

Here's What's the Matter with "Dark Matter"

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Ricardo Hausmann and Federico Sturzenegger (H&S) argue that the reported \$2.5 trillion U.S. net international liability position is a statistical mirage.¹ Their analysis is based on the observation that U.S. net income on its international portfolio remains positive. In fact, the U.S. income balance in 2004, at \$36 billion, was slightly above the average for the period since 1990—this despite a 15-fold increase reported net liabilities. The authors' argument in a nutshell: Positive net income receipts should, properly measured, correspond to a positive net international investment position.

What's been improperly (or at least misleadingly) measured, H&S contend, is the value of U.S. FDI assets abroad. U.S. companies have long reported substantially higher profits on their foreign operations than have foreign companies operating in the U.S. If the value of U.S. FDI assets were calculated by capitalizing the value of the profit streams they generate, the argument goes, the U.S. net liability position would disappear. The authors trace the missing FDI assets to exports of "dark matter": U.S. know-how, brand recognition and expertise that boost the FDI profit stream but, we are told, are not captured in the official estimates of FDI asset values.

This view of the world has far-reaching implications. If the U.S. net international investment position has remained positive and relatively stable for the past 15 years, the U.S. current account deficits recorded over the period must also be a statistical mirage. The need for U.S. and global current account adjustment going forward would be reduced or even obviated. Policymakers and market participants could relax.

We have explained [elsewhere](#) why the U.S. net investment income balance should soon enough fall below zero, and become steadily more negative after that; and thus, at least by implication, why we think H&S are mistaken. However, press and market attention to the dark matter hypothesis has been widespread enough (see [here](#), [here](#), and [here](#)) to make a more focused critique of it appropriate. We find that the dark matter hypothesis has no substantive implications for the evolution of the U.S. net income balance or for U.S. and global current account adjustment. And ironically, applying H&S's methodology to both sides of the U.S. external balance sheet, U.S. assets are worth *less than* the reported value. Evidently, they contain "dark antimatter." U.S. external liabilities contain even more dark antimatter.

Dark matter: There's no there there. U.S. income receipts on foreign assets came to \$376 billion in 2004, while assets at end-2003 were valued at \$8.3 trillion, for a rate of return of 4.5 percent.² FDI accounted for \$233 billion in income receipts, on an asset base of \$2.7 trillion, for a rate of return of 8.6 percent (chart, next page). Non-FDI assets yielded receipts of \$143 billion on an asset base of \$6.1 trillion., for a rate of return of just 2.6 percent.

One point is clear by inspection. How U.S. foreign assets are valued has no implications for the income flows associated with them. If we conclude that U.S. FDI assets were "really" worth \$5 trillion rather than \$2.7 trillion, we must also conclude that the rate of return on U.S. FDI was "really" 4.7 percent rather than 8.6 percent. And notably, H&S have no beef with the FDI income data.

The same point holds for future FDI investments and income flows. If we believe that DubaiDisney, although requiring an initial investment of only \$1 billion, actually generates a business line worth \$2 billion, we may decide to value it at \$2 billion. But future income receipts will be the same; the measured rate of return on Dubai Disney will simply be half as high as if it had been valued it at \$1 billion.

¹ See [U.S. and Global Imbalances: Can Dark Matter Prevent a Big Bang?](#), Harvard University Center for International Development working paper.

² We rely on income receipts during the current year and asset values at the end of the previous year to calculate rates of return. In fact, some assets acquired over the course of a year will generate receipts in the same year.

Since the dark matter hypothesis sheds no light on current or future investment income flows, it has no implications for the evolution of U.S. and global imbalances. Only asset reappraisals actually *due to* changes in expected future income receipts would carry any such implications.

An interesting burden. The growing U.S. current account deficit has been financed largely by growing foreign purchases of U.S. government and corporate bonds other interest-paying assets (chart). Indeed, net inflows into interest-paying assets have sometimes exceeded the deficit, due to recycling of debt inflows back out into foreign equities and especially FDI. In effect, the U.S. has been taking advantage of its ability

to borrow cheaply in international capital markets to extend its long position in riskier but higher-yielding assets.³

Suppose that the U.S. current account deficit remains near its current level, at close to 6.5 percent of GDP. Could ongoing U.S. investments in high-yielding assets prevent the net income balance from falling below zero?

The answer is simple: No.

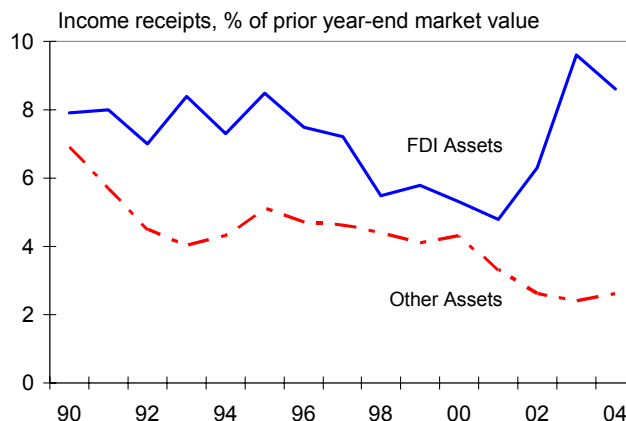
With interest rates at 4.5 percent, each year of debt-financed current account deficits at 6.5 percent of GDP subtracts roughly 0.3 percent of GDP from the net-income balance (\$37 billion with GDP at its 2005 value).

Now suppose U.S. borrowing exceeds the current account deficit going forward, to finance additional outbound FDI. In particular, suppose that U.S. parents can borrow at 4.5 percent, but earn a rate of return of 8.5 percent. Simple arithmetic shows that outbound FDI would have to climb to nearly 7.5 percent of GDP (\$925 billion today) to stabilize the net income balance.

Outbound FDI has averaged 1.3 percent of GDP since 1990, with a top value of 2.4 percent of GDP in 1999. And it is doubtful that recent high returns on U.S. FDI could be maintained were the pace of new FDI investments ramped up dramatically.

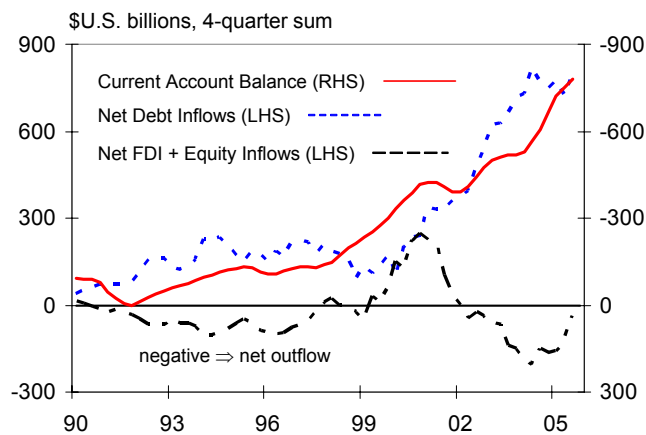
Looking back, it's clear that only the sharp fall in U.S. and foreign interest rates has prevented the U.S. net income balance from falling below zero already. Indeed, had U.S. and foreign interest rates remained at their 2000 values, the U.S. net income balance would have been reduced by \$84 billion in 2004, pushing it almost \$50 billion into the red. The recent boom in U.S. FDI earnings has also helped mask the underlying forces driving the net income balance toward deficit. But only for so long. U.S. net income

Returns on U.S. Foreign Assets



Source: Bureau of Economic Analysis

U.S. Balance of Payments



Source: Bureau of Economic Analysis, U.S. Treasury

³ See Pierre-Olivier Gourinchas and Hélène Rey (2005), [From World Banker to World Venture Capitalist: U.S. External Adjustment and the Exorbitant Privilege](#), NBER Working Paper no. 11563.

receipts have run at an annual rate of just \$5 billion for the first three quarters of 2005, reflecting the relatively modest increase in interest rates seen thus far.

Dark matter or dark antimatter? It is of course desirable to have accurate estimates of the value of U.S. external assets and liabilities. Are H&S correct in thinking that U.S. external assets are worth much more than reflected in official estimates?

Consider H&S's valuation procedure. The authors construct their estimate of U.S. dark matter assets abroad by applying a 5 percent discount factor to the U.S. net income balance. Since the U.S. net income balance has hovered around \$30 billion since 1990, they conclude that the U.S. net external assets have remained essentially stable, in the neighborhood of \$600 billion.⁴ With the U.S. net liabilities now officially at \$2.5 trillion, this implies that the U.S. must have upwards of \$3 trillion in unmeasured dark matter assets.

The authors' use of the *net income* balance to estimate dark matter *assets* is curious. Better to apply the chosen discount factor directly to the income generated by U.S. gross asset holdings.

Since U.S. external assets generated \$376 billion in income receipts in 2004, the H&S procedure implies that they are worth \$7.5 trillion, \$2.5 trillion *less than* the official estimate. Evidently, U.S. external assets contain "dark antimatter" rather than dark matter. A breakdown by asset class would show that all the dark antimatter resided in U.S. non-FDI assets.

Foreign assets in the U.S. contain even more dark antimatter. Since they generated \$340 billion in income in 2004, the H&S procedure would value them at \$6.8 trillion. Since foreign assets in the U.S. are officially valued at \$12.5 trillion, they must contain \$5.7 trillion in dark antimatter. A breakdown by asset class would find most of the dark antimatter in non-FDI holdings, but some in FDI.

In our view, that the H&S valuation procedure implies the presence of large amounts of dark antimatter in U.S. non-FDI assets and liabilities amounts to a *prima facie* case against it. After all, non-FDI assets should be relatively straightforward to value. As the BEA notes in the latest U.S. [International Investment Position](#) report:

Virtually all the categories in the international investment position accounts except direct investment positions can be directly estimated with reference to readily observable market prices. For example, the value of positions in portfolio investment securities, gold, loans, currencies, and bank deposits can be directly estimated based on face values or market prices of recent transactions.

In short, official estimates of U.S. non-FDI assets and liabilities are based on the radical premise that they should be valued at ... *what it would currently cost to buy them*.

Valuing FDI assets and liabilities involves greater complexities. The BEA statisticians are hardly innocent of them. The IIP report continues:

Direct investment positions typically involve illiquid ownership investments in companies that may possess many unique attributes—such as customer base, management, and ownership of intangible assets—whose value in the current period may be difficult to determine, because there is no widely accepted standard for revaluing company financial statements at historical cost prices into prices in the current period.

⁴ This valuation procedure treats the U.S. international portfolio as a consol returning \$30 billion in perpetuity. H&S justify it by pointing to the rough stability of net income receipts through 2004.

At present, The BEA IIP accounts rely on two methods for valuing FDI assets and liabilities. The first values them at *current cost*. Under this method, tangible assets are valued at replacement cost rather than at historical cost or book value. The second method seeks to record FDI assets and liabilities at *market value*.⁵ Under this method, the value of parents' equity stakes in their foreign affiliates is adjusted to match changes in local equity prices indices. The market value method will go astray when local stock market prices do not provide a good proxy for the value of parents' equity stakes.

As long ago as the early 1990s, the BEA studied the possibility of relying on capitalization of income receipts and payouts using a common discount factor to value U.S. FDI assets and liabilities—the method H&S espouse.⁶ Such a procedure was not adopted, possibly because cyclical swings in profitability would induce implausibly large swings in imputed asset valuations.

A variant of this approach would be to apply local market P/E ratios to FDI earnings streams. This would result in less volatile imputed asset valuations: After all, P/E ratios tend to be high at cyclical earnings troughs. The working assumption would be that affiliates in a country and local counterparts should be valued at the same price multiple.⁷ This amounts to assuming that they have similar earnings growth and risk characteristics.

To see what this approach might yield, we apply a weighted-average of foreign P/E ratios to U.S. FDI receipts in 2004, and the U.S. ratio to U.S. FDI payments.⁸ The foreign P/E ratio was roughly 16 at end-2004, while the U.S. P/E ratio was roughly 20. With U.S. FDI earnings at \$233 billion, the imputed value of FDI assets is \$3.7 trillion, vs. \$3.3 trillion at BEA market value. Perhaps there is some dark matter in U.S. FDI assets after all. And with U.S. FDI payouts at \$105 billion, the imputed value of FDI liabilities is \$2.1 trillion, vs. \$2.7 trillion at BEA market value.

At these FDI valuations, the overall U.S. net liability position would then be \$1.5 trillion, well below the official estimate of \$2.5 trillion. However, given the irreducible difficulties in valuing FDI we would make no strong claims that that this figure is more accurate than the official estimate. Moreover, as we've already explained, changes in estimated asset values imply equal and opposite changes in estimated rates of return. How much U.S. FDI assets and liabilities are “really” worth has no implications for future net income flows, or for U.S. and global current account adjustment.

⁵ The rate of return figures reported here have been for FDI at market value. And end-2004, FDI at market value was considerably higher than FDI at current cost, at \$3.3 vs. \$2.4 trillion.

⁶ See J. Steven Landefeld and Ann Lawson, “Valuation of the U.S. Net International Investment Position,” *Survey of Current Business* 71 (May 1991), pp. 40-49.

⁷ One could argue that foreign affiliates should trade at a lower multiple than local equities, to reflect the illiquid nature of parents' investments. Also, one could argue that affiliates are likely to more similar to their parents than to local companies. If so, parent rather than local market P/E ratios would provide the better valuation proxy.

⁸ The foreign weighted average is based on distribution of U.S. FDI earnings across European, Canadian, Japanese, other Asian, and Latin markets. The P/E ratios are taken from DataStream total market indexes.