calculated as follows:

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

[3] Our work also impacts another literature—comparisons of returns differentials across countries—that we do not directly address in this paper. As hinted at in the conclusion, however, we can show convincingly that returns differentials are generally not comparable across countries, a finding that would surely impact the Habib (2010) and Nguyen (forthcoming) papers.

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 average 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):

$$Val^R_t = A^R_t - A^R_{t-1} - FLOW^R_t \qquad (2)$$

The logic behind (2) is straightforward. For any account, if you know the starting balance ($A_{t-1}$), the ending balance ($A_t$), and the contributions made between the start and end dates ($Flows_t$), you can figure out the investment gains or losses ($Val_t$). Then, given $Val_t$ you can calculate the percentage (capital gains) returns as:

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

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. This is exactly what was done in the

first wave of papers, which produced estimates ranging from 2.7% to 3.7% per year favoring U.S. claims (Table 1). 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*, which is similar in spirit to the statistical discrepancy in the Balance of Payments (BOP) data.[4] Including *OC* as part of the change in *A*:

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

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

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

[4] Along with balancing items to offset measurement errors, the *OC* also picks up changes in valuation methodology and reclassifications. An example of the latter is when a foreigner becomes a U.S. resident. His prior claims on the U.S. are no longer U.S. liabilities to a foreigner and his prior claims on the rest of the world become new U.S. claims on the rest of the world.

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.[5]

*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), even for overlapping time periods. CDW estimates that the average 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. 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.

[5] 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 and CDW both end in a puzzle: If average returns differentials are smaller, there is a 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. Given that yields are generally in favor of the U.S. (as we show in the next subsection), the aggregate capital gains returns differentials implied by GR2 total returns are quite negative.[6]

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.[7] But then came a third wave of papers.

[6] 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. Note that we show GR2 data from 1983 in Table 2, just so it overlaps with the LMF2 sample. The GR2 aggregate returns differential for 1973-2004:Q1 is -0.3%. See also Evans and Fuertes (2011), in which an aggregate returns differential of 0.0% is computed for 1973-2008.

[7] 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 average 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 highlights 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). Indeed, owing primarily to dollar depreciation, the period studied in Forbes (2010) was one of abnormally high differentials favoring the US (Figure 2).[8] Forbes 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%?

[8] The volatility of international returns, specifically capital gains returns, depicted in Figure 2 motivates the search for data sets that span longer time periods—see, for example, the GR1 and GRG data that extend back to the early 1950s. We fully agree that best for returns differentials analysis would be the longest accurate time series available.

*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.[9]

Thus, the answer from BEA—the compilers of the data used in all three waves to estimate the size of the returns differential—is clear: *OC* likely represent unrecorded flows, and therefore should not be included in the valuation adjustments used to calculate the returns differential.[10] 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 differentials are very similar to those calculated by the second wave of papers (CTW data are shown), but much smaller than those from the first wave (GR1 data are shown).

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

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

claims, with a modest differential in favor of debt and a disadvantage in equity (which contrasts starkly to some estimates from the third wave of literature of an equity differential of over 4%). We use the GH data (available through 2005) and their recipe to calculate returns through 2010 (also shown in Table 4). FDI yields are responsible for the bulk of the 2.1% annual differential for the 1990-2010 period.[11]

In Table 5 we split the sample into two periods: 1990-2004 and 2005-2010. 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 2005-2010)—but in capital gains. The capital gains differential, 0.0% for 1990-2004, was 2.1% over the past six 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 2005-2010 (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.

[11] We caution that market-value estimates of FDI positions should not be used. BEA has stopped emphasizing the market-value measure, presumably because they lack confidence in it. One reason is that it is highly doubtful that broad stock market indexes can approximate the returns of privately held corporations. Another problem is how should one form an estimate of the return of USDIA affiliates in tax havens, where much of USDIA is located? Local stock market returns, which are used in market-value measures, clearly would not be appropriate. Parenthetically, we note that if we did use market-value estimates for DI, the aggregate total differential would narrow to 1.8% per year.

## 3. On the DI Yield Differential

Based on the most recent and improved estimates the returns differential in favor of the US is about 2%, and, as depicted in Figure 3 (and Table 4), owes primarily to a large advantage in DI income yields. In contrast, the income yields and capital gains for other asset classes and capital gains for all asset classes (including DI) are virtually indistinguishable for claims and liabilities.[12] This suggests that any discussion of the average size 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 operations relative to the earnings foreign firms book on their U.S. operations.

That U.S. firms earn more on their foreign operations than foreign firms earn on their U.S. operations—shown graphically in Figure 4—has been known for decades and is the subject of several papers (Lupo et al. (1978), Landefeld et al. (1992), Mataloni (2000), Gros (2006), Bosworth et al. (2008), McGrattan and Prescott (2010), Curcuru and Thomas (CT, 2011)). This literature shows that taxes, risk and age account for most of the difference between the USDIA and FDIUS yields which, as shown in the first line of Table 6, has averaged 5.6% per year from 1983 - 2010. Below we summarize the evidence on the role of factors for which time series estimates can be formed (taxes, risk, and age) and other factors for which time series estimates are more difficult to form (transfer pricing, industry mix, and intangibles).

### *3.1 Taxes, risk, and age*

As discussed in CT, some of the difference between USDIA and FDIUS yields is an illusion of BOP accounting, because BOP-reported USDIA earnings are to some extent pre-tax

[12] Capital gains for direct investment current-cost positions reflect changes in real estate or inventory values due to price or currency fluctuations.

while FDIUS earnings are after-tax (i.e., after the deduction of U.S. taxes). For USDIA, BOP-reported earnings are indeed net of *foreign* taxes, and the U.S. parent earns credit for some of the foreign taxes it pays, but the parent usually still owes some U.S tax on repatriated earnings because the U.S. tax rate is generally higher. The U.S. taxes paid by U.S. parents on their foreign-generated income are not subtracted from BOP-reported cross-border income receipts because the tax is paid by the U.S. parent firm and is not a cross-border transaction. Because the reported USDIA earnings yield is net of (the usually low) foreign taxes but does not net out U.S. taxes, it tends to overstate the after-tax earnings of the U.S. parent firm on their foreign investment. U.S. taxes on repatriated earnings accounts for average of 0.8 percentage points of the USDIA earnings yield (Table 6, row 2). U.S. taxes that might (or might not) eventually be paid on reinvested earnings accounts for an additional 1.0 percentage point (Table 6, row 3). The estimates of actual and potential repatriated earnings are consistent with the Bosworth et al. (2008) estimates from regression analysis that the diversion of income to low-tax jurisdictions accounts for 1-1.5 percentage points of the USDIA yield.

Some of the wedge between USDIA and FDIUS yields can plausibly represent compensation for the additional risk associated with investing abroad. USDIA is disproportionately in emerging markets, and Hung and Mascaro (2004) estimate the average credit rating of USDIA investments was BBB by weighting country sovereign credit ratings by USDIA investment shares. They estimate the average risk compensation included in USDIA yields was 1.4 percentage points between 1999 and 2003, the average difference between AAA and BBB spreads over this time. CT used CDS spreads and arrived at more modest estimate of

risk compensation averaging 0.9 percentage points per year (Table 6, row 4), bringing the total adjustments for taxes and risk to almost 3 percentage points per year.[13]

The 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), CT). FDIUS affiliates are generally younger than USDIA affiliates 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). Finally, as McGrattan and Prescott (2010) demonstrate, over time firms can accumulate significant intellectual capital, which raises earnings, but is not included in the measured capital stock or flows. CT, using regression analysis to construct estimates of this the age effect, finds that relative youth lowers the FDIUS yield by 1.5 percentage points per year, on average (Table 6, row 5). In sum, the adjustments for taxes, risk, and age reported in Table 6 account for much of the DI yield differential, totaling 3.2 - 4.2 percentage points per year (with the low estimate assuming that no earnings currently abroad are ever repatriated).

[13] Other literature suggests that foreign investments also include compensation for sunk costs specific to investing in a foreign country. For example, in the models of Helpman et al. (2004) and Fillat and Garretto (2010) FDI investments are subject to sunk costs beyond those encountered domestically. Fillat and Garetto (2010) estimate that compensation for these sunk costs adds 25% to MNE yields relative to the yields of domestic-only exporters. CT estimates that this accounts for 1.2-1.5 percentage points of the USDIA yield. For sunk costs to impact the yield differential, however, they must be larger for USDIA than for FDIUS.

*3.2 Other factors*

Other factors influencing the difference between USDIA and FDIUS yields include transfer pricing, industry mix, and intangibles.

While many studies have examined the role of transfer pricing—that USDIA yields are artificially high or FDIUS yields are artificially low because of favorable inter-firm pricing of goods or services—most find no effect (Lester and McCauley (1994), Grubert (1997), Mataloni (2000)). However, more recent work by Bernard et al (2006) finds some evidence of transfer pricing. This study, which examines detailed price and transaction data on U.S. exports, finds that the prices of exports to related firms are systematically lower than exports to unrelated firms, and the difference is strongly related to foreign tax rates. This mispricing will have a downward effect on the earnings of multinational firms located in the U.S. and an upward effect on the earnings of multinational firms located abroad. Unfortunately firm nationality is not reported in the customs data used in that study so a direct link to USDIA or FDIUS earnings cannot be made. However, after making assumptions on the magnitude of the mispricing that might be attributed to USDIA vs. FDIUS firms, CT estimates that favorable transfer pricing might account for 80 basis points of the 480 basis point difference between USDIA and FDIUS yields in 2004.[14]

While the industry mix of FDIUS is dramatically different than USDIA and U.S. investment more generally, Mataloni (2000) finds that the return on FDIUS assets was below that of U.S. operations for most industries and did not find evidence of industry effects.

[14] This estimate based on Bernard et al. (2006) is likely a lower bound, which would suggest the effect of transfer pricing on the wedge between USDIA and FDIUS yields might be greater than 80 basis points. Their sample and the estimates from it are for goods trade alone. Trademarks, patents, and other intellectual property, where determining an "arms-length" price is especially difficult, were not included in their sample.

Similarly, Hung and Mascaro (2004) find no difference in the relative risk of the industry composition of outward and inward U.S. DI investment.

Other work suggests that differing amounts of investment in intangible capital (defined in Bridgeman (2008) as patents, trademarks, trade secrets, and organizational knowledge) is responsible for the large difference between FDIUS and USDIA yields. The value of intangible capital is excluded from BEA's current-cost valuation method for DI because of measurement difficulties.[15] Bridgeman (2008) estimates the stocks of intangible assets and finds that including them in the USDIA and FDIUS positions reduces the gap between USDIA and FDIUS yields by three-fourths. McGrattan and Prescott (2010) suggest that the low FDIUS yield reflects the large amount of research and development investment these firms engage in, which is accounted for as an expense; in their model, including this intangible capital accounts for over half of the difference between USDIA and FDIUS yields during their sample period.[16]

## 4. Implications for Two Puzzles and the Dynamics of Returns Differentials

### *4.1 Implications for the Income and Position Puzzles*

Two puzzles, both highlighted in Obstfeld (2012), were depicted in Figure 1: the income puzzle that the U.S. receives, on net, income payments on its international investment position even though the investment position is very negative, and the position puzzle of a large gap

[15] Investments in intangible capital are generally excluded from the U.S. national accounts because of difficulties in measuring its production and depreciation. BEA plans to start including some intangible assets related to research and development in the accounts in 2013.

[16] In related work Hausmann and Sturznegger (2006) infers from the large net income receipts that USDIA intangible investment is much larger than FDIUS intangible investment, although Buiter (2006) challenges their methodology.

between the reported IIP and cumulated current account deficits. In this section we use evidence from the preceding sections to shed light on both puzzles.

*4.1.1 The U.S. Net Income Puzzle*

U.S. net income on its international positions is positive even though it is a net debtor because of the net income it receives on DI. As Figure 5 shows, U.S. net income has averaged $90 billion per year during the past decade. Net DI income more than accounted for the aggregate amount, averaging $190 billion per year. On other types of international investments, U.S. net income has averaged negative $100 billion.

Figure 6 shows this another way. If the yields on cross border claims equaled those on liabilities, income would be negative and trending down with the position; this counterfactual is depicted by the dotted line in the figure. If yields on everything except DI were as reported, but we constrain DI yields on assets to equal those on DI liabilities, income would still be negative (the dashed line).[17] Over the 1990 to 2010 period, the cumulated dollar value of the gap between aggregate reported net income and net income with equal DI yields is $2.1 trillion, or 90% of the total net recorded liability position. This illustrates an important point: Although the total returns differential is relatively small, it nonetheless generates a significant net wealth transfer to the US.

The unusually high yield on USDIA is the main driver of the net income puzzle. Some of this owes to different treatments of taxes in the international accounts. For the 2000-2010 period, aggregate net income averaged $90 billion per year. An upper estimate is that differential tax treatment accounted for $64 billion of that.[18] If not for the fact that BOP-reported USDIA

[17] The dotted line in effect allocates claims across instrument types with the same shares as liabilities and sets the yields on each asset type to that on liabilities. The dashed line computes the effect of the DI differential alone, plotting what net payments would be with claims allocations and yields set to their actual values except that the yield on DI claims is set to the yield on DI liabilities.

[18] To form this estimate, we start with estimates of foreign taxes paid by country based on benchmark survey data, then infer what additional U.S. taxes would be due on the income receipts (assuming full credit for foreign taxes paid, and including both repatriated and reinvested earnings). If instead we limit the adjustment to only taxes paid on

earnings are to some extent pre-tax while FDIUS earnings are after-tax (i.e., after the deduction of U.S. taxes), the aggregate net income balance would be much smaller, roughly $20 billion per year for 2000-2010. But even after adjusting for taxes, net income is positive, and considering how large and negative that the U.S. international position is, this alone is enough to have macro implications. Because taxes and risk are play a large role in USDIA's unusually high yield, unless there is a change in relative tax rates or the relative riskiness of investing in the U.S. vs. abroad, net investment income should continue to be a significant stabilizing force for the U.S. current account deficit.

*4.1.2 The Position Puzzle*

Also depicted in Figure 1 was the position puzzle, the large gap between the reported IIP and cumulated current account deficits. Were the U.S. capital gains returns differential large, the puzzle would be explained, but the weight of evidence suggests that the capital gains returns differential is rather small. As noted by LMF2 and analyzed at length in CTW, low estimates of the U.S. capital gains differential leave us with 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. Rather than closing the gap by adding these other changes to the valuation adjustments, as was done in the first wave of literature, GH suggests that these are missing flows, which should be included in the statistical discrepancy. This implies that what has been previously presented as a returns puzzle is more likely a missing flows puzzle.[19]

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repatriated earnings, aggregate net income would fall less, to $46 billion. Such calculations are not yet possible for 2010, so our estimates for this adjustment end in 2009.

[19] If the *OC* are not capital gains that does not necessarily imply that they are missing flows. Some reclassifications that should be captured in "other changes", such as the immigration of wealthy individuals to the United States, might be significant.

CTW attempted to close the gap by addressing three types of known weaknesses in the U.S. international accounts. First, some assets are not captured in the historical financial accounts data. These include residential real estate, which should be in the direct investment data, and financial derivatives, introduced only in 2006. Second, some items (IPOs, asset-backed repayments, goods exports) have known shortcomings in the transactions data in the current and financial accounts but have no known accompanying flaws in the positions data. Third, some items (short positions, direct investment in intangibles) have known shortcomings in the positions data but for which the associated transactions data are thought to be sound. CTW developed reasonable plugs to these holes, and was able to narrow the $1.7 trillion 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, at a time when the *cumulated* reported statistical discrepancy was only $32 billion. The CTW estimates of the statistical discrepancy—formed as a residual after plugging some known holes in the U.S. data collection system—were greatly at odds with reported statistics.

In Figure 7 we update the CTW gap analysis. Recently, the reported statistical discrepancy has indeed become quite large, totaling $348 billion the last two years. As the figure depicts, using updated Gohrband and Howell (2010) returns and a statistical discrepancy that is part reported and part updated CTW, the resulting gap is quite small. It appears that a small returns differential might indeed be consistent with reported BOP and IIP data, and that the position puzzle is really a missing flows puzzle.

*4.2 The Dynamics of Returns Differentials*

This paper has focused on *average* returns differentials. A valid point is that our best guesses the average U.S. returns differential utilize only 21 data points, because some vital data are not available prior to 1990. Returns differentials are measured, not observed, so they are inherently estimates; prior to 1990 too much of the data required to form the estimates is unavailable. Indeed, in their assessment of the literature, GH provided estimates only back to 1990.

The short time series available pose problems. Returns differentials are very volatile, so to form expectations of future differentials (or even to confidently calculate the mean, the main focus of this paper) one would want many more than just 21 observations. Likewise, to understand the volatility of returns differentials or how they covary with US and global business cycles requires more observations.

Another important literature—that on the dynamics and information content of returns differentials—has moved forward by creating more datapoints on returns differentials. In pathbreaking contributions, Gourinchas and Rey (2007b) found that returns differentials contribute 27 percent of the cyclical external adjustment and Evans and Fuertes (2011) find that one-half of the variation in quarter-to-quarter changes in the U.S. external position is due to revisions in expectations concerning future returns differentials. Both findings imply exchange rate predictability at horizons thought to be ruled out by Meese and Rogoff (1983) and many subsequent papers.

We wonder, however, about the underlying returns differentials series. One issue, which may well be innocuous, is the creation of quarterly data—increasing the sample size by a factor of four—when positions data are available only at the annual frequency. More important are

substantial differences in the dynamics of various returns differentials series. Figure 8 shows that while annual returns differentials from Gohrband and Howell (2010) and CTW are virtually indecipherable from one another, differentials from GR1 are more positive (on average) and much more volatile. GR2 differentials are much closer to the CTW and GH series, although differences are evident, especially in the 1990s. Evans and Fuertes state that over a short period (mid-90s to 2004) their differentials are similar to those in Curcuru et al. (2008) and, hence, not subject to the data concerns raised in Curcuru et al (2008), solidified in Curcuru et al (2009), and re-established in GH. At this point one must conclude that while the accuracy of returns differentials is vital for this literature to be on solid footing and all else equal more observations can help, the accuracy of the underlying series is not yet clear. More work on this issue is recommended.

## 5. Conclusion

In this paper we began with 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 small, with the exception of those for FDI. We show that the FDI literature suggests the large yield differential owes to adjustments for taxes, risk, and for the relative youth of FDIUS firms.

Our analysis informs two puzzles. The income puzzle—the fact that U.S. net international income is positive (and growing) even as its net IIP is negative (and becoming more

so)—owes entirely to the large (reported) earnings U.S. MNCs earn abroad relative to what foreign MNCs earn in the US, a wedge well explained by issues such as taxation and risk. The position puzzle—the fact that the U.S. net IIP is far less negative than cumulated current account deficits—is consistent with a relatively small returns differential, large recent statistical discrepancies, and adjustments along the lines of Curcuru, Thomas, and Warnock (2009).

Our analysis also has implications for the nascent literature on the dynamics of returns differentials and external positions. While we fully agree that long time series of the highest frequency possible are desirable for this literature, we caution that more work should be done to ensure that the underlying series are accurate.

Finally, we note that while it is tempting to compare returns differentials across a range of countries, there are a number of pitfalls researchers should be aware of. We highlighted 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.[20] For example, for the euro area *OC* average 0.5% per year 2000-2009. If one ignores our 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 (Habib 2010). Our unreported 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.

[20] 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, but 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 can 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—but other unidentified issues undoubtedly lurk in the data.

However, substantial differences in DI data definitions across countries make comparisons difficult for more than a handful of countries. [21] We caution against such analysis unless one is willing to begin with an arduous data reconciliation exercise.

[21] Excluding direct investment, U.S. returns differentials are in line with the differentials for other large developed economies including Australia, Canada, Japan, New Zealand, as well as the Euro Area.

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

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

[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) , calculated from http://socrates.berkeley.edu/~pog/academic/IFA_data.xls, are average nominal *total* (i.e., yield plus capital gains) returns and, thus, to make them directly comparable with the capital gains returns in the rest of the table one would have to subtract yields from them (about 1.0 – 1.5% for the aggregate).
.. not available

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

| | | | Aggregate | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Source | Period | | Total | Yield | Capital Gains | FDI | Debt | Equity | Other |
| 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 | | | 1990-2010 | | |
|---|---|---|---|---|---|---|---|
| | | Claims | Liabilities | **Difference** | Claims | Liabilities | **Difference** |
| Aggregate | Total | 7.6 | 5.9 | **1.7** | 7.3 | 5.2 | **2.1** |
| | Yield | 5.0 | 3.8 | **1.2** | 5.5 | 4.0 | **1.4** |
| | Capital Gains | 2.7 | 2.1 | **0.5** | 1.8 | 1.2 | **0.6** |
| FDI | Total | 10.4 | 6.2 | **4.2** | 10.6 | 4.5 | **6.1** |
| | Yield | 6.9 | 2.1 | **4.8** | 10.2 | 4.0 | **6.2** |
| | Capital Gains | 3.4 | 4.0 | **-0.6** | 0.4 | 0.5 | **0.1** |
| Debt | Total | 7.7 | 6.4 | **1.3** | 7.3 | 6.2 | **1.1** |
| | Yield | 7.0 | 6.3 | **0.6** | 6.6 | 6.0 | **0.6** |
| | Capital Gains | 0.7 | 0.0 | **0.6** | 0.7 | 0.2 | **0.5** |
| Equity | Total | 8.5 | 10.3 | **-1.9** | 8.2 | 8.6 | **-0.4** |
| | Yield | 2.5 | 2.1 | **0.3** | 2.6 | 2.1 | **0.4** |
| | Capital Gains | 6.0 | 8.2 | **-2.2** | 5.6 | 6.4 | **-0.8** |
| Other | Total | 4.3 | 3.9 | **0.4** | 4.3 | 3.5 | **0.8** |
| | Yield | 4.2 | 3.9 | **0.3** | 3.9 | 3.4 | **0.5** |
| | Capital Gains | 0.1 | 0.0 | **0.1** | 0.4 | 0.1 | **0.3** |

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 return calculations through 2009 use the Gohrband and Howell (2010) Table 3 estimates of income and capital gains for debt, equity, and other assets. For 2010 we use the IIP release for that year. 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/intinv10_t3.xls.

**Table 5: Returns Differential Estimates for Two Sub-periods**

| | | 1990-2004 | | | 2005-2010 | | |
|---|---|---|---|---|---|---|---|
| | | Claims | Liabilities | **Difference** | Claims | Liabilities | **Difference** |
| Aggregate | Total | 7.1 | 5.7 | **1.5** | 7.6 | 4.0 | **3.6** |
| | Yield | 5.6 | 4.2 | **1.4** | 5.1 | 3.6 | **1.5** |
| | Capital Gains | 1.5 | 1.5 | **0.0** | 2.5 | 0.4 | **2.1** |
| FDI | Total | 10.1 | 3.8 | **6.3** | 11.8 | 6.3 | **5.5** |
| | Yield | 9.9 | 3.3 | **6.7** | 10.8 | 5.8 | **5.0** |
| | Capital Gains | 0.2 | 0.5 | **-0.3** | 0.9 | 0.5 | **0.5** |
| Debt | Total | 8.1 | 6.9 | **1.2** | 5.4 | 4.6 | **0.8** |
| | Yield | 7.1 | 6.6 | **0.5** | 5.5 | 4.6 | **0.9** |
| | Capital Gains | 1.0 | 0.3 | **0.7** | 0.0 | 0.0 | **0.0** |
| Equity | Total | 7.8 | 10.7 | **-2.9** | 9.0 | 3.2 | **5.7** |
| | Yield | 2.5 | 2.2 | **0.3** | 2.7 | 2.0 | **0.7** |
| | Capital Gains | 5.3 | 8.5 | **-3.2** | 6.3 | 1.2 | **5.0** |
| Other | Total | 4.4 | 3.9 | **0.5** | 4.1 | 2.5 | **1.6** |
| | Yield | 4.3 | 3.8 | **0.4** | 3.0 | 2.4 | **0.7** |
| | Capital Gains | 0.1 | 0.1 | **0.1** | 1.1 | 0.2 | **0.9** |

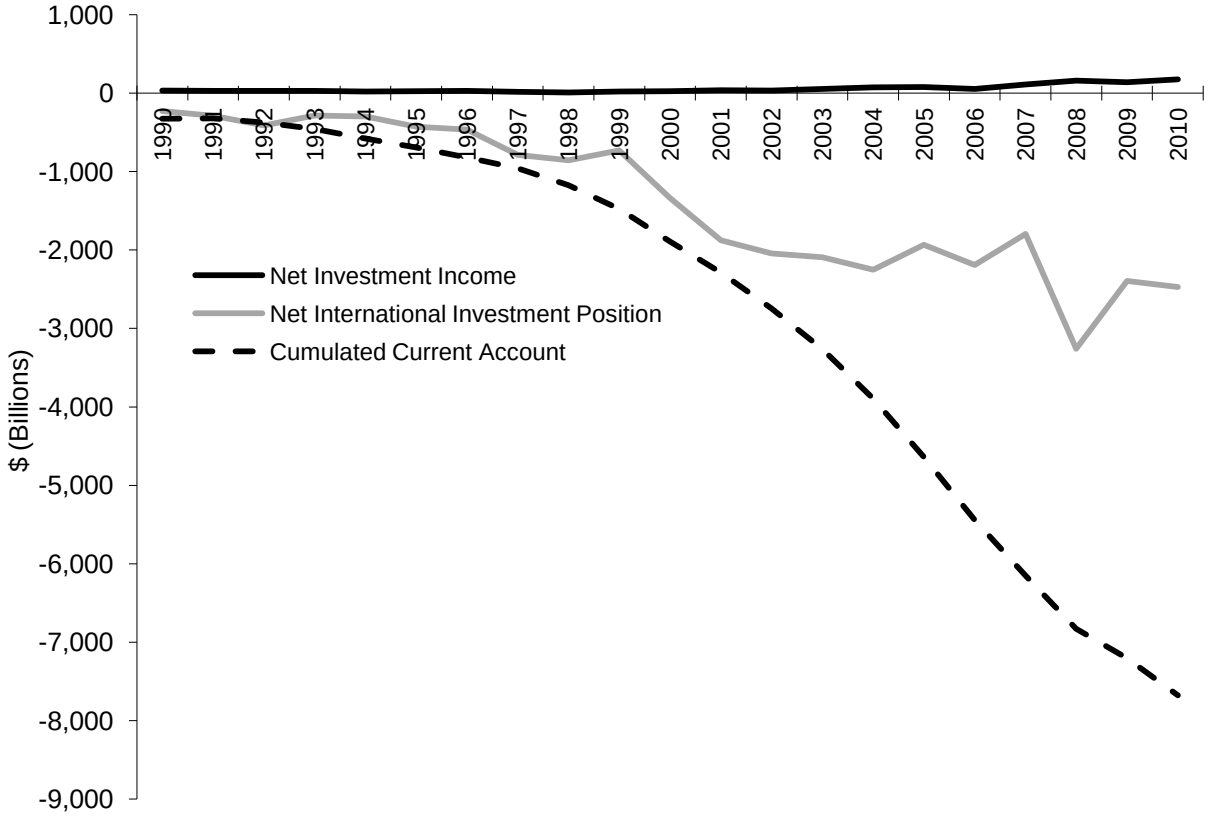
Notes: Valuation adjustments based on data (and, to update, the recipe) from Table 3 of Gohrband and Howell (2010). Returns use the current-cost value of the FDI position.

**Table 6: Components of the DI Earnings Yields Differential**

| | | Mean |
|---|---|---|
| 1. USDIA – FDIUS yield differential (as reported) | | 5.6% |
| of which: | | |
| 2. | Taxes on repatriated earnings | 0.8% |
| 3. | Taxes on reinvested earnings | 1.0% |
| 4. | Risk | 0.9% |
| 5. | Age | 1.5% |

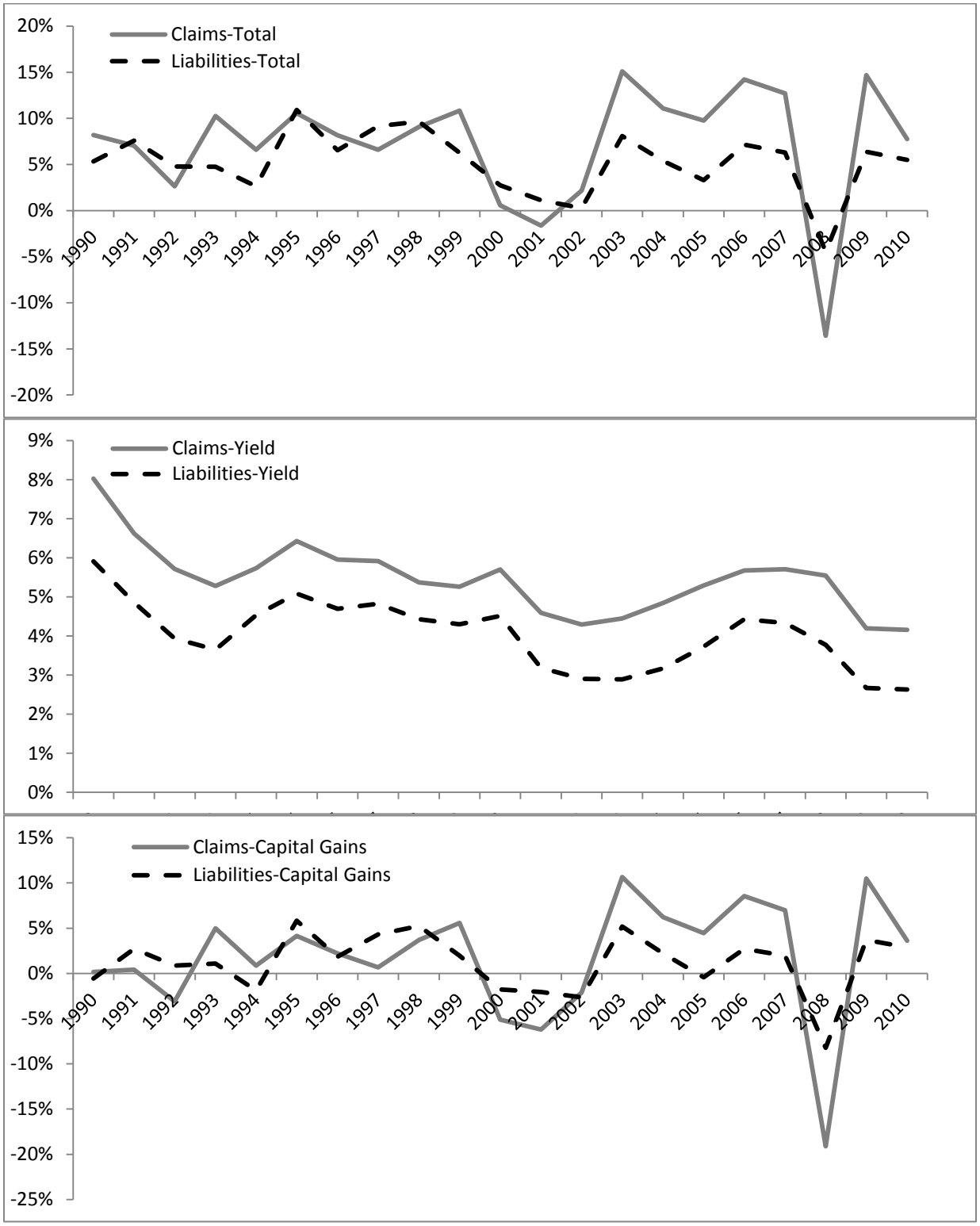
Notes: Estimates are 1983-2010 averages from Curcuru and Thomas (2011).

**Figure 1: U.S. Net International Investment Position and Cumulated Current Account**



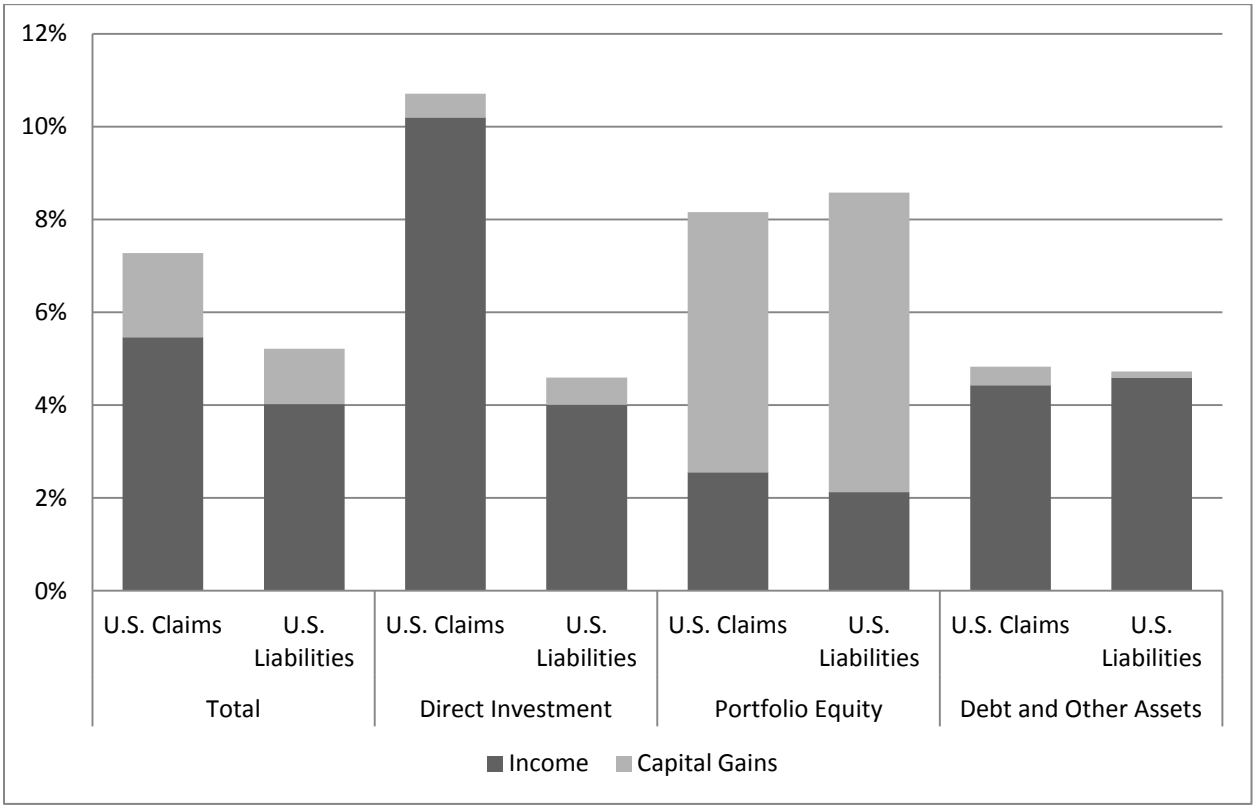

Source: BEA. The cumulated current series starts with the U.S. net international investment position at the end of 1989 then cumulates subsequent U.S. current account balances.

**Figure 2: Realized Returns on Cross-Border Claims and Liabilities**



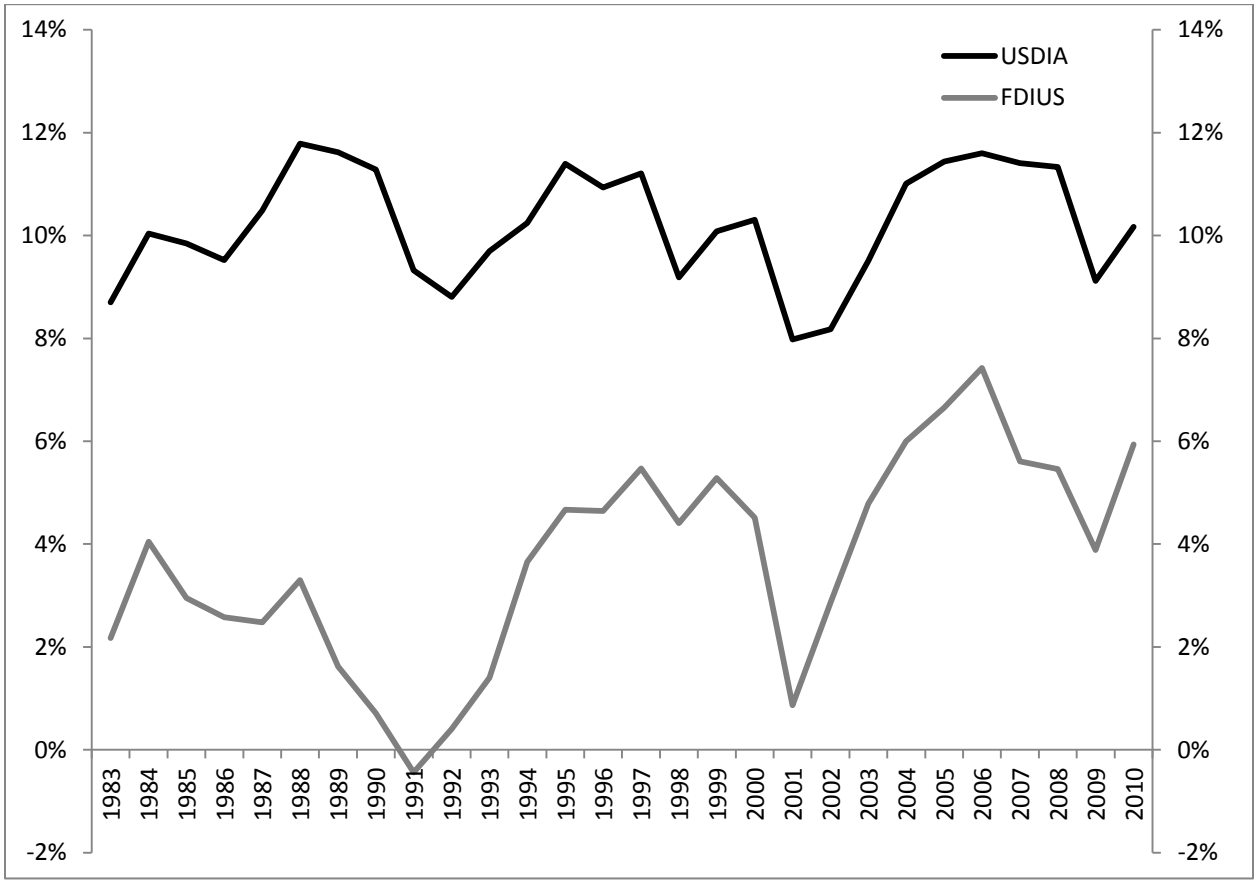

Capital gains through 2009 implied from Tables D and E of Gohrband and Howell (2010); for 2010 from the IIP release. Yields computed from BOP income and the 2010 IIP.

**Figure 3: Income Earnings yields and Capital Gains on U.S. Cross-Border Positions**



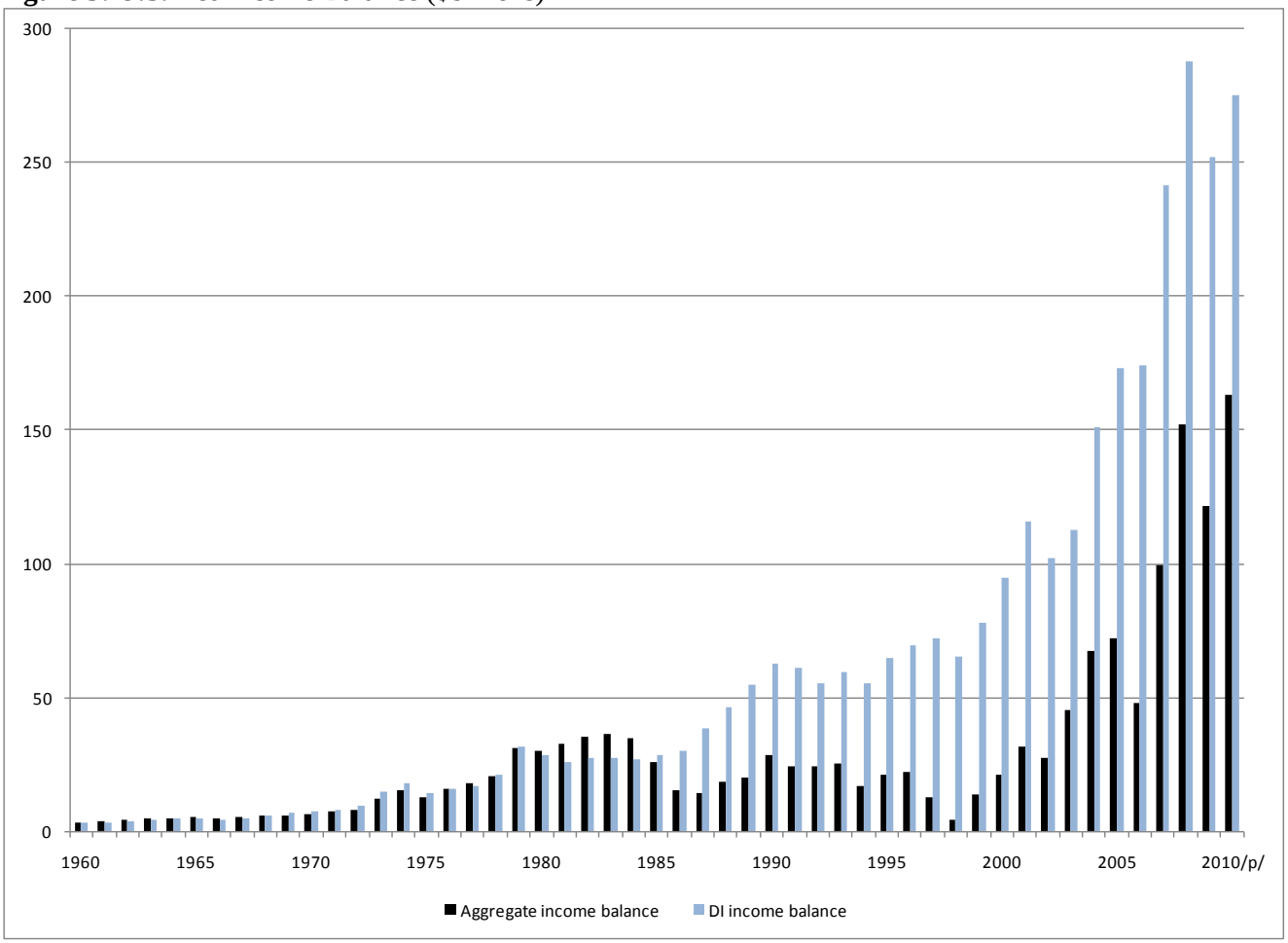

Graphical depiction of the returns presented in the right side of Table 4. Income is from the balance of payments reported by BEA. Capital gains through 2009 are implied from Gohrband and Howell (2010); for 2010 from the IIP Direct investment valued at current-cost. All values are 1990-2010 averages.

**Figure 4: U.S. Direct Investment Abroad (USDIA) and Foreign Direct Investment in the United States (FDIUS) Earnings yields**



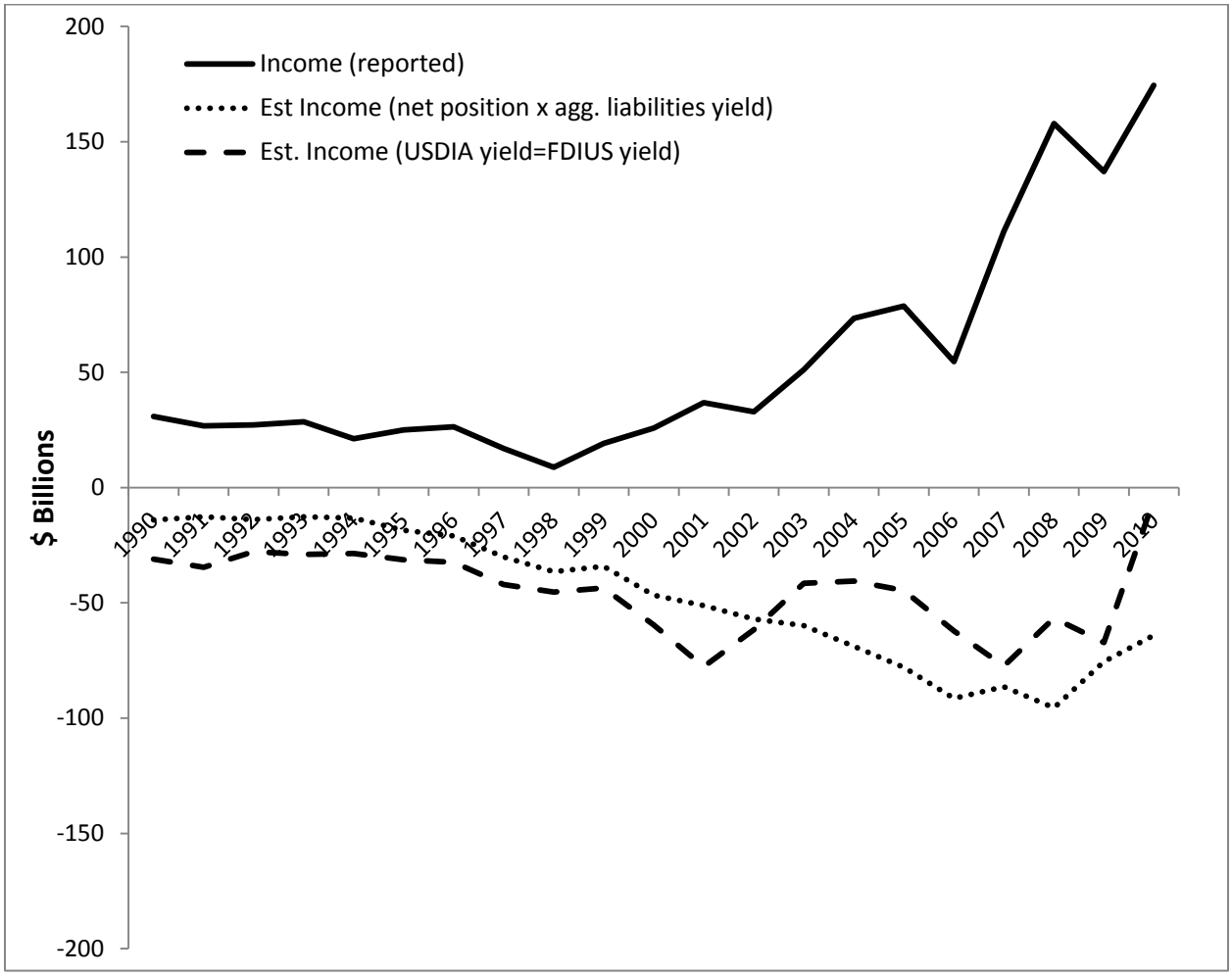

The USDIA series is the ratio of aggregate DI income receipts to the USDIA position at current-cost reported by BEA. The FDIUS series is the ratio of aggregate DI income payments to the FDIUS position at current-cost reported by BEA.

**Figure 5: U.S. Net Income Balance** ($billions)



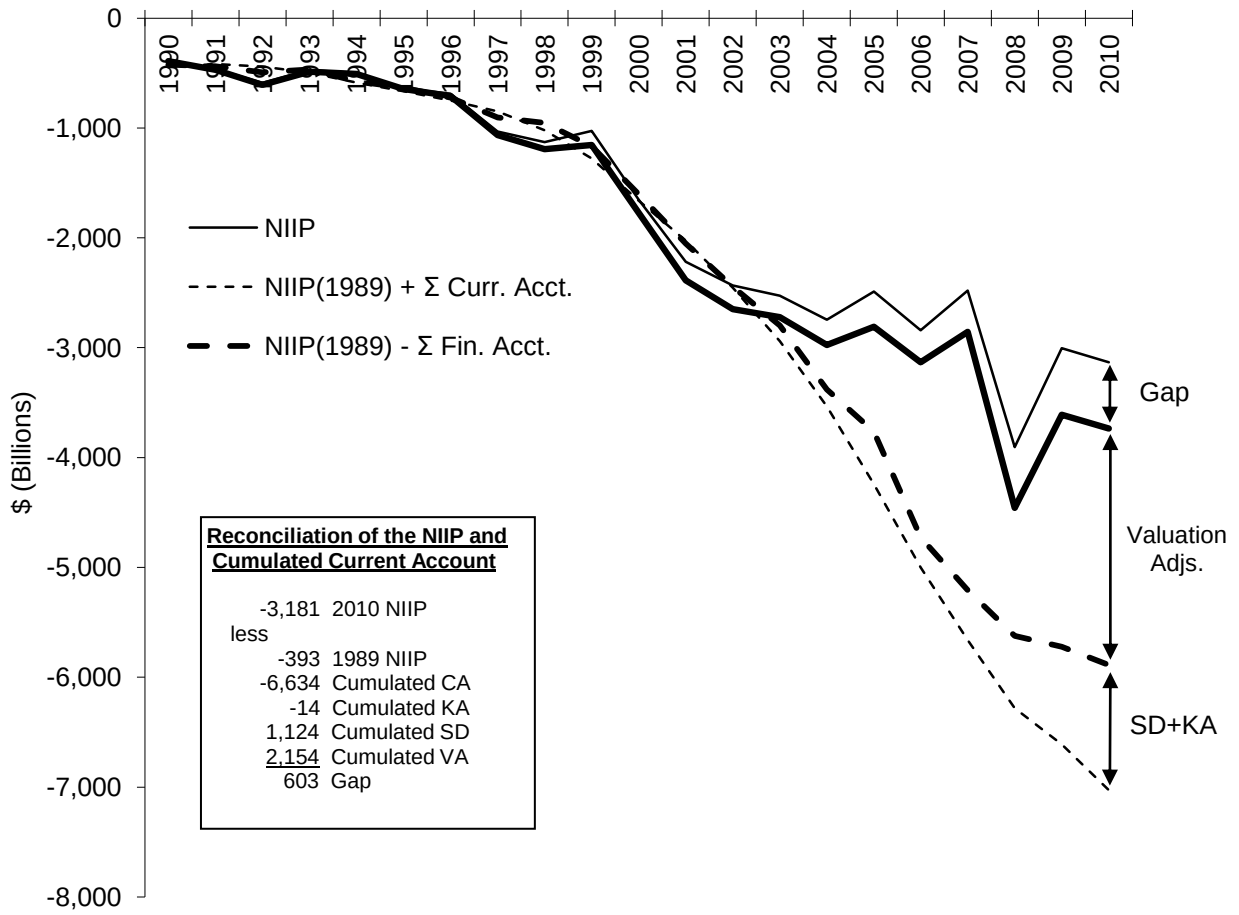

The dark bars are reported U.S. net income (BOP Table 1 line 75). The light bars are the reported U.S. DI net income, which equals DI receipts from abroad (BOP Table 1 line 14) plus (in BOP terms) DI payments to foreigners (BOP Table 1 line 31).

**Figure 6: Reported and Alternative Net Income Estimates**



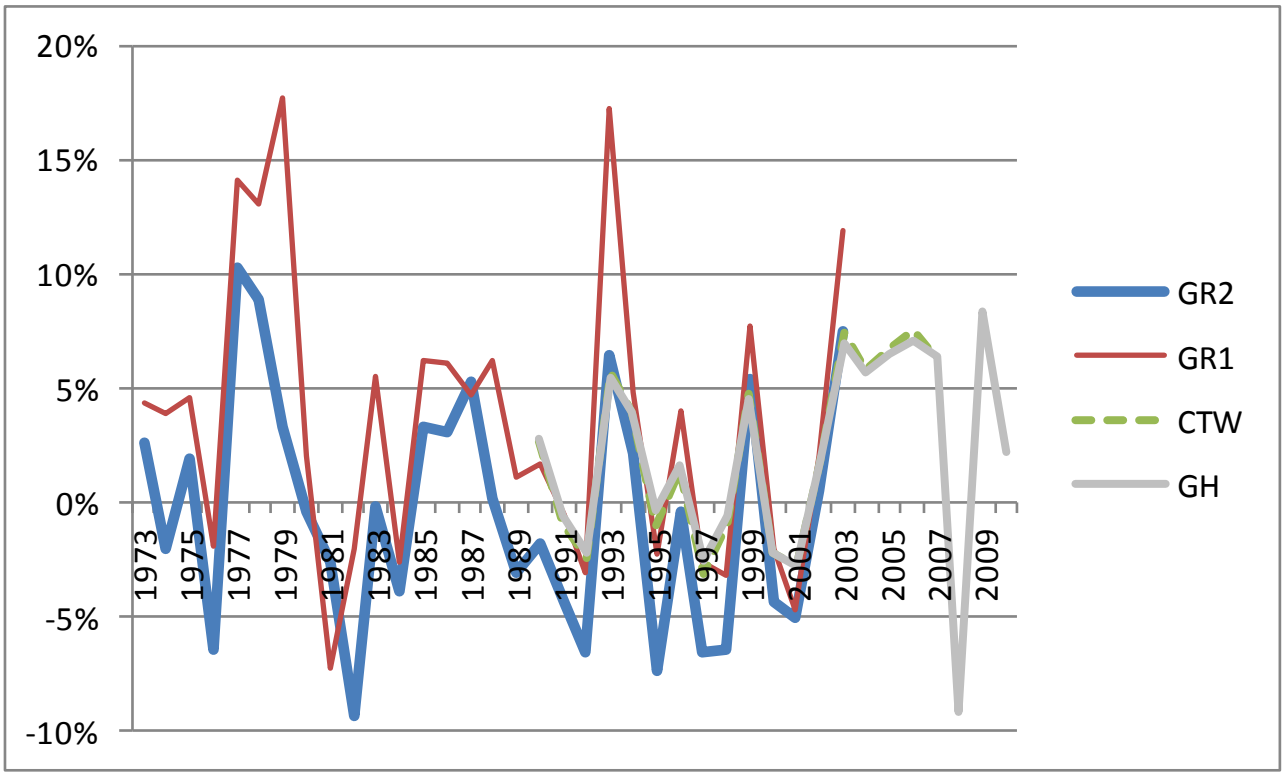

The top line on the chart is the net income reported in the U.S. BOP. Two alternative income estimates are shown. The dotted line estimates income using the product of the net position and the yield on aggregate liabilities; that is, it forces the yield on assets to equal the yield on liabilities. The dashed line estimates income by setting the USDIA income yield equal to that earned on FDIUS.

**Figure 7: Net IIP, Cumulated Current Account, and Valuation Adjustments**




The figure uses Gohrband and Howell (2010) and the 2010 IIP rates of return and adjustments similar to those discussed in Curcuru, Thomas and Warnock (2009). NIIP = U.S. net international investment position, CA = current account, FA = financial account, KA= capital account, VA= valuation adjustments, and SD = statistical discrepancy.

**Figure 8: Time Series of Selected Returns Differentials Estimates**




GR1 and GR2 are total returns differentials from Gourinchas and Rey (2007a) and Gourinchas and Rey (2007b), respectively; GR2CTW is from Curcuru, Thomas and Warnock (2009); and GH is from Gohrband and Howell (2010) through 2009, updated through 2010 using 2010 IIP data. For the relatively short time period (1990 – 2003) for which all four estimates are available, average U.S. differentials range from -1.5% per year (GR2) to +2.2% for GR1, with CTW and GH at 1.0 and 1.2%, respectively.