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ON RETURNS DIFFERENTIALS

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ABSTRACT

Estimates of U.S. returns differentials have ranged from exorbitant to quite small, in part because of their volatility coupled with the relatively short time series available. We shed light on underlying drivers of returns differentials by presenting a number of decompositions: a by-asset-class decomposition into yields and capital gains, the Gourinchas and Rey (2007a) composition and return effects, and further decompositions of capital gains that focus on exchange rate effects. While each decomposition informs thinking about returns differentials, one constant is evident throughout: to date the existing differential favoring the U.S. has owed primarily to one factor, a differential in direct investment yields. We discuss how our analysis informs the income puzzle (of positive net income flows to the U.S. even as its net international investment position is negative and substantial) and the position puzzle (of a sizeable gap between the reported U.S. net international position and cumulated current account deficits), provide an initial assessment of the literature on the dynamics of returns differentials, and present a framework to guide a forward-looking view of how returns differentials might evolve in the future.

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1. Introduction

The U.S. returns differential—that is, the difference between the rate of return earned by U.S. residents on their foreign assets and that received by foreign investors on their U.S. assets—is 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 $235 billion in 2011—but over time it has improved even as the net investment position has deteriorated. These puzzles raise several obvious questions: Is the U.S. IIP much worse than reported? Does the US 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)? And, as Obstfeld asked, Is the current account even 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. Two waves of research prior to the recent financial crisis produced very different estimates of returns differentials. The first wave backed international returns out of IIP and flow data and found very large differentials in favor of the US, 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 the first-wave

estimates of capital gains differentials were far too high, biasing upwards the average U.S. returns differential by a few hundred basis points. Then the pendulum swung partly back during the crisis when some papers in a third wave produced differentials that were as large as those in the first wave.

We aim to alleviate confusion surrounding returns differentials in four steps. Step one is the categorization and analysis of the three waves of literature on returns differentials. Our assessment of the literature points to direct investment (DI) *yields* as the primary 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. The fourth step synthesizes the takeaways from the first three steps to form forward-looking estimates of returns differentials (and the IIP and income balance), estimates that readers can alter by adjusting some basic underlying assumptions.[1]

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").

[1] Section 5 contains a description of the spreadsheet.

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.[2] 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 forces behind the Gourinchas and Rey (2007a) *composition effect* are 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. While the forces behind the composition effect are indisputable, whether the effect favors the US is sample dependent. If equities tend to outperform bonds, the composition effect will be positive for the US. 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

[2] 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."

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. At the end of the third wave, officials at BEA weighed in: The current vintage of IIP data should not be used to back out returns. We show that when returns are calculated carefully the capital gains differential is small (about 0.5%) and entirely due to a composition effect (rather than a return effect), and that the overall differential is almost entirely due to DI *yields*.

If whatever differential exists is due to a differential in DI yields, then discussions of U.S. returns differentials should focus more on DI and less on asset classes such as portfolio equity and debt for which the differentials are inconsequential over the long run. Thus, in Section 3 we discuss the literature on the DI differential, a literature that 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. Part of the DI yield differential is hard-wired: USDIA earnings reported in the Balance of Payments (BOP) are not net of the U.S. taxes paid on those earnings, whereas FDIUS earnings are reported after taxes. There are also strong incentives for U.S. firms to book earnings not at home, where corporate taxes are high, but abroad in low-tax jurisdictions, thus deferring some of the U.S. tax liability. These tax issues add up to 1.8% per year to USDIA yields. A conservative adjustment, based on CDS spreads, for the relative risk of investing outside the US accounts for an additional 0.9%. Finally, young firms face start-up costs and often use accelerated depreciation schedules, depressing reported earnings; the relative

youth of FDIUS explains about 1.5% of the DI yield differential. Together, taxes, risk, and age explain much of the DI yield differential.[3]

In sum, while before the crisis some estimates suggested that there was a large returns differential that favored U.S. investors, more recent evidence indicates that the U.S. returns differential averages not 3-4% per year, but more like 1.5-2%, owing primarily to a roughly 5% differential in DI *yields*. A literature that has evolved over three decades shows that age, taxes (in part due to a pre- and post-tax difference in reporting norms), and risk explain that differential. 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, and is entirely due to the composition effect. As is also shown in Section 3, over relatively short periods fluctuations in the exchange value of the dollar substantially impact capital gains differentials.

In Section 4 we explore implications for 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 US on net earns positive income on its negative $4 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 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, much of which is easily explained—and a large part of the position puzzle owes to 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, relatively recent data are more accurate because of the many improvements to data collection in recent years.

[3] Factors more difficult to quantify, such as transfer pricing, might also play a role in the DI yield differential.

We close, in Section 5, with a forward-looking discussion of U.S. returns differentials and their impact on the IIP and income balance, a discussion that is centered on projections through 2025. A number of interesting points emerge from this forward-looking analysis. First, even if we impose a zero return effect—that is, we keep capital gains returns differentials near their long-term average of near-zero within each asset class—the composition effect will be a stabilizing force on the net investment position. Because U.S. claims contain a relatively high share of equity, which has higher capital gains returns than other asset classes, there will be a positive capital gains returns differential that will keep the U.S. IIP from declining as fast as cumulated current accounts. Second, this stabilizing force will likely be offset, in part, by changes in the net income balance, which will put downward pressure on the U.S. current account. If interest rates increase toward their long-term averages, the net income balance will decline because U.S. claims are much less heavily weighted toward debt than liabilities. Third, the more benign case of continued current account deficits but a stable net IIP is easy to depict. A return effect of 2 percent would do the trick.

This article can inform several strands of the literature. It informs 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 also directly informs 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 US 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 ability

to produce higher yields on seemingly homogeneous assets (a returns effect). Empirical regularities impact what theory is written and, of that, which gets an audience, so it is important to get the regularities right; were such models inconsistent with the perceived empirical regularities, they may well be shunned. 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.[4]

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

2.1 The First Wave

The first wave of the returns differential literature occurred during the pre-crisis Great Moderation period. The main papers 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:

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

[4] 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 that returns differentials are generally not comparable across countries, a finding that would impact the Habib (2010) and Nguyen (2011) 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 US) 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 the starting balance (A_{t-1}), the ending balance (A_t), and the contributions made between the start and end dates ($Flows_t$) are known, investment gains or losses (Val_t) can be readily calculated. Given Val_t, percentage (capital gains) returns are:

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

The first wave of research on external returns applied this logic to U.S. 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 US 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 abroad manage to outperform foreign investors in the US, 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*, which 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 BOP.[5] 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*:

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

[5] 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 US 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 US and drives the return differential strongly in favor of the US.[6]

One possible takeaway from the first wave of papers is that the U.S. net debt position, while quite negative, was more benign than thought because the US earned such large returns on its foreign positions and paid foreigners very little on their U.S. positions.

2.2 The Second Wave

A second wave of papers, written in the pre-crisis period but at a time of increasing talk of a coming U.S. BOP crisis, realized that including *OC* in valuation adjustments might lead to an overestimate of U.S. 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 sources 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

[6] Gian Maria Milesi-Ferretti points out that for the US *OC* had been positive on net in 19 of 20 years prior to 2012.

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—about one-fifth the magnitude of the estimates in the first wave of papers.

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—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 modest returns differentials. Given that yields are generally in favor of the US (as we show in the next subsection), the U.S. aggregate capital gains returns differentials implied by GR2 total returns are quite negative.[7]

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

[7] The returns differentials for GR2 can be computed from http://socrates.berkeley.edu/~pog/academic/IFA_data.xls, but are not reported in that paper. We thank Alberto Fuertes for pointing this out. 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.

direct readings of returns are used U.S. capital gains returns differentials are positive but near zero.[8] But then came a third wave of papers.

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 a range of estimates, reported in Table 3. Several of these estimates are quite large: 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 provides two estimates, one of which 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 do these third wave estimates square with the previous literature? Forbes found a high differential, but the 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).[9] 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

[8] Including the yield differential of about 1-1.5%, the overall returns differential was roughly 1.5-2%.
[9] 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.

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.

Two other estimates of returns differentials in the third wave were more modest. GRG also estimates the returns differential after removing the *OC*. The result is an aggregate differential of 1.6% per year (GRG Table 1, Panel b), and the differential drops dramatically for each asset class. Statisticians from the Bureau of Economic Analysis (BEA) also weighed in. Gohrband and Howell (forthcoming, GH) estimate an average returns differential of 1.7% per year from 1990 to 2005 (GH Tables D and E), 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, but much smaller than those from the first wave.

The lower returns differentials in these latter papers stem from their treatment of "other changes" (*OC*). To address the issue 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.[10]

Thus, the guidance from BEA—the compilers of 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.[11] Therefore the best estimate of the returns differential is a relatively modest, but still significant 1.6-1.7% per year.

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

3. What Drives the Returns Differential?

3.1 Our Preferred Estimates of Returns Differentials, 1990-2011

To understand the drivers of whatever returns differential exists, we (i) follow BEA's lead and update the GH estimates through 2011, separating out capital gains from yields, and (ii) lean on the GR1 insight that the overall differential is usefully decomposed into two components, the within-asset-class returns effect and the across-asset-class composition effect.[12]

As the second wave of papers made clear, discrepancies in estimates of returns differentials owed in large part to past BEA policies of regularly revising positions, rarely revising flows, and never publicly releasing revisions to valuation adjustments. This changed, to some extent, with GH, which provides data on revised valuation adjustments for the components of the IIP—data that were previously unavailable to researchers. In what follows the underlying returns are formed using the GH data (available through 2005) and their recipe to calculate returns through 2011. Annual averages are presented in Table 4, with the GR1 decomposition of the differential into the returns and composition effects at the right side of the table.

Two insights are immediately evident from Table 4. First, a 6.1 percent differential in FDI yields is responsible for the bulk of the 1.9% overall (annual) differential for the 1990-2011 period.[13] Second, in the decomposition into return and composition effects, the return effect—specifically, its yield component—accounts for almost the entire differential for that period. Over the past two decades capital gains differentials are small (0.4%) and, as shown in the

[12] We leave aside a third component, the timing effect of Curcuru, Dvorak, and Warnock (2010).

[13] We use current-cost rather than market-value estimates of FDI positions for several reasons. 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 to 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 somewhat.

decomposition of capital gains, on average almost entirely due to fluctuations in prices rather than exchange rates.

Whether the overall returns differential is decomposed into yields and capital gains by asset class or into the underlying return and composition effects, one thing emerges: To understand the returns differential, we must turn to yields, and DI yields in particular.

3.2 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 for other asset classes and capital gains for all asset classes (including DI) are virtually indistinguishable for claims and liabilities.[14] This suggests that any discussion of the average size of the U.S. returns differential should focus primarily on DI, specifically 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, 2012)). The gap between the USDIA and FDIUS yields averaged 5.6% per year from 1983 – 2010 (first line of Table 5). To shed light on this gap, we next 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).

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

3.2.1 Taxes

As discussed in CT, some of the difference between USDIA and FDIUS yields is a hard-wired illusion of BOP accounting, because BOP-reported USDIA earnings are to some extent pre-tax 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 a substantial amount of 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, reported data tend to overstate the after-tax earnings of the U.S. parent firm on their foreign investment. U.S. taxes on repatriated earnings accounts for an average of 0.8 percentage points of the USDIA earnings yield (Table 5, row 2). U.S. taxes that might (or might not) eventually be paid on reinvested earnings account for an additional 1.0 percentage point (Table 5, row 3). These estimates of actual and potential repatriated earnings are consistent with the Bosworth et al. (2008) estimate that the diversion of income to low-tax jurisdictions accounts for 1-1.5 percentage points of the USDIA yield.

3.2.2 Risk

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 5, row 4), bringing the total adjustments for taxes and risk to almost 3 percentage points per year.[15]

3.2.3 Age

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 and brand capital, which raises earnings, but is not included in the measured capital stock or flows. CT finds that relative youth lowers the FDIUS yield by an average of 1.5 percentage points per year (Table 5, row 5). In sum, the adjustments for taxes, risk, and age reported in Table 5 account for much of the DI

[15] 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.

yield differential, totaling 3.2 - 4.2 percentage points per year (with the low estimate assuming that no earnings currently abroad are ever repatriated).

3.2.4 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 (Laster 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 US 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.[16]

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.

[16] 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 estimates 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.[17] 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, intangible capital accounts for over half of the difference between USDIA and FDIUS yields during their sample period.[18]

3.2.5 Summing Up: Factors Behind the DI Yield Differential

Most of the wedge between yields on USDIA and FDIUS is well explained by differences in taxes, risk, and age. USDIA earnings reported in the BOP are not net of the U.S. taxes paid on those earnings, and 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%. And the relative youth of FDIUS explains about 1.5%. While transfer pricing, differences in

[17] 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.

[18] 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.

industry structure, and intangibles likely matter, much of the DI yield differential can be explained by taxes, risk, and age.

3.3 The Exchange Value of the U.S. Dollar

Over relatively short periods, movements in the US dollar have strong effects on returns on U.S. foreign assets (when translated back into dollars). Foreign currency appreciation increases U.S. returns on foreign assets; dollar appreciation decreases them. This is highlighted in Table 6, where the sample is split into two periods: 1990-2000 (a period when the dollar largely appreciated) and 2001-2011 (when the dollar largely depreciated). The two periods differ not in yields—over the last two decades the yield differential has averaged 1.4% with little variation (1.4% for 1990-2000 and 1.5% for 2001-2011)—but in capital gains. The capital gains differential, -0.5% for 1990-2000, was 1.2% over the past decade, owing to a substantial capital gains differential on equity positions.

Table 6 also provides more information on source of the capital gains differential. In the 1990s, abstracting from currency returns, aggregate U.S. assets and liabilities performed similarly; the aggregate "price" differential was 0.1%. The -0.5% differential on capital gains during that period owed entirely to dollar appreciation; the differential owing to exchange rate changes was -0.6%. In contrast, in the past decade the positive 1.2% differential on capital gains was split between price and currency differentials. Equity markets in the US and elsewhere performed poorly, but foreign markets performed slightly better (1.7% annual return, versus 0.8% in the US). Just as importantly, the dollar depreciated against most currencies, adding to the returns on U.S. claims.

Our takeaway from Table 6 is that over the past two decades the yield differential has been both important and relatively stable at about 1.5% per year (mostly due to the DI yield differential) and that the capital gains differential has been more volatile, depending in part on fluctuations in the exchange value of the dollar. This volatility occurred in every asset class, and is likely to continue.

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 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

until 2011 (the dashed line).[19] Over the 1990 to 2011 period, the cumulated dollar value of the gap between aggregate reported net income and net income with equal DI yields is $2.3 trillion, or 60% of the total net recorded liability position.[20] This illustrates an important point: Although the total returns differential is relatively small, it nonetheless generates a significant net wealth transfer to the US.[21]

The unusually high yield on USDIA has been the main driver of the net income puzzle. As discussed earlier, 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.[22] If not for the fact that BOP-reported USDIA 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 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 US vs. abroad, net investment income should continue to be a significant stabilizing force for the U.S. current account deficit.

[19] 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.

[20] More dramatically, as of 2010 the cumulated dollar value of the gap between aggregate reported net income and net income with equal DI yields was 90% of the total net recorded liability position in that year. In 2011 capital gains losses exceeded net income receipts by $530 billion.

[21] This point also holds for capital gains. Even if the average capital gains differential is small, it can still produce large valuation adjustments in favor of the US because the differential was negative in the early part of the sample when the gross positions were small, but positive later in the sample after the gross positions had grown very large.

[22] 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 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.

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.[23]

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

[23] 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.

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. As the figure depicts, using updated GH returns and a statistical discrepancy that is part reported and part updated CTW, the resulting gap is fairly 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

Our survey has focused on *average* returns differentials. A valid point is that our best estimates of the average U.S. returns differential utilize only 22 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 poses problems. Returns differentials are 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 22 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 data points on returns differentials.

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 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 fromGH 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 CDW and, hence, not subject to the data concerns raised inCDW, solidified inCTW, 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. A Post-Crisis View of the U.S. Returns Differential

As our analysis has indicated, it is useful to decompose the U.S. returns differential into its return and composition effects (as in GR1) and also into yields and capital gains, with a further decomposition of capital gains into its price and exchange rate components.

In this section we make these decompositions more tangible by highlighting their roles in projections through 2025 of returns, net income and the net investment position. Our baseline projections use the following assumptions: (a) capital gains rates are 5 percent on equities (both claims and liabilities) and zero for all other assets, (b) dollar depreciates by 0.15 percent in 2012—the actual change in the FRB's Major Currencies Index—and then remains flat, (c) bond yields on both claims and liabilities evolve according to changes in the Blue Chip Financial Forecast from December 2012, increasing by 4 percentage points by 2019 then remaining constant, (d) the yield on FDIUS claims increases by 1 basis point per year for a total increase of 1.4 percentage points as the capital stock ages, (e) yields on other assets are held at their long-term averages, (f) U.S. nominal GDP evolves according to the Blue Chip Financial Forecast from December 2012, increasing by an average 2.7 percentage points per year, and (g) the goods and services deficit and net transfers deficit both increase by 1 percent per year, with capital flows increasing to offset the resulting current account deficits (i.e., zero statistical discrepancy).[24]

5.1 The Composition Effect

As GR1 noted, the composition of U.S. liabilities and assets differ, with liabilities much more heavily weighted toward debt. For decades equity outperformed debt, so it is natural to

[24] Note these are assumptions to construct an illustrative projection and in no way should be interpreted as a forecast endorsed by the authors or any member of the staff of the Federal Reserve System. The reader can enter her own assumptions in a workbook posted at http://www.nber.org/data-appendix/w18866/.

assume that based on a composition effect U.S. asset returns would tend to outperform U.S. liabilities. But during the crisis—and even for a number of years pre-crisis—debt outperformed equity to such an extent that since 1990 the composition effect is roughly zero (Table 4). Going forward, if equity reasserts itself as a well-performing asset class, we would expect the capital gains aspect of the composition effect to increase. Offsetting this, perhaps, would be the effect of a normalization of interest rates. Were bond yields to increase, the yield portion of the composition effect would become more negative.

Our baseline projections depict this scenario of an equity premium and a normalization of interest rates. Returns differentials are shown in Table 7; projections for net income and the net investment position are in Figure 9.

For capital gains, the baseline scenario highlights the composition effect. With a flat dollar and assumption (a) of no returns differential in each asset classes (i.e., a zero price return effect), the capital gains return effect is zero. However, because of a 0.7 percentage point capital gains composition effect, the overall capital gains returns differential is positive. The overall returns differential is 1.9 percent, due in large part to a 1.3 percent yield differential that is largely driven by a 4.5 percent differential in DI yields.

The baseline scenario has striking implications for yields and, by extension, the income balance and current account. Assumptions (c)-(e) on yields produce a negative net income balance starting in 2016 (Figure 9), in large part because debt payments to foreigners would more than double (and debt is a large portion of U.S. liabilities). In this scenario—with a normalization of long rates, continued trade deficits, no return effect, and a flat U.S. dollar—the U.S. net IIP and cumulated current accounts both deteriorate to 70 percent (or more) of GDP by 2025. The swing in the income balance from positive to negative has a substantial impact on the

current account deficit. Even though the trade balance improves from -3.7 percent of GDP in 2011 to -2.9 percent in 2025 (because GDP grows a bit faster than the increase in the trade deficit), the sharp decline in the income balance causes the current account to deteriorate sharply from -3.1 percent of GDP to -6.2 percent.

5.2 The Return Effect

The return effect has been driven by within-asset-class differentials in yields, not capital gains (Table 4). In turn, the large differential in yields owes to the large gap in FDI yields. Quantifiable reasons behind this DI yield gap, discussed in Section 3.1 and presented in Table 5, include taxes, risk, and age. Unless U.S. tax laws governing multinational firms change, we expect differential tax treatment to continue to result in a yield gap in favor of USDIA. The crisis does not change our thinking on this. However, we expect this gap to narrow a bit because the return on FDIUS should increase slightly as the investments mature.

We show an alternative scenario for the capital gains return effect in Figure 10. Here we start with the capital gains from Figure 9, in which capital gains on claims and liabilities in each asset class were equal, but then add 2 percentage points to the capital gains return for U.S. claims. In this case the capital gains portion of the return effect is quite large—counter to evidence from the past two decades—and even with continuing current account deficits, the net IIP is stable because of the growth in the claims position. The income *yields* in Figure 10 are the same as Figure 9, but the income balance remains near zero because of the relatively fast growth of claims.

This is in essence the world as portrayed in the first wave of the literature on returns differentials. With a 2 percent return effect, the overall returns differential is 3.9 percent. The

U.S. income balance remains positive and, thus, even with continued trade deficits the current account deficit would not deteriorate. With the substantial return effect, the U.S. IIP would remain stable.

5.3 The Exchange Value of the U.S. Dollar

Over the short- to medium-term, fluctuations in the dollar can have a large impact on the capital gains differential. Prior to the crisis many economists believed the dollar would continue to fall, owing in part to the large and persistent U.S. current account deficits. However, the crisis stalled the 7-year-long slide in the dollar. Now, in 2013, while some fundamentals point to dollar depreciation, there are some emerging longer-term factors that should support the dollar. In particular, the sharp decline in net imports of energy will, all else equal, provide some support to the dollar. One given: in years the dollar loses value the U.S. returns differential will be higher. This was highlighted in Table 6, which showed that in the 1990s (when the dollar appreciated) FX capital gains subtracted 0.6 percent per year from U.S. returns differentials, whereas dollar depreciation since 2001 added 0.7 percent per year.

Our baseline dollar projection in Table 7 and Figure 9 is flat, with no change from 2013 to 2025. If instead the dollar depreciates by -0.5 percent per year through 2025, U.S. returns differentials would increase by 0.5 percent to 2.4 percent, and this higher returns differential would lessen the decline in the IIP. Another dollar scenario is provided by the Blue Chip forecasts, which has the dollar appreciating an average of 0.64 percent per year through 2018 and then roughly flat thereafter. The appreciation of the dollar would result in a negative capital gains return effect and lessen the overall return differential to 1.7 percent. As a result, the IIP would deteriorate slightly faster.

6. Conclusion

In this paper we surveyed the literature on returns differentials. The first wave of papers in this literature produced differentials in favor of the US 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. Some papers in a third wave found much higher differentials, but then the BEA weighed in: Differentials are small, with the exception of those for FDI yields. 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.

One surprising result is that the Gourinchas and Rey (2007a) composition effect is small over the past 22 years. This does not mean it will not be important over the next 22. The composition of U.S. assets and liabilities clearly differs, with U.S. liabilities much more heavily weighted toward debt. Debt returns have fared well vis-à-vis equity returns the past few decades, so there has not been a positive composition effect for the US If in the future equity returns exceed debt returns, the composition effect will again be important and will increase the U.S. returns differential.

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.[25] 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. However, substantial differences in DI data definitions across countries make comparisons

[25] 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.

difficult for more than a handful of countries. [26] We caution against such analysis unless one is willing to begin with an arduous data reconciliation exercise.

[26] 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.

Glossary of Frequently Used Terms

Terms

BOP: balance of payments
CDS: credit default swaps
FDI: foreign direct investment
    FDIUS: foreign direct investment in the US
    USDIA: U.S. direct investment abroad
IIP: international investment position
MNE or MNC: multinational enterprises or corporations

Variables

A_t : position amount at end of year t
$Flows_t$: net purchases during period t
Val_t: investment gains (+) or losses (-) during period t
KG_t: percentage (capital gains) returns during period t
OC: "other changes"

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CDW: Curcuru, Dvorak, and Warnock (2008)
CT: Curcuru and Thomas (2012)
CTW: Curcuru, Thomas, and Warnock (2009)
GH: Gohrband and Howell (forthcoming)
GR1: Gourinchas and Rey (2007a)
GR2: Gourinchas and Rey (2007b)
GRG: Gourinchas, Rey, and Govillot (2010)
LMF1: Lane and Milesi-Ferretti (2005)
LMF2: Lane and Milesi-Ferretti (2009)
MT: Meissner and Taylor (2006)
OR: Obstfeld and Rogoff (2005)

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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-	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**
Table 1.2		Returns Effect	2.5	..	..	0.0	0.7	0.6	1.2
		Composition Effect	0.9	..	..	0.7	0.2	0.0	..
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) Tables 1.1 and 1.2. In that paper they are labeled as real returns, although 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] Total 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

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**
Gohrband and Howell (forthcoming) [4]									
Tables D, E	1990-	Claims	7.6	5.0	2.7	10.4	7.7	8.5	4.3
	2005	Liabilities	5.9	3.8	2.1	6.2	6.4	10.3	3.9
		Difference	**1.7**	**1.2**	**0.5**	**4.2**	**1.3**	**-1.9**	**0.4**

[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.
[4] Gohrband and Howell (forthcoming) 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.
.. not available

Table 4: Returns Differential Estimates, 1990-2011

					of which:	
		Claims	Liabilities	**Difference**	Return Effect	Comp. Effect
Total						
Total		7.0%	5.2%	1.9%	1.8%	0.1%
Yield		5.4%	4.0%	1.5%	1.7%	-0.3%
Capital Gains		1.6%	1.2%	0.4%	0.0%	0.4%
of which:	Price	1.5%	1.2%	0.3%	-0.1%	0.4%
	FX	0.1%	0.0%	0.1%	0.1%	0.0%
FDI						
Total		10.6%	4.7%	6.0%		
Yield		10.2%	4.1%	6.1%		
Capital Gains		0.4%	0.5%	-0.2%		
of which:	Price	0.4%	0.6%	-0.2%		
	FX	0.0%	0.0%	0.0%		
Debt						
Total		7.4%	6.3%	1.1%		
Yield		6.5%	5.9%	0.6%		
Capital Gains		0.8%	0.4%	0.5%		
of which:	Price	0.8%	0.3%	0.6%		
	FX	0.0%	0.1%	-0.1%		
Equity						
Total		7.5%	8.4%	-0.9%		
Yield		2.6%	2.1%	0.5%		
Capital Gains		4.9%	6.3%	-1.3%		
of which:	Price	4.5%	6.3%	-1.7%		
	FX	0.4%	0.0%	0.4%		
Other						
Total		4.1%	3.2%	0.9%		
Yield		3.8%	3.3%	0.5%		
Capital Gains		0.3%	0.0%	0.4%		
of which:	Price	0.2%	0.0%	0.2%		
	FX	0.1%	0.0%	0.1%		

Notes: Return calculations through 2009 use the Gohrband and Howell (forthcoming) Table 3 estimates of income and capital gains for debt, equity, and other assets. For 2010 and 2011 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: 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 (2012).

Table 6: Returns Differential Estimates for Two Sub-periods

		1990-2000			2001-2011		
		Claims	Liabilities	**Difference**	Claims	Liabilities	**Difference**
Total							
Total		7.3%	6.4%	0.9%	6.7%	3.9%	2.8%
Yield		6.0%	4.6%	1.4%	4.8%	3.3%	1.5%
Capital Gains		1.3%	1.8%	-0.5%	1.9%	0.6%	1.2%
of which:	Price	2.0%	1.8%	0.1%	1.0%	0.5%	0.6%
	FX	-0.6%	-0.1%	-0.6%	0.8%	0.2%	0.7%
FDI							
Total		9.7%	3.6%	6.1%	11.5%	5.7%	5.8%
Yield		10.2%	3.2%	7.1%	10.3%	5.1%	5.2%
Capital Gains		-0.5%	0.4%	-0.9%	1.3%	0.7%	0.6%
of which:	Price	0.1%	0.5%	-0.4%	0.6%	0.7%	0.0%
	FX	-0.6%	-0.1%	-0.5%	0.6%	0.0%	0.6%
Debt							
Total		7.5%	6.9%	0.7%	7.2%	5.6%	1.5%
Yield		7.5%	7.2%	0.3%	5.6%	4.6%	0.9%
Capital Gains		0.1%	-0.3%	0.3%	1.6%	1.0%	0.6%
of which:	Price	0.7%	-0.2%	0.9%	1.0%	0.7%	0.2%
	FX	-0.6%	-0.1%	-0.6%	0.6%	0.3%	0.3%
Equity							
Total		8.7%	14.1%	-5.4%	6.3%	2.7%	3.6%
Yield		2.6%	2.4%	0.2%	2.6%	1.9%	0.7%
Capital Gains		6.1%	11.7%	-5.6%	3.7%	0.8%	2.9%
of which:	Price	7.4%	11.7%	-4.3%	1.7%	0.8%	0.9%
	FX	-1.2%	0.0%	-1.2%	2.0%	0.0%	2.0%
Other							
Total		4.7%	4.5%	0.2%	3.5%	2.0%	1.5%
Yield		4.9%	4.6%	0.4%	2.6%	2.0%	0.6%
Capital Gains		-0.2%	-0.1%	-0.1%	0.9%	0.0%	0.9%
of which:	Price	-0.2%	0.0%	-0.2%	0.7%	0.0%	0.7%
	FX	0.0%	-0.1%	0.1%	0.3%	0.0%	0.2%

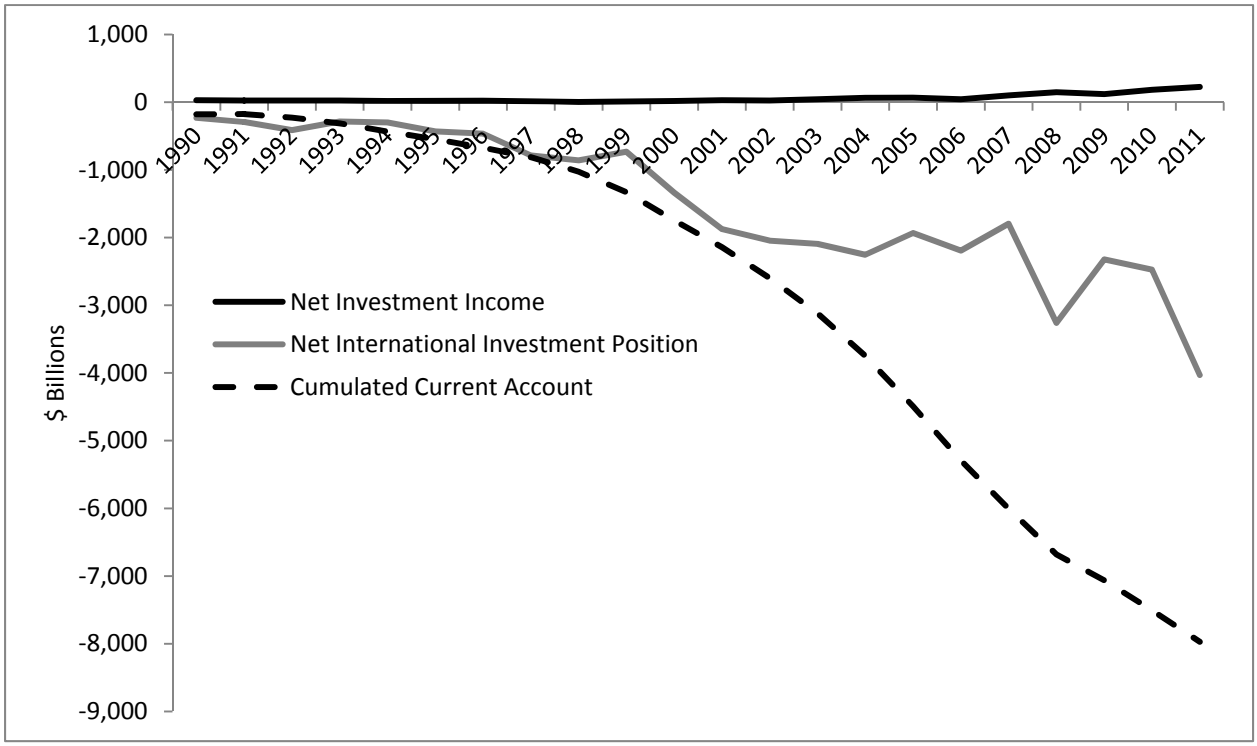
Notes: Valuation adjustments based on data (and, to update, the recipe) from Table 3 of Gohrband and Howell (forthcoming). Returns use the current-cost value of the FDI position.

Table 7: Returns Differential Estimates, 2012-2025

					of which:	
		Claims	Liabilities	**Difference**	Return Effect	Comp. Effect
Total						
Total		7.2%	5.3%	1.9%	1.6%	0.4%
Yield		5.9%	4.6%	1.3%	1.6%	-0.3%
Capital Gains		1.3%	0.7%	0.7%	0.0%	0.7%
of which:	Price	1.4%	0.7%	0.7%	0.0%	0.7%
	FX	0.0%	0.0%	0.0%	0.0%	0.0%
FDI						
Total		10.6%	6.2%	4.4%		
Yield		10.6%	6.2%	4.5%		
Capital Gains		0.0%	0.0%	0.0%		
of which:	Price	0.0%	0.0%	0.0%		
	FX	0.0%	0.0%	0.0%		
Debt						
Total		6.8%	5.5%	1.4%		
Yield		7.6%	6.3%	1.3%		
Capital Gains		-0.8%	-0.8%	0.0%		
of which:	Price	-0.8%	-0.8%	0.0%		
	FX	0.0%	0.0%	0.0%		
Equity						
Total		7.6%	7.1%	0.4%		
Yield		2.6%	2.1%	0.5%		
Capital Gains		5.0%	5.0%	0.0%		
of which:	Price	5.0%	5.0%	0.0%		
	FX	0.0%	0.0%	0.0%		
Other						
Total		3.7%	3.3%	0.4%		
Yield		3.8%	3.3%	0.5%		
Capital Gains		0.0%	0.0%	0.0%		
of which:	Price	0.0%	0.0%	0.0%		
	FX	0.0%	0.0%	0.0%		

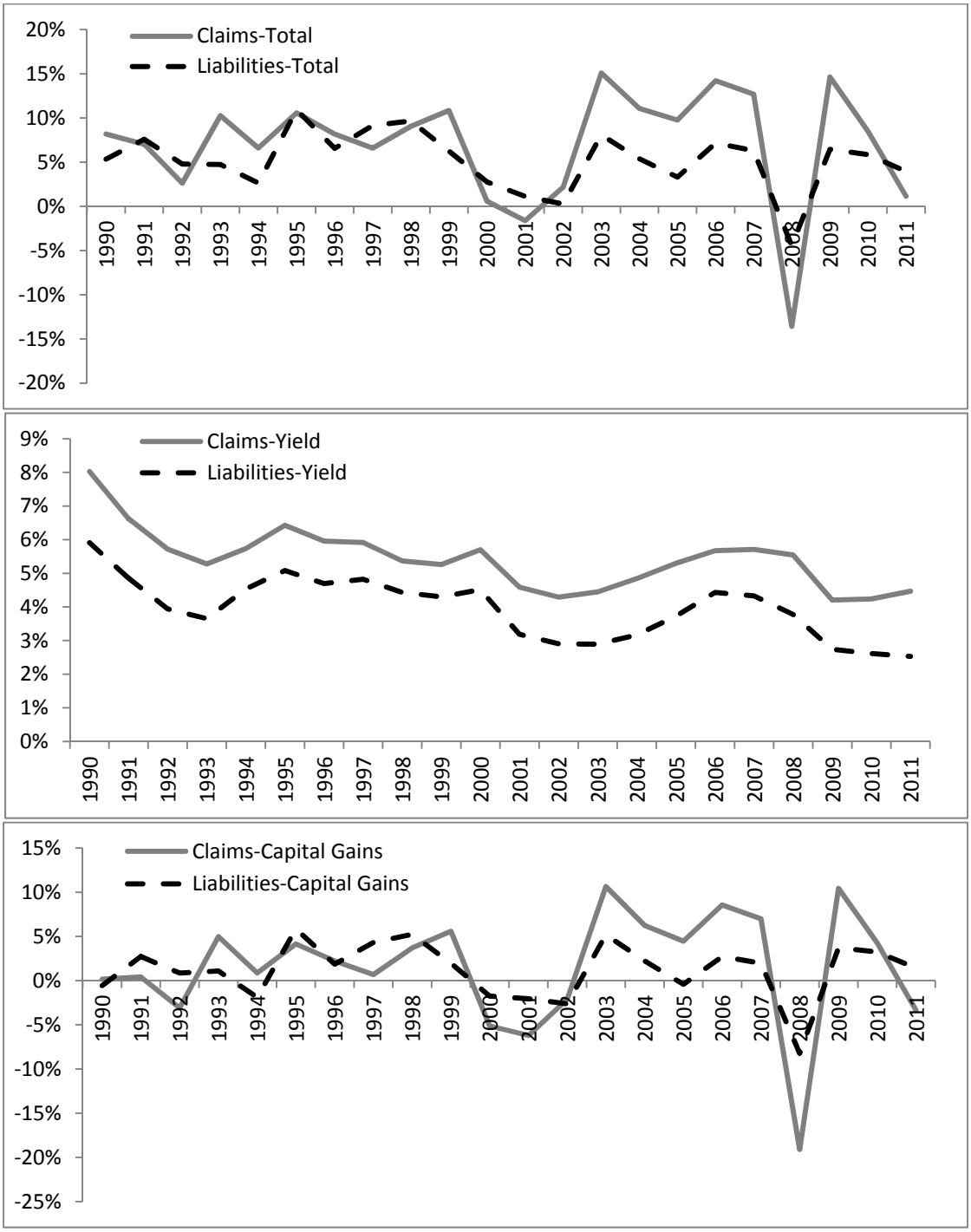
Assumptions: For DI income rates, the rate on liabilities increases by 1.4 percentage points; the rate on claims remain at long-term average. The income rate on debt claims and liabilities increases by 4 percentage points by 2019 then remains constant; capital gains correspond to this path for yields. Income rates on equity and other assets remain at their long-term averages. Capital gains return is 5 percent per year for equity claims and liabilities and 0 percent for all other asset types. The dollar value of the goods and services deficit and net transfers deficit increase by 1 percent per year; capital flows increase to offset changes in the current account (i.e., we assume zero statistical discrepancy). U.S. nominal GDP follows the Blue Chip forecast (2.7 percent average growth). The dollar is unchanged.

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



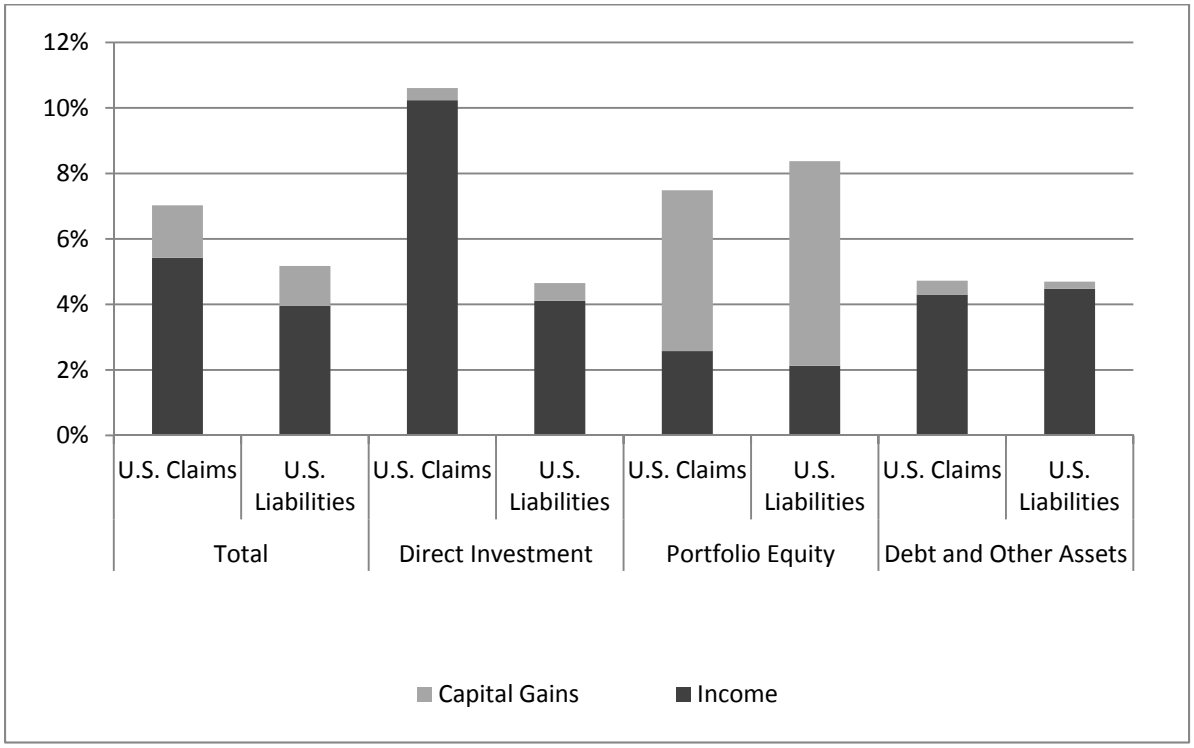
Source: BEA. The cumulated current account series starts with the U.S. net international investment position at the end of 1989 then cumulates subsequent U.S. current account balances.

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



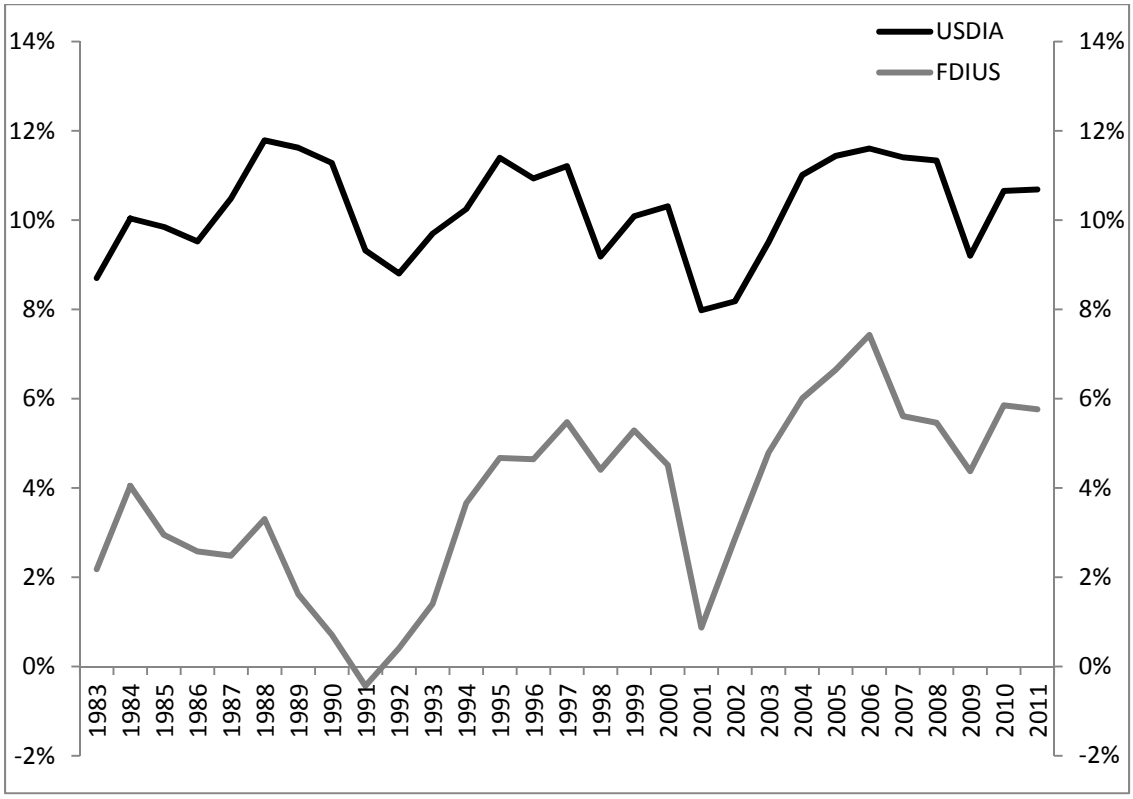
Capital gains through 2009 implied from Tables D and E of Gohrband and Howell (forthcoming); for 2010 and 2011 the IIP release. Yields computed from BOP income and the 2010 and 2011 IIP. Yields computed from BOP income and the 2010 IIP.

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



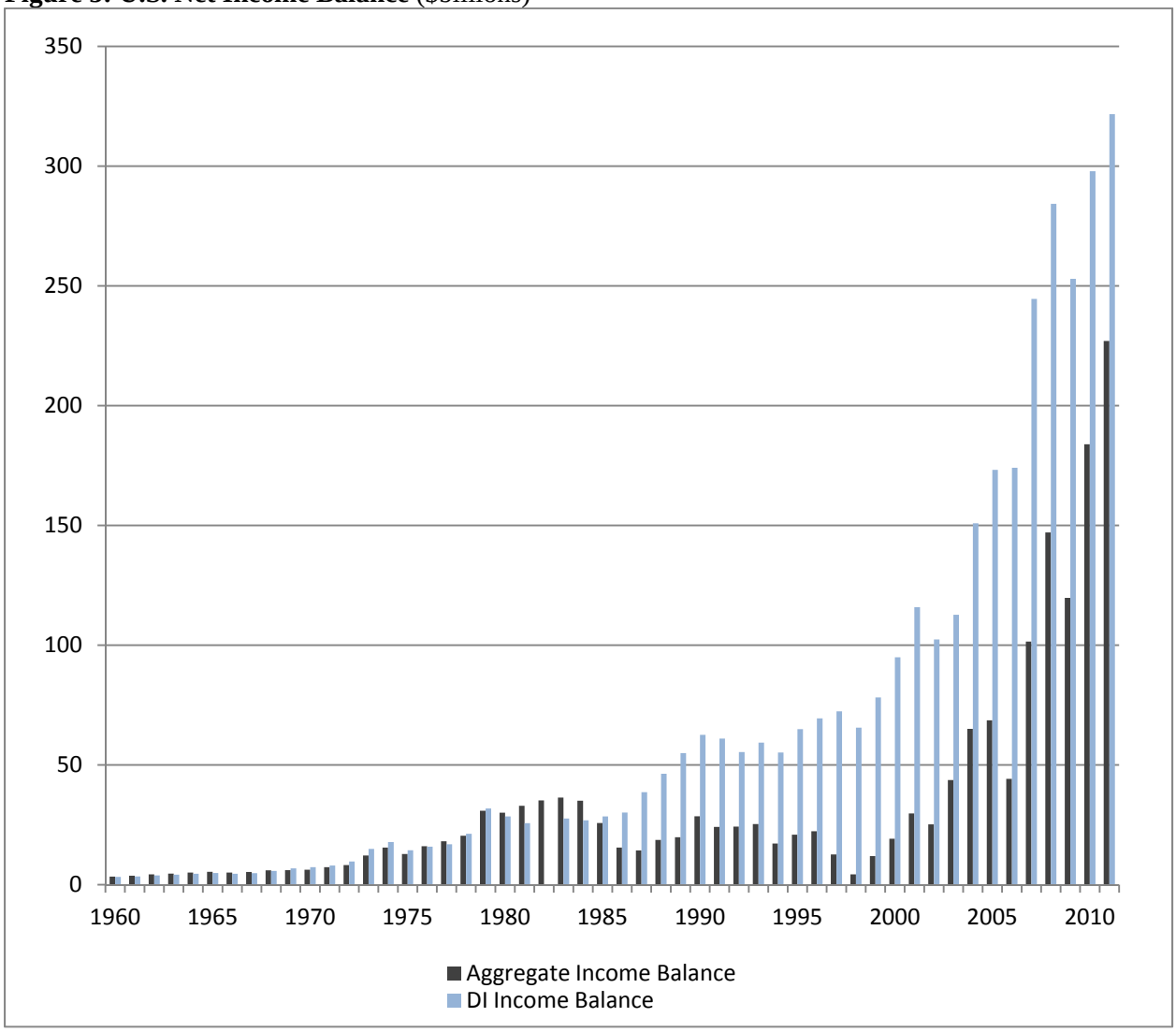
Graphical depiction of the returns presented in the right side of Table 4. Income is from the balance of payments reported by BEA. Capital gains through 2009 are implied from Gohrband and Howell (forthcoming); for 2010 and 2011 data are from the IIP Direct investment valued at current-cost. All values are 1990-2011 averages.

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



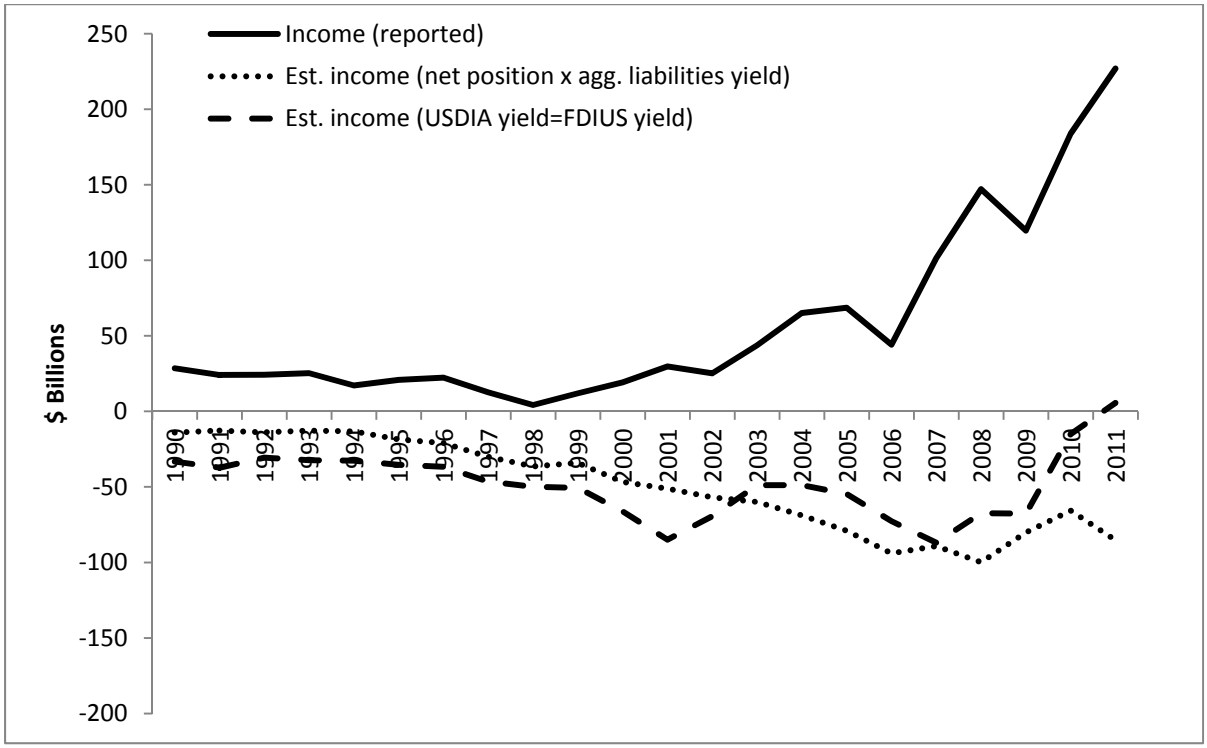
The USDIA series is the ratio of aggregate DI income receipts to the USDIA position at current-cost reported by BEA. The FDIUS series is the ratio of aggregate DI income payments to the FDIUS position at current-cost reported by BEA.

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



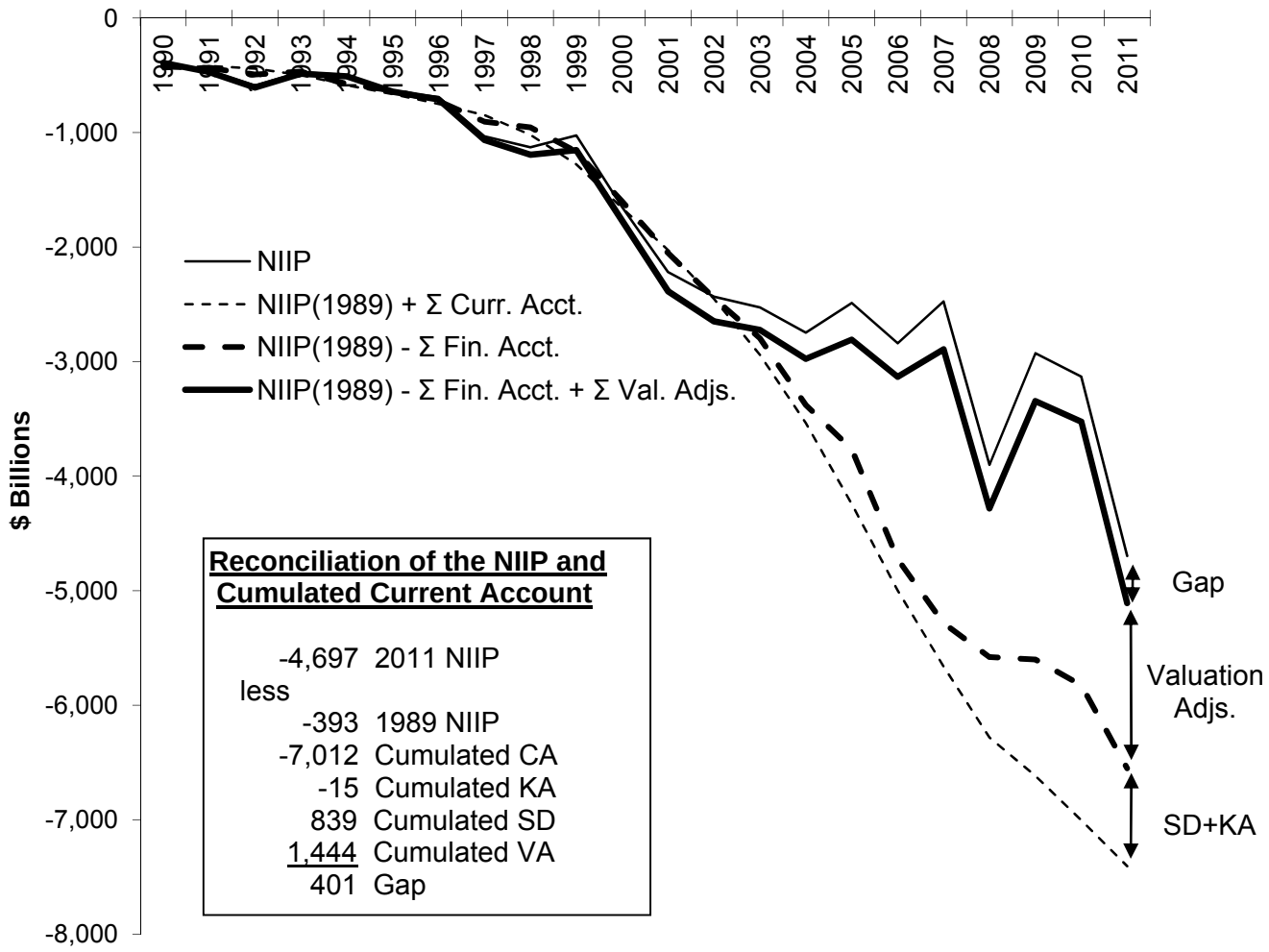
The dark bars are reported U.S. net income (BOP Table 1 line 75). The light bars are the reported U.S. DI net income, which equals DI receipts from abroad (BOP Table 1 line 14) plus (in BOP terms) DI payments to foreigners (BOP Table 1 line 31).

Figure 6: Reported and Alternative Net Income Estimates



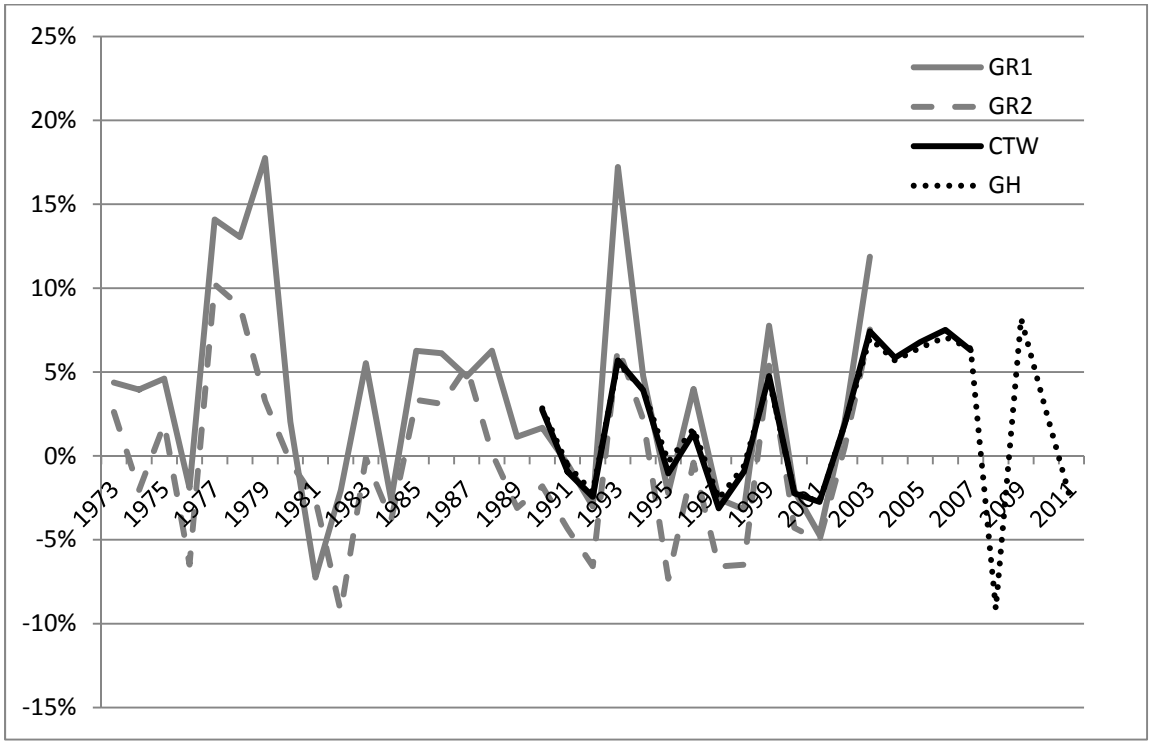
The top line on the chart is the net income reported in the U.S. BOP. Two alternative income estimates are shown. The dotted line estimates income using the product of the net position and the yield on aggregate liabilities; that is, it forces the yield on assets to equal the yield on liabilities. The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



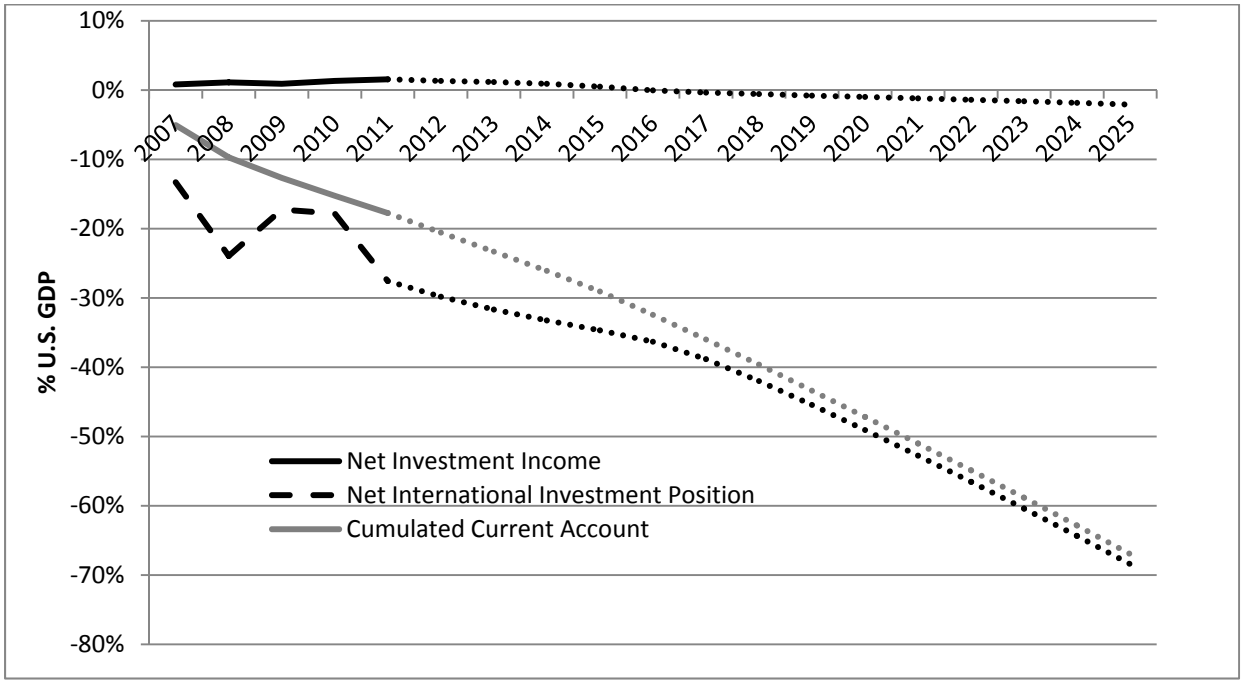
The figure uses Gohrband and Howell (forthcoming) and the 2010 and 2011 IIP rates of return and adjustments similar to those discussed in Curcuru, Thomas and Warnock (2009). NIIP = U.S. net international investment position, CA = current account, FA = financial account, KA= capital account, VA= valuation adjustments, and SD = statistical discrepancy.

Figure 8: Time Series of Selected Returns Differentials Estimates



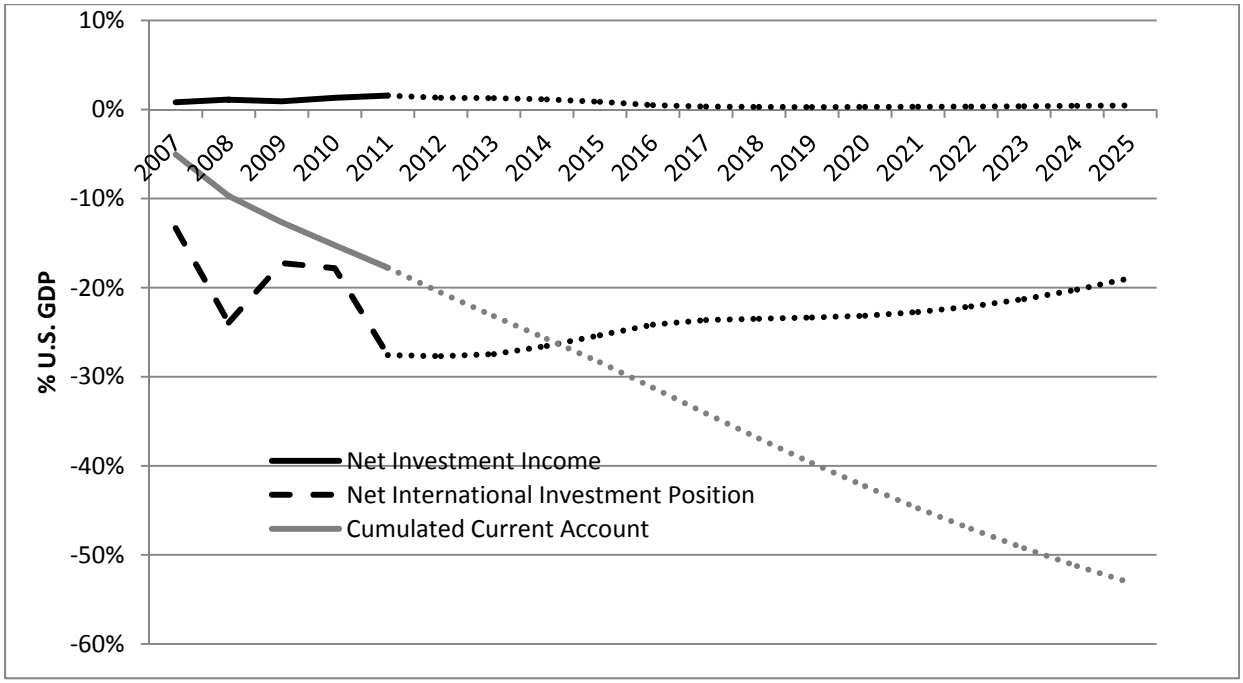
GR1 and GR2 are total returns differentials from Gourinchas and Rey (2007a) and Gourinchas and Rey (2007b), respectively; CTW is from Curcuru, Thomas and Warnock (2009); and GH is from Gohrband and Howell (forthcoming) through 2009, updated through 2011 using 2010 and 2011 IIP data. For the relatively 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.

Figure 9: Evolution of Net Income, the Net Position, and the Current Account



Assumptions are as in Table 7. For DI income rates, the rate on liabilities increases by 1.4 percentage points; the rate on claims remain at long-term average. The income rate on debt claims and liabilities increases by 4 percentage points by 2019 then remains constant; capital gains correspond to the path of yields. Income rates on equity and other assets remain at their long-term averages. Capital gains return is 5 percent per year for equity claims and liabilities and 0 percent for all other asset types. The dollar value of the goods and services deficit and net transfers deficit increase by 1 percent per year; capital flows increase to offset changes in the current account (i.e., we assume zero statistical discrepancy). U.S. nominal GDP follows the Blue Chip forecast (2.7 percent average growth). The dollar is unchanged.

Figure 10: Evolution of Net Income, the Net Position, and the Current Account – Alternative Scenario



Assumptions are the same as for Figure 9, except for capital gains rates which are 2 percentage points higher for claims in each asset class.