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Cross-Border Returns Differentials *

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Abstract

Were the U.S. to persistently earn substantially more on its foreign investments ("U.S. claims") than foreigners earn on their U.S. investments ("U.S. liabilities"), the likelihood that the current environment of sizeable global imbalances will evolve in a benign manner increases. However, we find that the returns differential of U.S. claims over U.S. liabilities is far smaller than previously reported and, importantly, is near zero for portfolio equity and debt securities. For portfolio securities, we confirm our finding using a separate dataset on the actual foreign equity and bond portfolios of U.S. investors and the U.S. equity and bond portfolios of foreign investors; in the context of equity and bond portfolios we find no evidence that the U.S. can count on earning more on its claims than it pays on its liabilities. Finally, we reconcile our finding of a near zero returns differential with observed patterns of cumulated current account deficits, the net international investment position, and the net income balance.

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1. Introduction

Substantial global imbalances are a central influence on the current international economic order. Whether and how these imbalances might unravel have important implications for economic stability in general and for the future path of the U.S. dollar in particular.

One aspect of this situation that has attracted a great deal of attention recently is the returns differential, the difference between the rate that the United States earns on its foreign claims and the rate it pays on its foreign liabilities. It is presumed that the returns differential is sizeable, in large part because of two pieces of evidence: (i) the fact that the U.S. net international investment position is not as negative as the large, persistent U.S. current account deficits would suggest (and, relatedly, that even with a negative net international investment position the income balance remains positive), and (ii) the striking finding—most explicit in Gourinchas and Rey (2007a) but also found in Obstfeld and Rogoff (2005), Lane and Milesi-Ferretti (2005a), and Meissner and Taylor (2006)—that over the past few decades the United States has enjoyed the 'exorbitant privilege' of paying foreign investors roughly 3 percent *per year* less than it receives on its foreign investments.[1]

Understanding the size and source of the returns differential is important in part because the returns differential plays an important role in determining the path of the net international investment position. For example, with gross claims and liabilities positions each at roughly 100% of GDP, a one percent differential will result in a one percent of GDP improvement in the net position. Indeed, a positive U.S. returns differential vis-à-vis the rest of the world would be a source of stability in the presence of large U.S. current account deficits. In the model of Cavallo and Tille (2006) a more positive returns differential impacts the dynamics of current account adjustment in a way that lessens the probability of a disorderly unraveling of global imbalances. Similarly, for a given size of the returns differential, its likely persistence is important (Hausmann

[1] Although each uses a different sample period, the average annual returns differentials across these papers are very similar, ranging from 3.1% from 1983 to 2003 in Obstfeld and Rogoff (2005) to 3.9% from 1980 to 2004 in Lane and Milesi-Ferretti (2005a).

and Sturtzeneger, 2006). Should a positive returns differential exist, the likelihood of a relatively benign continuation of global imbalances would increase. In its absence, one barrier to an unsavory adjustment in the world economic order would be removed.

In some sense, a sizeable and persistent exorbitant privilege would not be surprising. For example, it is well known that U.S. claims are weighted toward equities and U.S. liabilities are weighted toward debt. Because equity returns tend to be higher than bond returns, this portfolio composition naturally produces a somewhat higher return for U.S. claims. But in Gourinchas and Rey (2007a) a large portion of the exorbitant privilege (2.45 of the overall 3.32 percent) owes not to this composition effect but to what is termed a return effect: *Within each asset class*, U.S. investors earn more abroad than foreigners earn on their U.S. investments. For example, Gourinchas and Rey report that since 1973 returns on U.S. investors' foreign equity and bond portfolios have exceeded foreigners' U.S. returns by 6.21 percent and 3.72 percent, respectively, *per year*. They attribute this result to the U.S. position as the major issuer of the international currency. As discussed more fully in Portes and Rey (1998), this prominent position results in a liquidity premium that enables the exorbitant privilege.

In this paper we argue that existing estimates of the returns differential are biased upward. The primary source of the bias comes from calculating implied returns using *revised* Bureau of Economic Analysis (BEA) data on U.S. international positions and flows. Comprehensive data on *positions* occasionally indicate errors in the separately collected *flows* data. However, data on positions are collected at a substantial lag and, because it is difficult for the financial services firms reporting cross-border transactions to go back and restate past flows, even when reporting errors become apparent the data on flows remain more or less as originally reported. Since revisions to U.S. claims tend to be large and positive, with only limited corresponding upward revisions to flows, the revised series imply large capital gains on U.S. claims. The opposite bias exists for U.S. liabilities. We argue that using data from the *original* statistical releases produces a more accurate measure of the returns differential because flows and

positions in the original releases are more internally consistent. In contrast, because flows are only partially revised, the *revised* data on positions are not consistent with the *revised* data on flows.[2] Hence, calculating returns differentials using the revised data produces an estimate that is biased upward.

We show that the returns differential is not only much smaller using *original* data (1.0 percent) than using the *revised* data (3.4 percent), but that it also has a different composition. The revised data produce an aggregate differential that arises primarily from a large differential in returns on portfolio bond and equity investment, as in Gourinchas and Rey (2007a). In contrast, the original data produce a much smaller aggregate differential that owes almost entirely to foreign direct investment returns, with an essentially zero differential in stocks and bonds. This evidence is inconsistent with a conclusion in Gourinchas and Rey (2007a) that the exorbitant privilege owes to the presumably persistent Portes and Rey (1998) liquidity premium of U.S. portfolio securities.

We confirm the finding of no returns differential for equities and bonds using a separate, high quality dataset of *actual* international portfolios. To do this, rather than using revised or original BEA data on positions and flows, we calculate returns by applying carefully constructed returns indices to the Bertaut and Tryon (2007) monthly bilateral portfolio weights. The returns indices were formed to closely mimic actual cross-border portfolios; for example, if over a period Germany's U.S. bond portfolio has a weighting of 50% Treasury bond, 30% Agency bonds, and 20% Corporate bonds, Germany's U.S. bond returns are formed by applying those weights to asset-class-specific U.S. bond indices. For cross-border returns to differ substantial from the returns we calculate with this alternative dataset, international investors would have to either (i) within asset classes, have securities weights that differ substantially from those in major indices or (ii) earn substantial (positive or negative) returns from intramonth trading. We find that returns

[2] We should note at the outset that we do not necessarily find fault with BEA revision policies. Flows are only partially revised in large part because data providers (such as banks and broker dealers for debt and equity flows) find it very difficult to recreate or revise historical capital flows data.

calculated using this alternative dataset closely match those calculated using the original BEA data. Thus, the alternative dataset of actual international bond and equity portfolios provides additional evidence that the returns differentials calculated using the revised data are biased upward.[3]

Our findings of a very small aggregate returns differential might seem counterintuitive because a large differential would appear to be consistent with two empirical facts: the U.S. net international investment position (IIP) is not as negative as the large, persistent U.S. current account deficits would suggest and, relatedly, even with a negative net IIP the income balance has remained positive. We reconcile these facts with our finding of a very small differential in three ways. First, because the overestimation of the returns differential owes almost entirely to an overestimation of capital gains rather than income yields, our results are entirely consistent with the observed relationship between the IIP and the income balance. In both the revised and original series, the large yield differential on direct investment offsets the net payments the U.S. makes on debt and equities. Second, we show that the net position can deviate substantially from cumulative current account balances even if the *average* differential is zero. As long as the differential is negative when gross positions are small and positive when gross positions are large, cumulative total returns can be positive even if the *average rates of return* on claims and liabilities are equal. Finally, we document that to a large extent the deviation of the paths of the net position and cumulative current account balances is driven by changes in statistical coverage rather than actual returns.

The paper proceeds as follows. In the next section we compute returns differentials using BEA's revised and original data. In Section 3 we utilize an alternative dataset and methodology to construct a separate estimate of the returns differential. In Section 4 we reconcile our returns with

[3] Curcuru, Dvorak, and Warnock (2007) assesses the performance of these portfolios by analyzing reallocations between equities and bonds.

the paths of current account balances and the net international investment position. Section 5 concludes.

2. Returns differentials using BEA data

2.1. Revised vs. original series methods

There are two methods to calculate implied returns differentials using BEA data. The first, which uses revised series of U.S. international positions, capital flows, and income flows, is straightforward to implement because the revised historical data is readily available on BEA's website. The second method, which uses the original series as published by BEA in each annual release of the U.S. IIP and balance of payments, requires the collection of 'as issued' historical data.

Existing studies use the readily available revised series to calculate the implied returns differential. The total return on U.S. claims or liabilities using the revised series can be calculated as follows:

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

where A^R_t is the position (claims or liabilities) at the end of period *t*, $FLOW^R_t$ is flows (U.S. flows abroad or foreign flows into the U.S.) during period *t*, and INC^R_t is interest and dividend income during period *t*.[4] 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. Capital gains are calculated as the change in positions minus the corresponding flows. Note, though, that measuring capital gains in this way includes changes due to price and exchange rate changes (as one would expect) but also "other" changes in positions. These "other"

[4] Our findings are robust to return estimates that use A^R_t or A^R_{t-1} +1/2 $FLOW^R_t$ in the denominator of (1).

changes—analyzed in more detail below in Section 4—are primarily changes in statistical coverage but also other adjustments to the value of assets and liabilities.[5]

We can use a similar methodology to compute implied returns using the series as originally reported in individual IIP releases that are published every year in the June or July issue of the *Survey of Current Business*. The IIP release indicates the position as of the end of the previous year (A^O_{t-1}), the sources of the change in the position during the year, and the resulting preliminary estimate of the current year-end position (A^O_t). The total return on U.S. claims or liabilities using the original series can be calculated as follows:[6]

$$r_t^O = \frac{A_t^O - A_{t-1}^O - FLOW_t^O}{A_{t-1}^O} + \frac{INC_t^O}{A_{t-1}^O} \qquad (2)$$

where A^O_{t-1}, A^O_t, and $FLOW^O_t$ are all as reported in the original year *t* IIP release and INC^O_t is the corresponding year *t* income flow as reported in the original balance of payments release. The superscript *O* denotes *original*, indicating that all variables are as initially reported.

2.2. Revised vs. original series results

If revisions follow no systematic pattern we should not expect a substantial difference in average returns (and average returns differentials) calculated using the revised or original series. However, Table I shows that using annual data from 1990 through 2005 the differences are substantial. The aggregate returns differential using the *revised* series is 3.4%, in line with

[5] For the revised series, BEA reports the breakdown between price, exchange rate and "other" changes for aggregate claims and liabilities but not for individual asset categories. Thus, when using BEA's revised data, the "other" category can be excluded from the calculation of *aggregate* capital gains but it cannot be excluded from *individual asset* categories. Perhaps it is for this reason that existing work includes the "other" category as part of capital gains. Note that Lane and Milesi-Ferretti (2007) propose a method to break out the "other" component for individual asset categories.

[6] The original IIP releases include the breakdown between price, exchange rate and "other" changes not just for aggregate claims and liabilities but also for individual asset categories. Therefore, when we use original series we could in principle exclude the "other" category from the calculation of capital gains and still calculate returns differentials for individual asset categories. We chose not to do so in order highlight the impact of revisions on the calculation of the returns differential.

calculations found in the literature.[7] The aggregate returns differential using the *original* series is substantially lower at 1.0%. The difference is driven not by income yields, as the income yield differentials are similar (1.2% using the revised series and 0.9% using the original series), but by differences in capital gains (2.2% using the revised series but zero using the original series).

The large discrepancy in capital gains differentials owes to the fact that, relative to the original series, the revised series imply much larger capital gains on U.S. claims (4.2% vs. 2.4%) and somewhat smaller capital gains on U.S. liabilities (2.0% vs. 2.4%). This discrepancy in capital gains is especially evident in portfolio equities and bond investment. For bonds, the revised series imply a total returns differential of 8.2%, while the original series imply only a 1.6% differential. All of the difference between revised and original returns is driven by capital gains, as yield differentials using the two methods are identical. One striking difference is in capital gains on U.S. bond liabilities. The original series imply that capital gains on bond claims and liabilities are nearly identical at 70 and 50 basis points a year, respectively. In contrast, the revised series imply, somewhat implausibly, *negative* capital gains (-1.4%) on U.S. bond liabilities. In other words, even in an environment of a secular decline in U.S. interest rates—when all foreign investors needed to do to achieve positive capital gains was to hold their U.S. bond positions for some time and then sell—the revised series suggests losses of 140 basis points per year over the sample period. A similar capital gains disconnect is evident for equities: The yield differential on equities is the same using the revised and original series (0.3%), but the revised series implies very large capital gains on U.S. equity claims (13.1% vs. 7.7% in the original series).

[7] Returns differentials calculated over relatively long time periods include Obstfeld and Rogoff (2005), who calculate 3.1% aggregate differential using 1983 to 2003 data; Meissner and Taylor (2006), who compute 3.2% using 1981-2003 data; Gourinchas and Rey's (2007a) 3.3% for 1973 through 2004:Q1; and Lane and Milesi-Ferretti's (2005a) 3.9% from 1980 to 2004. For our purposes, we begin in 1989 since it is only then that the *original* IIP releases began reporting direct investment at market value. Revised estimates of direct investment at market value, as used by others, are available from 1982. Appendix Table A.I lists the sources of data as well as table and line numbers. Over shorter time periods, returns differentials can be substantial, owing mostly (but not entirely) to short- to medium-run exchange rate movements; see, for example, Lane and Milesi-Ferretti (2005b) and Forbes (2007).

The discrepancy between revised and original capital gains is not unique to the 1990-2005 sample period. Because BEA began reporting direct investment at market value only in 1989, we cannot extend our sample back any further for all asset classes. We can, however, recalculate returns differentials for equities and bonds beginning in 1984 (Table II).[8] As in the 1990-2005 sample, the revised series imply large positive capital gains on U.S. bond claims and slightly negative capital gains on U.S. bond liabilities, while the original series imply modest capital gains of similar magnitudes on bond claims and liabilities. That the revised series returns are likely biased is evident from returns on U.S. equity claims: The revised series average annual return is 23.2% per year, while over the same time period the MSCI Ex U.S. returned only 13.5% per year, much closer to the 12.1% return implied by the original series.[9]

2.3 Pattern of revisions

We have shown that the large returns differentials computed from the current vintage of revised data is not apparent in original 'as reported' data. In this subsection we show that systematic patterns in revisions to positions and flows create these discrepancies in implied returns.

Figure 1 depicts the magnitude of revisions to U.S. net cross-border financial flows and net international investment positions. It is immediately apparent that there tends to be substantial positive revisions to net positions with much smaller (and at times negligible) revisions to net capital inflows. For example, the 1994 net position was revised upward $424 billion, while flows were revised by only $36 billion. Large upward revisions to positions with only very minor revisions to flows will produce—if equation (1) is used—large implied capital gains.

We can be more exact with our analysis of revisions patterns by combining equations (1) and (2) to express revisions to the end-of-year position as the sum of the revisions to the end of

[8] IMF data on cross-border equity and debt income, needed to compute total returns, are not available prior to 1984.

[9] The large difference between average annual returns on equity claims from 1990-2005 reported in Table 1 (15.8%) and those for 1984-2005 (23.2%) owe to the sharp depreciation of the dollar in the late 1980s.

the previous year's position, revisions to current-year flows, and revisions to capital gains, all expressed relative to the end of the previous year's position:

$$\frac{A_t^R - A_t^O}{A_{t-1}^O} = \frac{\left(A_{t-1}^R - A_{t-1}^O\right) + \left(FLOW_t^R - FLOW_t^O\right) + \left(KG_t^R - KG_t^O\right)}{A_{t-1}^O} \qquad (3)$$

An upward revision to year-end assets (i.e., $A^R_t - A^O_t > 0$) owes to some combination of revisions to the preceding year's position ($A^R_{t-1} - A^O_{t-1} > 0$), unrecorded purchases during the current year ($FLOW^R_t - FLOW^O_t > 0$), and unrecorded current-year capital gains ($KG^R_t - KG^O_t > 0$).

Table III shows this decomposition of revisions for U.S. claims and liabilities and their components. Focusing first on the aggregates, average revisions are positive for both claims and liabilities but are substantially larger for claims (10.3%) than for liabilities (1.4%). Most, but not all, revisions in the year-end positions are associated with revisions in the previous year's positions (7.4 of the 10.3% for claims and 1.2 of the 1.4% for liabilities). Year *t* flows are revised slightly on average (1.0% and 0.6% for claims and liabilities, respectively). Overall, these patterns in revisions to A_t, A_{t-1}, and $Flow_t$ translate into revisions to the residual (implied year *t* capital gains) of 2.0% per year for claims and -0.4% per year for liabilities. Thus, built into estimates of the aggregate returns differential calculated using the current vintage of revised BEA data is a roughly 2.4% differential that owes primarily to the pattern of revisions to positions and flows.

To better understand these revision patterns, we next focus on revisions to bond and equity claims. Initial estimates of U.S. positions in foreign bonds and foreign equities were revised upward an average of 24.6% and 46.3% per year from 1990 to 2005. Figure 2 shows the times series behind these averages. For U.S. positions in foreign equities, the incorporation of the first security-level measurement of U.S. portfolios abroad (from the Treasury Department's 1994 benchmark survey) resulted in particularly large upward revisions of 90 percent per year from

1990 to 1995. Prior to the 1994 benchmark survey, positions were not measured but were estimated from capital flows data and, with no actual information on positions, very rough approximations of capital gains. The huge revisions that were prompted by the benchmark survey were described by BEA in Bach (1997) as follows:

> "The differences between the two estimates can be attributed both to incomplete coverage of these transactions in the Treasury source data upon which BEA's position estimates are based and to inexact valuation of price and exchange rate adjustments applied to BEA's estimated positions. *However, it is not possible to determine the amount of underestimation attributable to each part of the estimation process*." (emphasis added)

Because of the inability to definitively attribute the newly discovered claims to flows or valuation adjustments, BEA put *none* of the revisions in flows (the "transactions in the Treasury source data")—financial flows are completely absent from Table 2 in Bach (1997), which shows all revisions for the balance of payments and international investment positions—and put most in the residual "other" valuation adjustment category.

These large upward revisions to positions without corresponding revisions to flows results in an upward bias in the implied returns calculated with revised data. This is most easily seen in the substantial upward revisions to implied capital gains for portfolio bond (6.1%) and equity investment (10.5%). As noted, for U.S. positions in foreign equities, benchmark surveys led to revised estimates that were on average 46.3% higher than initial estimates. BEA had to decide how to account for these very large upward revisions to equity positions, which arose from new information *on positions at a particular point in time* from high quality benchmark surveys. In the absence of additional information on the reason behind these higher claims, they attributed it in some part to the previous year's position (revised up 34.6% on average from 1990-2005), some part to revisions to flows (up 1.2%), and left the rest for 'other changes' (up 10.5%). When equation (1) is used by researchers to calculate implied returns, these other changes show up as implied returns.

Why does BEA only partially revise flows? One answer is that they do not collect securities flows data and are, in a sense, downstream users of data compiled by the Treasury International Capital Reporting System (TIC, the "source data" in the above quote). The underlying TIC flows are often not revised even when it is known that newly found claims should be attributed to capital flows because it is often unfeasible for the entities reporting cross-border transactions to turn back the clock and revise their reported history. For example, a problem with the reporting of the underlying TIC capital flows data on long-term foreign debt claims was identified after the 2003 comprehensive benchmark survey:

> "As measured by the survey, U.S. holdings of foreign securities were considerably higher than would have been estimated using the estimation procedure discussed above, particularly for U.S. holdings of foreign long-term debt securities...It is now believed that incomplete information on monthly transactions in foreign long-term debt securities was a significant source of the observed difference."[10]

The TIC system originally reported U.S. net *sales* of foreign bonds in 2002 and 2003 that totaled $55 billion, whereas security-level benchmark surveys showed that over that period U.S positions in foreign bonds actually *increased* by $317 billion (Dept. of Treasury et. al., 2005), but to this day the revised TIC data for 2002 and 2003 still show $61 billion in net U.S. *sales* of foreign bonds. As reported in Bertaut et. al. (2006), an in-depth investigation revealed under-reporting of U.S. investors' purchases of newly issued foreign debt. While this reporting problem was resolved starting in 2004, the majority of entities did not revise their TIC reports for 2002 and 2003 to correct past omissions.

In the absence of revisions to the TIC flows data to accompany unexpected survey results, BEA is left with a dilemma: Deviate substantially from the underlying source data or put much of the changes in the catch-all "other" category. In the past, BEA tended not to deviate much from the source TIC flows data:

> "When BEA adjusted its international investment positions estimates last year using preliminary benchmark results, it attributed all of the discrepancy to valuation changes

[10] Dept. of Treasury et. al. (2005, p. 8).

> and none to the less than complete coverage of transactions…BEA is now changing that practice and attributing a large part of the discrepancy to transactions."[11]

Even when flows were substantially revised—for example, from about $60 billion in net sales to about $60 billion in net purchases in 2002 and 2003—BEA still attributed much of the change in the year-end positions to "other changes".

The tendency not to fully revise corresponding flows when revisions to positions are made also holds for U.S. liabilities. Speaking of U.S. liabilities, Bach (2002, p. 37) states:

> "In the past, BEA has assigned nearly all of the differences between the two estimates of the positions to either the prices change or the 'change in statistical coverage' components of the investment position accounts, leaving data on financial flows as reported by the transactions reporting system little changed."

In contrast to U.S. claims, the revisions to liabilities position were much smaller (an average of 1.4%) and, for some asset categories such as bonds, negative. Downward revisions in liabilities positions without a corresponding downward revision in flows imply low capital gains. According to Bach (2002, p. 38-39), BEA had tended to overestimate U.S. liabilities because the transaction reporting system underestimates redemptions and paydowns of principle on mortgage-backed securities. These redemptions should be recorded as outflows but are not recorded by the existing transactions reporting system because they do not involve the typical data reporters (brokers and dealers). As the above quote indicates, as a matter of practice BEA tended to revise positions but not flows, implying low or negative capital gains on U.S. liabilities.

Thus, the use of the current vintage of data on positions and flows to calculate implied returns very likely overstates the size of the returns differential. The large capital gains on U.S. claims implied by the revised series are a result of systematic gaps in statistical coverage and the BEA practice of attributing unexpected position changes to the catch-all 'other' category in the absence of corresponding revisions to the TIC flows. A similar bias on the liabilities side leads the revised series to understate capital gains on U.S. liabilities. These biases are particularly large

[11] Bach (2000, p. 71-72).

for bonds and equities, the two types of securities that are at the heart of the Portes and Rey (1998) liquidity discount and the Gourinchas and Rey (2007a) exorbitant privilege.

3. Other Measures of the Returns Differential

In this section we compute returns differentials using an alternative dataset and methodology. The data used here are monthly bilateral international portfolio positions in bonds and equities. The methodology is, rather than applying equation (1) to BEA data to compute implied returns, observing portfolio weights and calculating returns for indices that mimic (to the extent possible) the composition of those portfolios. We then compare returns differentials from this alternative dataset and methodology to implied returns from the original and revised BEA data as well as to differentials from Gourinchas and Rey (2007a). Note that the analysis in this section is for a shorter time period (the bilateral positions data begin in 1994) and is limited to portfolio bonds and equities.

3.1 Monthly Bilateral Bond and Equity Portfolios

Bertaut and Tryon (2007), following Thomas, Warnock, and Wongswan (2006), present monthly bilateral positions of U.S. investors in the equities and bonds of a large set of foreign countries and of foreigners in U.S. bonds and equities. The country-level dataset includes, for example, a monthly time series of U.S. holdings of German equities (as well as the holdings of equities in 37 other foreign countries). Armed with time-varying monthly portfolio weights, in this subsection we calculate the monthly returns of U.S. investors abroad and of foreigners in the United States.

Specifically, we calculate the average return on portfolio p (of, for example, foreign equities) as the time series average of the sum of the products of lagged asset weights and current returns:

$$\bar{r}^{\,p} = \frac{1}{T}\sum_{t=1}^{T}\ \sum_{j=1}^{N} w_{j,t-1}^{p} r_{j,t}^{p} \qquad (4)$$

where $w^{p}_{j,t-1}$ is portfolio weight of asset *j* (for example, German equities) at the end of period *t-1*, $r^{p}_{j,t}$ is the period *t* return on asset *j* in portfolio *p*, and *N* is the number of assets (countries) in the portfolio. For actual returns to deviate substantially from returns calculated using equation (4), international investors would have to either (i) within asset classes, have securities weights that differ substantially from those in major indices or (ii) earn substantial (positive or negative) returns from intramonth trading.

Crucial to this exercise is the selection of returns indices to calculate $r^{p}_{j,t}$. We use returns indices whose securities composition closely mimic the composition of U.S. and foreign cross-border holdings. Specifically, indices were chosen by comparing security-level holdings with publicly available returns indices. For example, we compute the returns on a country's U.S. bond portfolio using a weighted average of Lehman Brothers U.S. Treasury, corporate and agency bond indices, with the weights being that country's portfolio weights in each respective bond type. Within their U.S. bond portfolios, countries' weights can vary substantially from the weights in a market-capitalization benchmark such as the Lehman Brothers Aggregate U.S. bond index, so it is important to use the actual weights of foreign investors in the three types of bonds to produce an accurate measure of their returns on U.S. bonds. For returns on U.S. equities we use the return on the gross MSCI U.S. index, a market-capitalization-weighted index comprised of roughly 300 large and liquid U.S. equities (the type of equities international investors tend to hold). For returns on foreign equities we use dollar returns on the gross MSCI equity index for each country. MSCI indexes are appropriate because MSCI firms represent almost 80 percent of U.S. investors' foreign equity investment (Ammer et al. 2006). For foreign bonds, to a large extent U.S. investors tend to hold local currency bonds in developed countries and dollar-denominated bonds in emerging markets (Burger and Warnock, 2007). Thus, for developing countries we use J.P. Morgan's EMBI+ indices (which are comprised of dollar-denominated bonds). For those developed countries in which U.S. holdings of local currency bonds are predominant, we use the MSCI bond index (which is an index of local-currency-denominated

bonds). In those developed countries where U.S. holdings of dollar-denominated bonds are significant we calculate returns as the weighted average of the MSCI bond index and MSCI Eurodollar Credit index (which is an index of dollar-denominated bonds), with the weights on the Eurodollar index being the shares of dollar denominated bonds in U.S. holdings of foreign bonds.[12] When calculating returns on the aggregate foreign bond and foreign equities portfolios, we weight each country according to U.S. bond (or equity) holdings in that country. The average weight of each country in U.S. foreign equity and bond portfolios and the average returns on each country's equities and bonds appear in Appendix Table AII.

Our sample period covers the 144 months between January 1994 and December 2005. The starting point is determined by the availability of MSCI bond indices, which begin in December 1993. The ending point is determined by the availability of monthly data on U.S. foreign asset positions, which are available through December 2005. We include the 38 countries (nineteen developed countries and nineteen emerging markets) for which we have at least fifty monthly observations on both equity and bond returns between January 1994 and December 2005. These countries account for the majority of U.S. portfolio investment abroad as well as the majority of foreign investment in the United States.[13] For some countries, equity or bond returns data begin after January 1994. We add these countries to the U.S. asset and liability portfolios when the data for both equity and bond returns become available (see the last column in Appendix Table AII). Countries added after January 1994 tend to have very low weights in both U.S. claims and liabilities portfolios, so our results are nearly identical if we restrict our study to countries with returns data for the entire sample period.

[12] The developed countries where U.S. holdings of dollar denominated bonds are significant include Australia, Belgium, Canada, Finland, France, Germany, Ireland, Netherlands, Sweden, and the United Kingdom.

[13] In 2004, the countries in our sample account for 84 percent and 80 percent of U.S. equity and bond investment abroad and 77 percent and 73 percent of all foreigners' equity and bond investment in the United States. Of the international investment that we do not cover, Caribbean financial centers account for more than half.

Table IV shows the descriptive statistics for aggregate equity weights in U.S. claims and liabilities and aggregate returns on U.S. and foreign bonds and equities. It is evident from Panels A and B that U.S. claims (that is, U.S. investors' foreign portfolios) are weighted heavily toward equities, while U.S. liabilities (foreigners' portfolios in the U.S.) are weighted toward bonds. This resembles the "venture capitalist" capital structure of the U.S. external balance sheet as pointed out by Gourinchas and Rey (2007a). Specifically, the equity-to-bond ratio in U.S. claims is 71:29 across all countries, with equities having a higher weight in U.S. investors' developed country portfolios (72:28 equity-to-bond ratio) than in the emerging market portfolios (60:40). By contrast, the equity-to-bond ratio in U.S. liabilities is 42:58, roughly that (46:54) for developed countries' positions, but much lower for emerging markets' portfolios (9:91). Returns on these portfolios are shown in Panels C and D. Panel C shows that over the period from 1994 through 2005 data on actual portfolios indicate that returns were higher on U.S. equities (11.88 percent per year) than on foreign equities (9.59 percent overall, with 9.99% in developed countries and 10.68% in emerging markets). For bonds (Panel D), returns on developed country bonds (7.02 percent per year) were somewhat higher than returns on U.S. bonds (5.89%), while returns on emerging market bonds were much lower (2.39%).

3.2 Comparison with Returns Differentials from Other Datasets

In the first column of Table V we present aggregate returns differentials calculated using the monthly portfolios. There is no evidence that U.S. claims have substantially higher returns than U.S. liabilities as the differential on bonds is a negligible 19 basis points per year and the differential on equities is actually negative 2.3% per year. Thus, consistent with our results using the original BEA data, data on actual portfolios do not produce an exorbitant privilege for U.S. portfolio investments.

The second column in Table V shows 1994-2005 returns calculated using the BEA original series described in Section 2. Returns using the original BEA data closely match those using the actual portfolios, with both showing a negative differential on equity (-2.77% and -

2.32%) and a differential on bonds that is close to zero. The third column shows that the *revised* series again imply much larger returns differentials: a large positive differential for bonds and a more modest negative differential for equity. That the returns from actual portfolios agree with returns from the original BEA series gives us confidence that the revised series returns are biased, and that the original series returns are a better reflection of the actual returns. It is worth emphasizing that when we calculate returns using the actual portfolios we no longer use BEA transactions data to infer capital gains or income yields. Arriving at a close to zero returns differential on U.S. portfolio investment using two independent sources of data strengthens our conclusion that the U.S. does not enjoy a sizeable return effect or, hence, an exorbitant privilege.

Our finding that the United States does not earn substantially higher returns within each asset class contrasts with that of Gourinchas and Rey (2007a), henceforth GR, who use combination of the approaches presented above. Specifically, capital gains are calculated in GR by matching each asset class to corresponding market returns and adding income yield from BEA data. The last two columns in Table V report GR returns on equities and bonds for 1994-2004 and, for completeness, for 1973-2004.[14]

For the 1994-2004 period GR returns differentials are between ours and those computed from the revised series. Compared to our returns, for both claims and liabilities GR report higher equity returns and lower bond returns. This is a result of GR's distribution of income streams across asset classes. Because income is not always available separately for each asset class, GR distribute aggregate income according to the share of each asset class in total assets. However, the coupon yield on bonds is generally much higher than the dividend yield on equities. Therefore, allocating income according to asset class share will understate the income yield on bonds and overstate the income yield on equity. While this biases the returns on each asset class, the bias is the same for claims and liabilities and therefore should not materially affect the return

[14] Returns for 1973-2004 are as published in GR. The 1994-2004 GR returns are calculated using data from http://socrates.berkeley.edu/~pog/academic/WB_data.xls, which was accessed on 15 August 2007.

differential. Indeed, GR's *equity* differential for the 1994-2004 period is not that different from ours (-2.32% vs. -1.92%).[15]

The most significant difference between our returns and GR returns is that their return on U.S. bonds is several times lower (5.89% vs. 1.89%). This gives rise to GR's 3.36% differential for bonds compared to our 0.19% using the actual portfolios and 0.66% using the original series. The low return on U.S. bonds reported by GR is in part due to the underestimation of income yield, as discussed above, and in part due to the exclusion of corporate bonds from GR's calculation of returns. Higher yielding corporate bonds make up as much as 42% of U.S. long-term debt liabilities (see Table 1 in Dept. of Treasury et al, 2006a), so excluding them will understate returns on U.S. debt liabilities. For example, had we treated all corporate and agency bonds as Treasury bonds, the return on U.S. bond liabilities would have dropped from 5.9 to 5.2% per year. However, the exclusion of corporate bonds explains only small part of the low return on U.S. bonds reported by GR. Even when we consider only Treasury bonds, GR's estimates fall short of standard measures of returns on U.S. bonds. For example, for the 1994-2004 period Ibbotson's *Stocks, Bonds, Bills, and Inflation* reports total returns of 3.9%, 6.0% and 8.1% per year for short-, medium- and long-term Treasury bonds, respectively. This is significantly higher than GR's 1.89% per year.[16]

[15] We believe that the equity differential for the 1973-2004 period in GR is biased upward due to their use of fixed country weights in U.S. foreign equity portfolio. GR use constant country weights as of 1997, although country weights in U.S. investors' equity portfolios can change dramatically over time (Kho, Stulz, and Warnock 2006; Thomas et al. 2006). Applying 1997 weights to their entire 1973-2004 period will naturally overstate returns, as all else equal 1997 weights will tend to be larger in countries that experienced high returns prior to 1997. For example, had we used fixed weights from the end of 2003, the return on U.S. equity claims in Column 1 would have jumped from 9.6 to 11.6% per year. There are also other more minor differences in the calculation of returns on U.S. equity assets. For example, we use information on 38 countries, whereas Gourinchas and Rey use only 12. Also, we use MSCI indices which tend to include the large firms that international investors tend to hold, whereas they use local market indices that tend to be broader than the MSCI.

[16] For the 1973-2004 period, GR report total real return on U.S. bonds of 0.32% per year which implies nominal return of about 4.6% per year, again substantially lower than standard measures of returns on U.S. bonds for that period. Over the same period Ibbotson's *Stocks, Bonds, Bills, and Inflation* reports total returns of 6.2%, 8.3% and 9% per year for short, medium and long term Treasury bonds, respectively. CRSP returns on Treasury securities are 6.7%, 7.7% and 8.8% for bills, notes and bonds, respectively.

One implication of these calculations is that over the period from 1994 to 2005 there is no evidence that U.S. portfolio claims provided substantially higher returns than U.S. portfolio liabilities. A positive returns differential, and the stabilizing influence that it would lend to the global economic system absent a sustained dollar depreciation, is not apparent when one examines actual bond and equity portfolios.

4. Cumulated Current Account Deficits and the Net Foreign Position

There are two empirical stylized facts that reinforce the perception that the U.S. earns a higher return on its claims than on its liabilities. The first is that despite a negative net IIP the U.S. continues to earn positive net investment income, suggesting high *yields* on claims relative to liabilities. This is easily addressed: Our results are completely consistent with a positive income balance, as income yields using the revised and original series are similar in magnitude. In both, a large income differential on direct investment offsets negative payments on bonds and equities.

The second stylized fact that reinforces the perception of a large U.S. returns differential is shown in Figure 3: The cumulative current account deficit (CCA) is much more negative than the net IIP, which suggests high *capital gains* on claims relative to liabilities. This is seemingly at odds with the evidence in Section 2 that the capital gains differential is on average zero. In the rest of this section we reconcile a zero average capital gains differential with the relationship between the net IIP and cumulative current account balances.

4.1 Relationship between the net foreign position and the current account

We can write the net international investment position at time *t* as the initial position plus the cumulative current account and cumulative net capital gains on international investment positions:

$$NIIP_t^R = NIIP_0^R + \sum_{s=1}^{t} CA_t^R + \sum_{s=1}^{t} \left(A_{s-1}^R kg_s^{R,A} - L_{s-1}^R kg_s^{R,L} \right) \qquad (5)$$

where *CA* is the current account, *A* are gross claims, *L* are gross liabilities, kg^A and kg^L are capital gain rates on claims and liabilities.[17] Superscript *R* indicates that all series—including the capital gains rates kg^A and kg^L—are revised.[18] Multiplying the revised capital gains rates by revised positions produces $2.2 trillion of cumulative net capital gains by 2005—exactly the amount needed to close the wedge between the cumulated current accounts and the revised net position in Figure 3.

Some of this wedge can be explained by applying capital gains calculated using original rather than revised series. Multiplying our *original* series capital gains rates by revised positions produces cumulative net capital gains of only $0.7 trillion. These cumulative net capital gains are not zero—even though the *average* capital gain rate differential is zero—because as it happens there were positive differentials when gross positions were large and negative differentials when gross positions were small. Applying negative differentials to small gross positions and positive differentials to larger gross positions can yield positive cumulative net capital gains even if the *average* capital gains differential is zero. That said, we are still left with a puzzle. Capital gains rates calculated using original series suggest that the wedge between the net IIP and cumulated current accounts should be $0.7 trillion, but Figure 3 shows that the gap is far wider at $2.2 trillion. We reconcile this next.

4.2 Role of "other" changes

"Other" changes sound innocuous enough. BEA defines these "other" changes as (i) changes in coverage, (ii) capital gains and losses of direct investment affiliates, and (iii) other adjustments to the value of assets and liabilities. In fact, "other" changes are the primary reason behind the divergence of the net IIP and cumulated current accounts. This is apparent in Figure 3, where a dashed line shows that without "other" changes the net position would be much lower. In

[17] We omit the cumulative net capital account from the right hand side as it is negligible. We also exclude financial derivatives, which BEA started reporting as of end of 2005.

[18] The capital gains rates in equation (5) are exactly what we calculated in Section 2 using the revised series. Note that the revised series capital gains match the pattern of revised net positions and revised current accounts by construction.

fact, without "other" changes the net position would be very close to the CCA plus our original series capital gains. While there are some "other" changes in the original series, they are small and produce cumulative capital gains of only $0.2 trillion. In contrast, in the revised series "other" changes produce $1.4 trillion of cumulative (implied) capital gains. Therefore, if we exclude "other" changes from both revised and original series, net cumulative capital gains are fairly similar ($0.8 trillion for revised series and $0.5 for the original series). Excluding "other" changes, the original capital gains series match the net IIP fairly well.[19]

In our opinion, the cumulative capital gains implied by "other" changes are not capital gains but are in fact just changes in statistical coverage. BEA typically makes "other" changes when results from benchmark surveys disagree with earlier estimates. While the gap between earlier estimates and the benchmark surveys could in principle be due to mismeasured capital gains, mismeasured flows or mismeasured initial positions, our calculations in Section 3 using actual portfolios and market returns suggest that for portfolio investment a substantial portion of these "other" changes should not be attributed to capital gains: The most likely source of "other" changes is mismeasured flows. The $1.4 trillion of "other" changes consists of $1.0 trillion of positive "other" changes made to claims and $-0.4 trillion of negative "other" changes made to liabilities. Positive "other" changes to claims suggest than claims were initially underestimated while negative "other" changes to liabilities suggest that liabilities were initially overestimated. This is consistent with the evidence we presented in Section 2 that U.S. purchases of foreign securities and foreign sales (redemptions) of U.S. securities have been systematically underestimated.[20]

[19] Our original capital gains differential would only have to increase from zero to 0.3% for the original capital gains to exactly match the revised net position.

[20] This point that net portfolio inflows into the United States have been overestimated was made earlier by Warnock and Cleaver (2003). It might appear logical to then conclude that the current account deficit might also be overestimated. But, more precisely, the only conclusion one can make is that another component of the international accounts—perhaps, but not necessarily, the current account itself—is mismeasured.

One might think that one component of "other" changes—capital gains and losses of direct investment affiliates—should indeed be counted as capital gains. We agree. But on net that component contributes very little to cumulative capital gains. The cumulative value of the original "other" changes due to direct investment is $0.1 trillion. The capital gains on direct investment using the revised and original series are nearly identical (about $0.4 trillion). This means that revised "other" changes due to direct investment contribute at most $0.1 trillion to cumulative capital gains. Even that amount is unlikely due to capital gains but rather to reclassification of portfolio investment as direct investment.

In summary, it is true that U.S. net position did not decline by as much as implied by current account deficits. However, this apparent stability of the revised net IIP relative to cumulative current accounts is not because U.S. experienced a high return on its claims relative to liabilities, but rather mostly because of the systematic patterns to revisions in positions without corresponding revisions to flows that we highlighted in Section 2.

5. Conclusion

We argue that existing papers overstate the size of the returns differential between U.S. cross-border claims and liabilities. We show that the bias in existing estimates, which is particularly pronounced for portfolio investment, owes to the practice of calculating implied returns using fully revised positions data and partially revised flows data. Returns calculated using original series do not suffer from this bias and using these we find a significantly lower aggregate differential that is almost entirely driven by direct investment. To be clear, we do not claim that BEA revision policies are flawed—the U.S. capital flows data are in some sense not revisable and, in the case of asset-backed prepayments, do not capture all changes in positions other than those associated with market movements—but rather that the practice of using a combination of fully and partially revised data produces estimates of implied capital gains that are biased in explainable ways.

Our results have important implications for current global imbalances. In theoretical models (e.g., Cavallo and Tille 2006), a positive returns differential would decrease the likelihood of a disorderly adjustment in the U.S. current account and the dollar. Our finding of a relatively small returns differential between U.S. claims and liabilities means that one stabilizing aspect of the current international economic system is less evident than previously thought. Moreover, a differential that is due to a high yield on U.S. direct investment abroad—which, according to Gros (2006) and Bosworth et al. (2007) is due to tax shifting—has different implications than a differential that is due to liquidity discount on U.S. portfolio investment. That U.S. issuers of portfolio securities enjoy a significant discount is simply not apparent in the data.

Our results also have implications for theoretical work, which has recently been influenced by the presumption of a sizeable and persistent returns differential. For example, the returns differential figures prominently in the models of Mendoza, Quadrini and Rios-Rull (2006), Ghironi, Lee, and Rebucci (2006), Devereux and Saito (2006), and Obstfeld and Rogoff (2005). In the model of Tille and van Wincoop (2007), a persistent returns differential is shown not to have an important role and the authors sound almost apologetic in noting that their "model can therefore not account for empirical findings by Gourinchas and Rey (2007b) that net external debt is to some extent financed by differences in expected returns" (Tille and van Wincoop 2007, page 31). Our findings suggest that while it might be desirable for theoretical models to allow for returns differentials, the assumption of persistent and sizeable differentials in asset classes other than direct investment is on shaky footing.

Finally, our results raise the point that various theories concerning the sustainability of large U.S. current account deficits hinge on different views of the relative reliability of the many components of the international accounts. For example, we showed that implicit in the view that sizeable returns differentials exist and can keep the current situation from unwinding in a malign manner is the belief that the IIP and the financial account are accurately measured and form a consistent dataset. Similarly, the "dark matter" view of Hausmann and Sturzennegger (2006) also

hinges on a view of the relative reliability of components of the international accounts, in particular that income streams in the BOP presentation are more accurate than measures of service exports. While it not entirely clear that that assumption is valid, if one is willing to make it then it follows that service exports are underestimated and U.S. current account deficits are overestimated. Further study on the relative reliability of various components of the international accounts is necessary to shed light on these and other theories of current account sustainability.

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Table I

Returns and returns differentials using BEA's revised and original series, 1990 – 2005

Total return is the sum of yield and capital gains. All returns are expressed in percent per year. Yield is investment income divided by previous year position. Capital gains is the difference between end of the year position, corresponding flows and previous year position, all divided by previous year position. The revised series use all positions as reported in the July 2007 release of U.S. international positions (BEA Table 2). Revised flows are from July 2007 release of balance of payments (BEA Tables 1, 7a and 7b). Revised income is from the 2007 issue of IMF's *Balance of Payments Yearbook*. Original series use positions and flows from the original BEA releases of international positions published in each year's June or July issue of the *Survey of Current Business* (Table 1). Original income is from each year's issue of the IMF's *Balance of Payments Yearbook*.

	Revised Series			Original Series		
	Claims	Liab.	Diff	Claims	Liab.	Diff
Aggregate						
Total Return	**9.4**	**6.0**	**3.4**	**7.4**	**6.4**	**1.0**
Yield	5.2	4.0	1.2	5.0	4.1	0.9
Capital Gains	4.2	2.0	2.2	2.4	2.4	0.0
Direct Investment						
Total Return	**11.1**	**7.3**	**3.8**	**10.4**	**7.9**	**2.5**
Yield	7.2	2.3	4.9	6.9	2.4	4.5
Capital Gains	3.9	5.1	-1.2	3.6	5.5	-1.9
Bonds						
Total Return	**12.7**	**4.5**	**8.2**	**8.3**	**6.7**	**1.6**
Yield	7.3	5.9	1.4	7.6	6.2	1.4
Capital Gains	5.4	-1.4	6.8	0.7	0.5	0.2
Equities						
Total Return	**15.8**	**13.7**	**2.1**	**10.2**	**12.1**	**-1.9**
Yield	2.7	2.4	0.3	2.5	2.2	0.3
Capital Gains	13.1	11.3	1.8	7.7	9.9	-2.2
Other						
Total Return	**5.2**	**4.5**	**0.7**	**4.3**	**4.0**	**0.3**
Yield	4.4	4.4	0.0	4.0	4.2	-0.2
Capital Gains	0.8	0.1	0.7	0.2	-0.2	0.4

Table II

Returns and returns differentials using BEA's revised and original series, 1984 – 2005

Total return is the sum of yield and capital gains. All returns are expressed in percent per year. Yield is investment income divided by previous year position. Capital gains is the difference between end of the year position, corresponding flows and previous year position, all divided by previous year position. The revised series use all positions as reported in the July 2007 release of U.S. international positions (BEA Table 2). Revised flows are from July 2007 release of balance of payments (BEA Tables 1, 7a and 7b). Revised income is from the 2007 issue of IMF's *Balance of Payments Yearbook*. Original series use positions and flows from the original BEA releases of international positions published in each year's June or July issue of the *Survey of Current Business* (Table 1). Original income is from each year's issue of the IMF's *Balance of Payments Yearbook*.

	Revised Series			Original Series		
	Claims	Liab.	Diff	Claims	Liab.	Diff
Bonds						
Total Return	**14.0**	**6.9**	**7.1**	**9.9**	**8.2**	**1.7**
Yield	8.4	7.1	1.3	8.6	7.4	1.2
Capital Gains	5.6	-0.2	6.8	1.2	0.8	0.4
Equities						
Total Return	**23.2**	**14.4**	**8.8**	**12.8**	**13.1**	**-0.3**
Yield	3.6	2.5	1.1	2.5	2.2	0.3
Capital Gains	19.6	11.8	7.8	10.3	10.9	-0.6

Table III

Pattern of revisions in BEA's international investment positions

Revisions to end-of-year positions is the difference between the revised position as reported by BEA as of July 2007 and the end-of-year position as reported in the right-most column of Table 1 of each original release of international investment position. Revisions to beginning-of-year positions gains are defined analogously. Revisions to flows is the difference between flows reported in the July 2007 vintage of the balance of payments and the original flows reported in Column (a) of Table 1 in each original release of international investment position. Revisions to implied capital gains is the difference between capital gains implied by the revised data (change in position minus corresponding flows) and the capital gains plus other changes (Columns b, c and d of Table 1) as reported in each original release of international investment position. All differences are expressed as percent of the original beginning-of-year position. Averages from 1990 through 2005 are reported.

	Revisions to			
	End-of-year Positions	Beginning-of-year Positions	Flows	Implied Capital Gains
Claims				
Aggregate	**10.3**	**7.4**	**1.0**	**2.0**
Direct Investment	4.4	3.1	0.9	0.5
Bonds	24.6	14.9	3.6	6.1
Equities	46.3	34.6	1.2	10.5
Other	5.4	4.5	0.4	0.5
Liabilities				
Aggregate	**1.4**	**1.2**	**0.6**	**-0.4**
Direct Investment	0.6	-0.2	1.2	-0.5
Bonds	-8.4	-5.6	-1.0	-1.8
Equities	4.8	2.8	-0.0	2.0
Other	10.4	8.2	1.9	0.3

Table IV
Characteristics of U.S. foreign claims and liabilities

Equity weight in U.S. claims is the share of foreign equities in U.S. investors' foreign bond and equities portfolio. Equity weight in U.S. liabilities is the share of U.S. equities in foreign investors' U.S. bond and equities portfolio. Returns on U.S. equities are the monthly simple returns on the U.S. MSCI gross return equity index. Returns on U.S. bonds are foreign-portfolio-weighted averages of Lehman Brothers Treasury, Corporate and Agency bond indices. Returns on foreign equities are U.S.-portfolio-weighted averages of each country's simple monthly dollar return on its MSCI gross return equity index. Returns on foreign bonds are U.S.-portfolio-weighted averages of each country's bond returns. Developed countries' bond returns are the weighted averages of simple monthly U.S. dollar returns on the country's MSCI bond index and the MSCI Eurodollar Credit index where the weights on the Eurodollar index are the shares of dollar denominated bonds in U.S. holdings of foreign bonds. Emerging markets' bond returns are simple monthly returns on the EMBI+ U.S. dollar index. All data are from January 1994 through December 2005, unless otherwise noted in Appendix Table AII.

	Mean	Median	St.Dev.	Min	Max
Panel A: Equity Weight in U.S. Claims (%)					
All Countries	70.8	71.1	3.8	62.7	78.3
Developed Countries	72.3	72.7	4.5	62.1	81.1
Emerging Markets	60.2	60.6	6.7	44.9	75.9
Panel B: Equity Weight in U.S. Liabilities (%)					
All Countries	41.7	39.4	5.9	33.9	54.4
Developed Countries	45.8	42.8	6.0	39.0	59.1
Emerging Markets	9.0	9.4	2.8	4.0	14.5
Panel C: Equity Returns (% annualized monthly returns)					
Return on U.S. Equities	11.88	14.92	65.85	-83.41	213.30
Return on Foreign Equities					
All Countries	9.59	14.97	66.13	-85.35	239.62
Developed Countries	9.99	14.44	63.25	-81.21	232.84
Emerging Markets	10.68	25.75	136.40	-99.13	519.15
Panel D: Bond Returns (% annualized monthly returns)					
Return on U.S. Bonds					
By All Countries	5.89	3.19	11.64	-28.61	41.86
By Developed Countries	5.97	3.30	12.07	-30.17	42.79
By Emerging Markets	5.55	2.75	9.96	-22.70	34.52
Return on Foreign Bonds					
All Countries	6.08	5.61	21.27	-43.46	90.73
Developed Countries	7.02	5.56	21.05	-35.26	82.67
Emerging Markets	2.39	13.16	56.41	-95.53	175.80

Table V

Returns on U.S. claims and liabilities using various data sources

The first column shows annualized average monthly returns from January 1994 through December 2005 using actual portfolio weights and market returns described in Section 3.1. The second and third columns show average annual returns from 1994 through 2005 using BEA original and revised series, respectively, calculated using equations (1) and (2). The fourth column shows average annualized quarterly returns using Gourinchas and Rey (2007a) data from 1994 through 2004. Their *real* returns were converted to *nominal* using consumer price expenditure deflator.

	Actual Portfolios (1994-2005)	BEA original (1994-2005)	BEA revised (1994-2005)	Gourinchas and Rey (1994-2004)	Gourinchas and Rey (1973-2004)
Equity					
Claims	9.56	9.73	13.57	12.32	19.84
Liabilities	11.88	12.50	14.53	14.24	13.73
Differential	-2.32	-2.77	-0.96	-1.92	6.11
Bonds					
Claims	6.08	6.47	10.69	5.25	8.35
Liabilities	5.89	5.81	3.97	1.89	4.62
Differential	0.19	0.66	6.72	3.36	3.73

Figure 1
Revisions to Net Positions and Net Financial Flows

This figure depicts the net international investment position (solid lines), calculated as U.S. positions abroad less foreigners' positions in the United States, and net financial outflows (dashed lines), calculated as U.S. flows abroad less foreign flows into the United States. For both, thick lines denote the current vintage of revised data and thin lines denote the original 'as released' data. All data are in billions of US dollars.

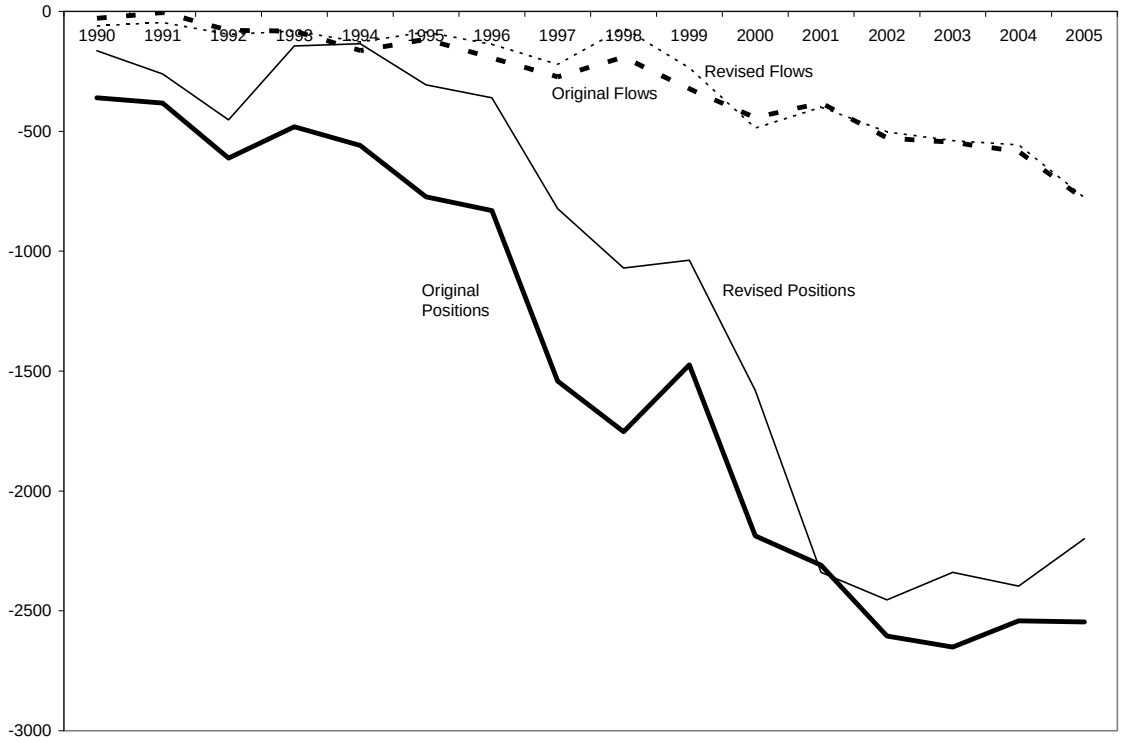

Figure 2
Revisions to U.S. Positions in Foreign Bonds and Equities

The figure depicts the percentage revision to the initial estimate of U.S. positions in foreign bonds and foreign equities as reported in BEA's International Investment Position presentation.

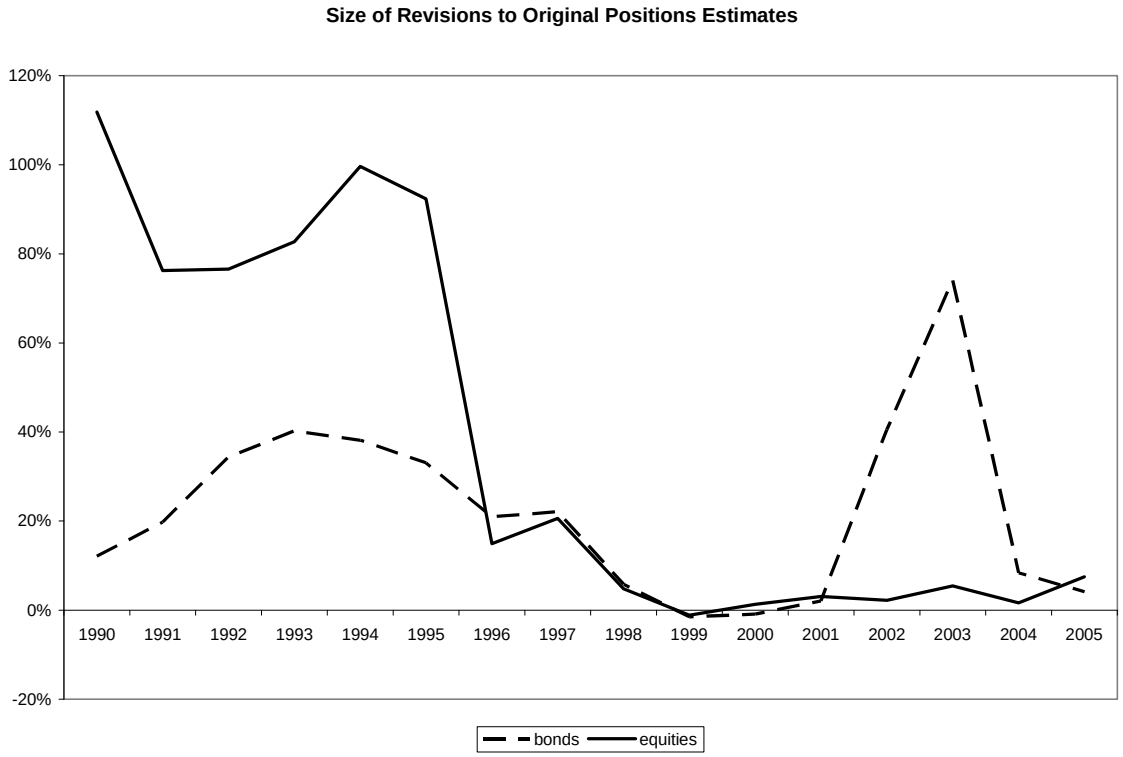

Figure 3
Net International Investment Position Estimates

"Revised net position" is the revised net investment positions published by BEA as of July 2007. By construction, the series equals the revised net position in 1989 plus revised cumulative current account balance plus cumulative revised capital gains. "Revised net position without 'other'" is the revised net position excluding revised "other" changes as published in BEA's International Investment Position Table 3. "Net position implied by original capital gains" is the revised net position in 1989 plus revised cumulative current account balance plus cumulative original capital gains. The original capital gains are calculated by applying original capital gains rates from Section 2 to revised gross positions. "Cumulative current account" is the revised net position in 1989 plus the revised cumulative current account balance.

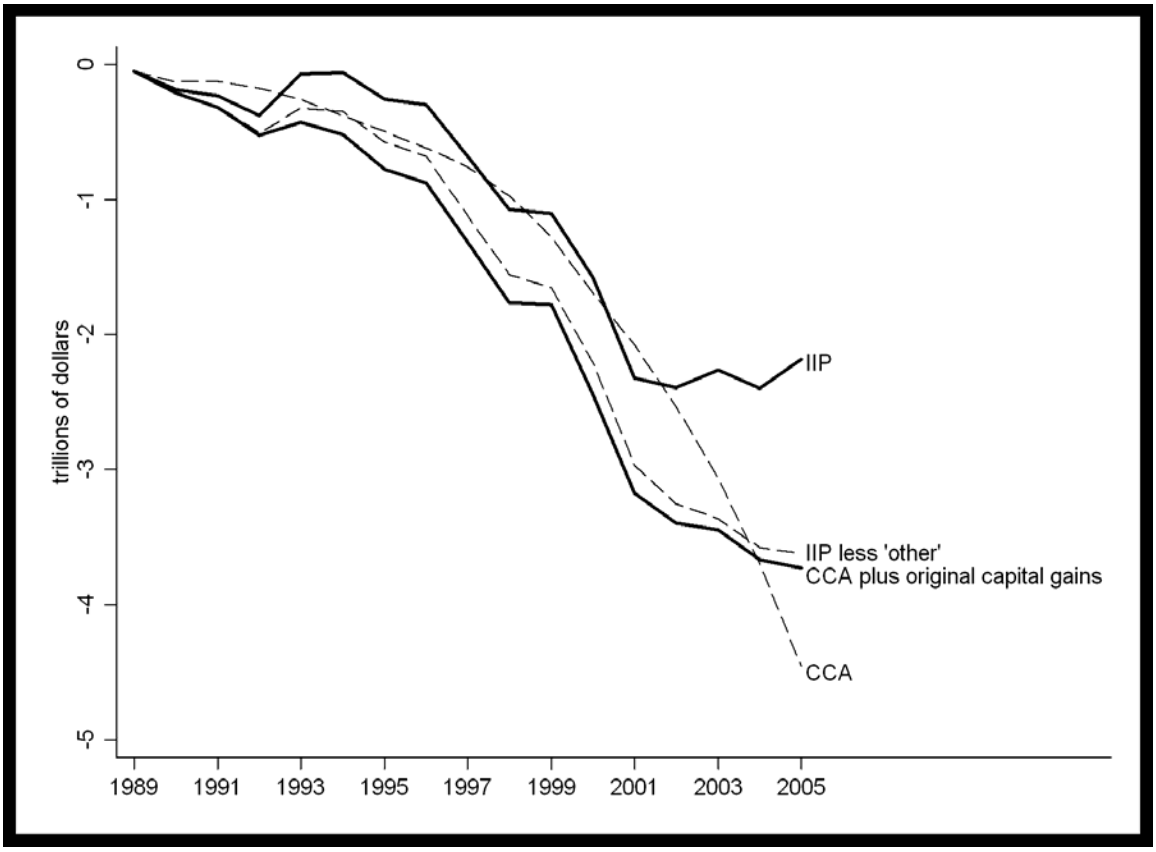

Table A.I: Data sources for revised positions, flows and income

Table and line numbers are as of August 2007 and may have differed in previous years. In Panel A, Table 2 is from the International Investment Position section of BEA's website. In Panel B, table numbers refer to tables from the International Transactions Accounts, Detailed Estimates section of BEA's website. In Panel C, IMF codes refer to codes from the IMF's *Balance of Payments Statistics Yearbook.*

Panel A: Positions		
	Claims	Liabilities
Aggregate	Table 2, lines 6-18+43	Table 2, lines 26-35+44
Direct Investment	Table 2, line 43	Table 2, line 44
Stocks	Table 2, line 21	Table 2, lines 39+0.5*33
Bonds	Table 2, line 20	Table 2, lines 28+36+38+0.5*33
Other	Table 2, lines 7+12+22+23	Table 2, lines 31+32+40+41+42
Panel B: Flows		
	Claims	Liabilities
Aggregate	Table 1, line 40	Table 1, line 55
Direct Investment	Table 1, line 51	Table 1, line 64
Stocks	'90-'98: Table 7b, line A2 '99-'05: Table 7a, line A4	'90-'98: Table 7b, line B2+M4 '99-'05: Table 7a, line B4+M4
Bonds	'90-'98: Table 7b, line A13 '99-'05: Table 7a, line A18	Table 1, line 57+62+65+66 minus stocks
Other	Table 1, line 40 minus direct investment, stocks and bonds	Table 1, line 60+61+67+68+69
Panel C: Income		
	Claims	Liabilities
Aggregate	Table 1, line 13	Table 1, line 30
Direct Investment	Table 1, line 14	Table 1, line 31
Stocks	IMF Code 2340	IMF Code 3340
Bonds	IMF Code 2350	IMF Code 3350
Other	Table 1, line 13 minus direct investment, stocks and bonds	Table 1, line 30 minus direct investment, stocks and bonds

Table A.II: Country composition of U.S. portfolio of foreign equity and foreign bonds

Country's weight in U.S. equity (bond) portfolio is the U.S. equity (bond) position in the country divided by the total U.S. equity (bond) position in all 38 countries included in the sample. Country's equity return is the average of simple monthly returns on MSCI gross U.S. dollar total return index expressed in percent. Developed countries' bond returns are the weighted averages of simple monthly U.S. dollar returns on the country's MSCI bond index and the MSCI Eurodollar Credit index where the weights on the Eurodollar index are the shares of dollar denominated bonds in U.S. holdings of foreign bonds. Emerging markets' bond returns are simple monthly returns on the EMBI+ U.S. dollar index. The time period is from January 1994 through December 2005 unless otherwise noted in the last column.

Country	Country's Avg. Weight in U.S. Equity Portfolio	Country's Avg. Equity Return	Country's Avg. Weight in U.S. Bond Portfolio	Country's Avg. Bond Return	Country Included from
Australia	0.030	1.076	0.037	0.567	Jan '94
Austria	0.003	0.939	0.005	0.598	Jan '94
Belgiumlux	0.010	1.078	0.022	0.597	Jan '94
Canada	0.071	1.225	0.227	0.574	Jan '94
Denmark	0.006	1.239	0.016	0.649	Jan '94
Finland	0.023	2.023	0.009	0.600	Jan '94
France	0.076	0.964	0.049	0.573	Jan '94
Germany	0.056	0.896	0.092	0.565	Jan '94
Greece	0.002	1.346	0.003	0.720	Jun '97
Ireland	0.013	0.971	0.010	0.651	Jan '94
Italy	0.029	1.165	0.036	0.750	Jan '94
Japan	0.158	0.329	0.072	0.262	Jan '94
Netherlands	0.081	0.969	0.051	0.565	Jan '94
Norway	0.007	1.226	0.010	0.639	Jan '94
Portugal	0.003	0.923	0.002	0.701	Jan '94
Spain	0.024	1.343	0.018	0.689	Jan '94
Sweden	0.026	1.505	0.025	0.698	Jan '94
Switzerland	0.055	1.055	0.002	0.544	Jan '94
U. K.	0.213	0.813	0.136	0.618	Jan '94
Argentina	0.006	1.112	0.029	-0.347	Jan '94
Brazil	0.018	1.966	0.027	0.622	Jan '94
Chile	0.003	0.965	0.010	0.223	Jun '99
China	0.003	-0.086	0.004	0.152	Apr '94
Colombia	0.000	1.857	0.006	0.209	Mar '97
Hungary	0.002	2.225	0.001	-0.019	Feb '99
India	0.006	0.994	0.001	0.095	Mar '96
Korea	0.019	1.458	0.015	0.057	Jan '94
Malaysia	0.007	0.333	0.007	0.148	Nov '96
Mexico	0.026	1.202	0.050	0.225	Jan '94
Morocco	0.000	0.980	0.001	0.332	Jan '95
Peru	0.001	1.618	0.002	0.994	Jan '94
Philippine	0.003	-0.127	0.006	0.213	Jan '94
Poland	0.001	1.063	0.003	0.467	Jan '94
Russia	0.004	3.406	0.007	1.393	Jan '95
South Africa	0.009	1.267	0.004	0.248	Jun '94
Thailand	0.005	0.331	0.004	0.130	Jun '97
Turkey	0.002	2.167	0.003	0.355	Jul '96
Venezuela	0.001	1.319	0.010	0.632	Jan '94