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U.S. AND GLOBAL IMBALANCES: CAN DARK MATTER PREVENT A BIG BANG?

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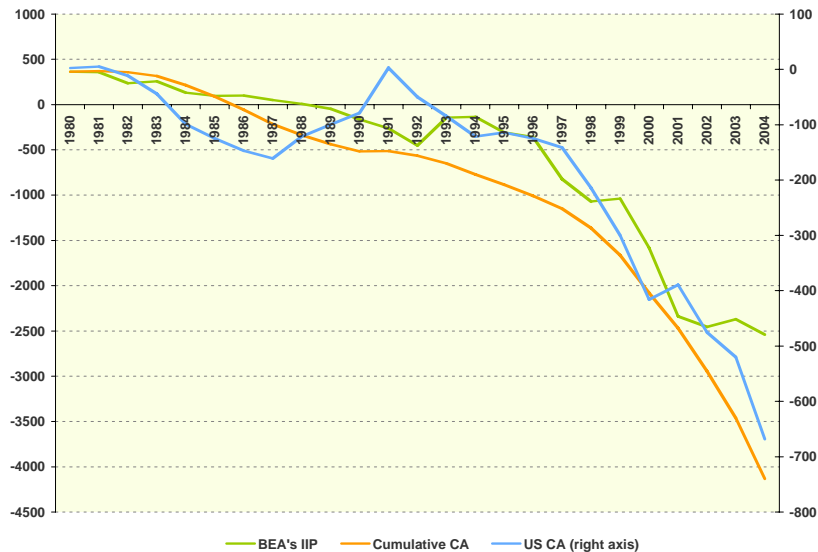
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November 13, 2005

Over the last couple of years the bludgeoning of the US current account deficit, currently ticking at over 700 billion dollars a year in 2005 alone, has led to significant concerns about the future of the US and the possibility of a major global crisis. It comes after 27 years of unbroken deficits which have totaled over 5 trillion dollars. Once the massive financing required to keep on paying for such a widening gap dries up, perhaps because foreigners become satiated of owning such a large and rapidly growing amount of American debt, there will be an ugly adjustment in the world economy. The dollar will collapse, triggering a stampede away from American debt, interest rates will shoot up and a sharp global recession will ensue. Martin Wolf calls this situation an “unsustainable *black hole*” and points that “The

U.S. is now on the comfortable path to ruin”. Maurice Obstfeld and Kenneth Rogoff (2005) remark that “any sober policymaker or financial market analyst ought to regard the US current account deficit as a sword of Damocles hanging over the global economy”, or more dramatically, as stated by Nouriel Roubini and Brad Setser (2005) “The current account deficit will continue to grow on the back of higher and higher payments on U.S. foreign debt even if the trade deficit stabilizes. That is why sustained trade deficits will set off the kind of explosive debt dynamics that lead to financial crises”. Figure 1 highlights the large and growing yearly and cumulative current account deficit of the US over the last 25 years which has made the US the largest net debtor in the world.

Figure 1. The US Current Account and it's International Investment Position (in billions of US dollars)



Source: BEA

But wait a minute. If this is such an open and shut case, why has there been no crisis yet? Why is the world willing to lend continuously to the US and to do so at such low interest rates? Why do markets not react to the wisdom that is being so generously given to them? One possibility it that the March of Folly is an inevitable feature of human hubris and it is the role of the dismal scientist to act as a modern-day Jeremiah. Or maybe, there is something seriously wrong about this worldview.

Let's look at some more facts. The Bureau of Economic Analysis (BEA) indicates that in 1980 the US had about 365 billion dollars of net foreign assets (that is the difference between the foreign assets owned abroad and the local assets owned by foreigners). These assets rendered a net return of about 30 billion dollars. Between 1980 and 2004, the US accumulated a current account deficit of 4.5 trillion dollars. You would expect the net foreign assets of the US to fall by that amount, to say, *minus* 4.1 trillion. If it paid 5 percent on

that debt, the net return on its financial position should have moved from a surplus of 30 billion in 1982 to *minus* 210 billion dollars a year in 2004. Right? After all, debtors need to service their debt.

So let's look at how much is the actual return on the US net financial position. The number for 2004 is, yes, you've guessed it, still a *positive* 30 billion, just like in 1982! The US has spent 4.5 trillion dollars more than it has earned (which is what the cumulative current account deficit implies) for free!

How could this be? Here the official story becomes murky. Part of the answer is that the US benefited from about 1.6 trillion dollars of net capital gains so that instead of owing 4.1 trillion, it owes "only" 2.5 trillion (which, at best, cuts the puzzle in half, leaving a whole other half to be explained). The other part of the official answer is that the US earns a higher return on its holdings of foreign assets than it pays to foreigners on its liabilities.

Both explanations are clear as mud. Where did those large capital gains come from? Are they here today and gone tomorrow? Why are US investors abroad so much smarter than foreign investors in the US? After all, are global portfolio investors not free to buy any assets they want? Why would foreigners consistently pick worse assets than American investors? Finally, isn't there something misleading about calling a country that makes money on its financial position the world's largest debtor?

Our view is that this is just a confusion caused by an unnatural set of accounting rules. All accounting systems are consistent but arbitrary. They all describe the same reality: measuring the temperature of the air in degrees centigrade does not make the world colder than if measured in Fahrenheit. But not all systems are equally transparent. If you choose to describe the orbit of the planets assuming that they circle the Earth and not the Sun as Ptolemy did, you will have to include a bunch of arbitrary epicycles to make the system fit the facts.

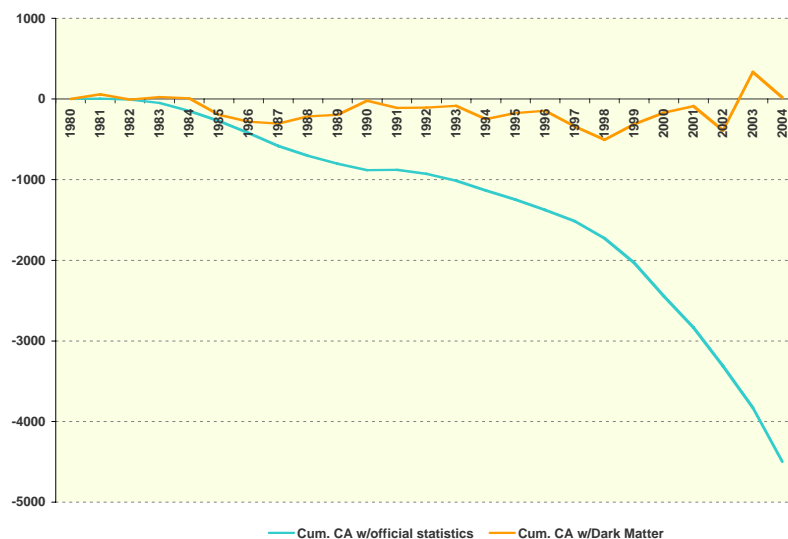
Thus, we propose a different way of describing the facts. We start by assuming that if an asset consistently pays more than another asset, then it is worth more, even if they both have the same historical cost or "book value". We choose to value the assets on the basis of their returns. This is just like valuing a company by calculating its earnings and multiplying by some price-earnings ratio, or valuing a property based on its rental value. For an individual company, the earnings of any given year may give us an unreliable measure of its true earning potential, but if we average over an economy as large and diversified as the US and look at trends over a couple of years, this simple methodology delivers reasonable results. Of course, this opens the question as to what exactly this price earning ratio should be. We could use the rate the US pays on its liabilities, the US Treasury bill rate or just an arbitrary fixed rate, or alternatively your age divided by

1000. All would deliver a similar story. In what follows, we just take an arbitrary 5% rate, which implies a price-earnings ratio of 20.

So let's get to work. We know that the US net income on its financial portfolio is 30 billion dollars. This is a 5 percent return on an asset of 600 billion dollars. So we would say that the US is a net creditor to the tune of 600 billion dollars or about 5 percent of its GDP. Since the income flow has remained fairly stable over the last 25 years, we would say that so have the US net foreign assets.

Now, in principle, countries cover their current account deficit by either running down their assets or accumulating liabilities. In either case, they run down their net asset position. This is what makes analysts worry about the US current account deficit. In the standard methodology the current account deficit is equal to the change in the net foreign asset position except for some unspecified adjustments (or Ptolemy's epicycles), like the 1.6 trillion dollars in capital gains. In our approach, we will just define the current account deficit as the change in net foreign assets, with no adjustments. Hence, we would say that since the US net foreign assets have been stable, then the country has not been running a deficit. That is why it is still a net creditor.

Figure 2 shows by how much the two measures differ. On the one hand it shows the cumulative current account deficits according to official statistics, which as was already mentioned, add up to the 4.5 trillion that the US has overspent over the last twenty five years. The other line shows the cumulative change in net foreign assets according to our methodology. The fact that the curve shows no meaningful trend (upwards or downward) is simply indicating that the total amount of net foreign assets held by US residents has virtually not changed. Put differently, that there have been no deficits over this period.

Figure 2. Cumulative Current Accounts with official statistics and with Dark Matter

Source: BEA and International Financial Statistics

There is a large difference between our view of the US as a net creditor with assets of about 600 billion US dollars and BEA's view of the US as a net debtor with total net debt of 2.5 trillion. We call the difference between these two equally arbitrary estimates *dark matter*, because it corresponds to assets that we know exist, since they generate revenue but cannot be seen (or, better said, cannot be properly measured). The name is taken from a term used in physics to account for the fact that the world is more stable than you would think if it were held together only by the gravity emanating from visible matter. In our measure the US owns about 3.1 trillion of unaccounted net foreign assets. This is big. Before analyzing where this comes from, we may point out that no methodological minutiae will reconcile the facts with the statistics. We can discuss the numbers but we cannot contest the existence of dark matter.

We can also measure how much dark matter is exported or imported in any given period. For example, the official story tells us that in the five year period between 2000 and 2004, the

US accumulated a current account deficit equal to 2.5 trillion dollars. We find that the net assets of the US went up by over 300 billion dollars. Hence, the country exported some 2.8 trillion dollars of dark matter in this period or about 5.3 percent of GDP annually.

So this opens up three questions. First, what is behind dark matter? It is one thing to know it exists, but we need to understand what its driving sources are. Second, if the US has not really been running a current account deficit, then someone abroad is not really running a surplus. Who can this be? Finally, if the US has maintained its net asset position as a result of accumulating dark matter, is this to be trusted as a source for compensating the measured trade imbalance of the US in the future? Or can it evaporate overnight? If so, it would indicate that the growing trade imbalances are something to keep an eye on, but if the stock of dark matter is fairly robust, then the concern should be much less. We turn to these questions next.

What is behind dark matter?

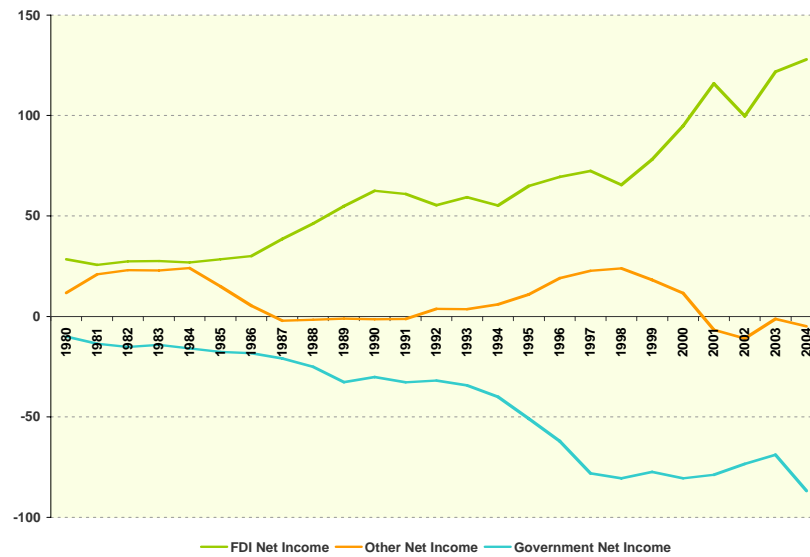
At least three factors account for the accumulation of dark matter. The first refers to foreign direct investment (FDI). Consider a simple example. Imagine the construction of EuroDisney at the cost of 100 million (the numbers are imaginary). Imagine also, for the sake of the argument that these resources were borrowed abroad at, say, a 5% rate of return. Once EuroDisney is in operation it yields 20 cents on the dollar. The investment generates a net income flow of 15 cents on the dollar but the BEA would say that the net foreign assets position would be equal to zero. We would say that EuroDisney in reality is not worth 100 million (what BEA would value it) but four times that (the capitalized value at our 5% rate of the 20 million per year that it earns). BEA is missing this and therefore grossly understates net assets. Why can EuroDisney earn such a return? Because the investment comes with a substantial amount of know-how, brand recognition, expertise, research and development and also with our good friends Mickey and Donald. This know-how is a source of dark matter. It explains why the US can earn more on its assets than it pays on its liabilities and why foreigners cannot do the same. We would say that the US exported 300 million in dark matter and is making a 5 percent return on it. The point is that in the accounting of FDI, the know-how than makes investments particularly productive is poorly accounted for.

Our second source of dark matter is the unaccounted value of the liquidity services provided by the US. People all around the world need liquid assets and choose to hold dollars in cash, which earns them a zero interest rate. The US can use the proceeds from printing this money to buy income-

generating assets and make a return. Again, the BEA would say that such a transaction causes no change in the asset position. We would say that the US has exported dark matter in the form of liquidity services and is making a 5 percent return on it. This so-called seignorage, or the unmeasured provision of liquidity services is a second source of dark matter.

Finally, consider the US borrowing abroad at rate of 5% (say through a Treasury bond) and then using the proceeds to buy a portfolio of debt from emerging markets which earns ex post (even after defaults) a return of 8 percent. This return persists because the world is exchanging a safe asset (the Treasury bond) for a risky asset (Emerging market debt). The difference between the two rates of returns is the insurance premium the world is willing to pay for lowering its risk. Dark matter thus includes the selling of unaccounted insurance, which generates a premium.

In short, the US is a net provider of knowledge, liquidity and insurance. As the world became more global financially, the increasing asset value of these services underlies the spectacular increase in dark matter over the last two decades. But which of these channels is the important one? Figure 3 bears on this point by showing the net income arising from three sources as presented in official figures: net income from foreign direct investment, net payments by the US government and other net private income. The figure shows the rising cost of the interest payments on the growing US public debt, which has been increasingly held by foreigners. However, this is compensated by an even faster rise in the income generated by FDI. Of the three sources of dark matter, FDI is clearly the most important. Mickey Mouse, it seems, ages very well.

Figure 3. Sources of US Foreign Income (in billions of US dollars)

Source: BEA

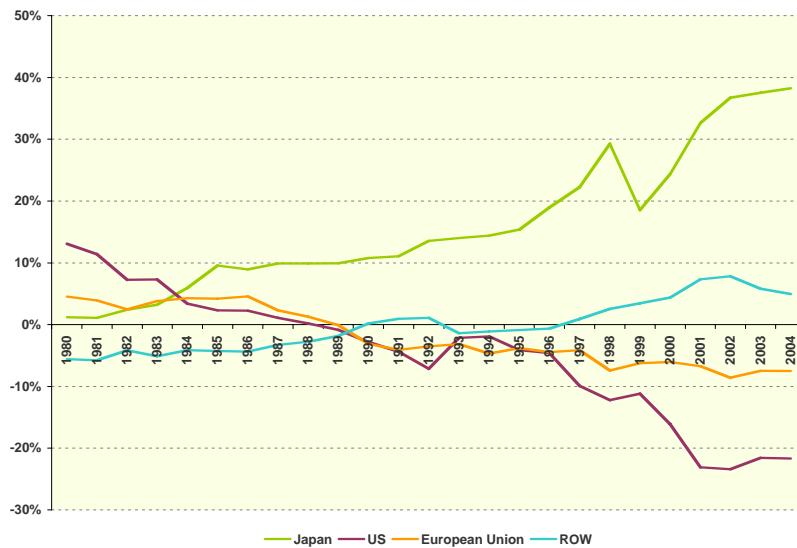
A new look at global imbalances

With a better understanding of what dark matter is, we take our exercise to the whole world. Figure 4a presents the official evolution of the net asset position of different major global players as a share of each entity's GDP. It shows a world that is increasingly unbalanced with Japan and the rest of the world financing Europe and more importantly the US, that appears accumulating a growing external debt. [The rest of the world is calculated as a residual to make things add up to zero]. Figure 4b presents the alternative

view, which we construct by capitalizing the net income that each country makes on its asset position.

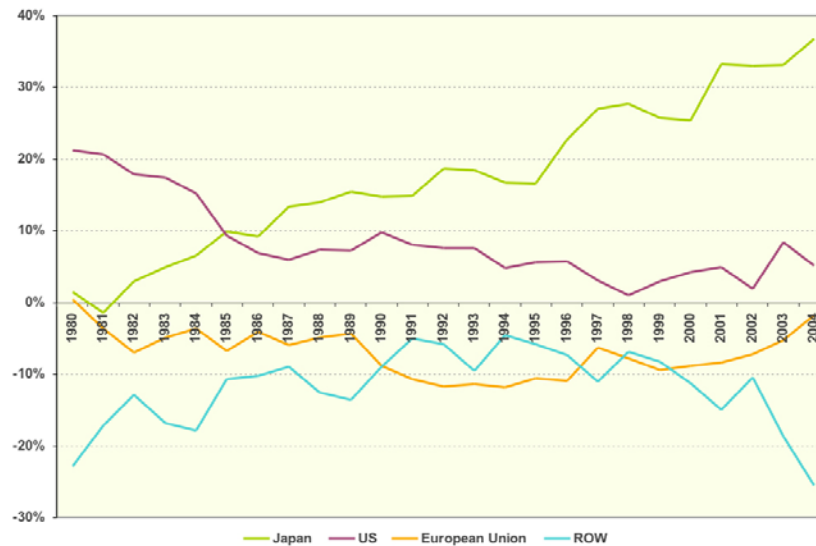
As can readily be inferred, the world looks quite different once dark matter is taken into account. First and foremost, the US does not appear as a net debtor but as a net creditor and, as mentioned above, its net foreign asset position has remained stable over the last 20 years. Japan, consistent with official data, is a growing creditor, while the European Union and the rest of world are net debtors.

Figure 4a. Net Foreign Assets in the World according to Official Figures
(as % of each entity's GDP)



Source: International Financial Statistics

Figure 4b. Net Foreign Assets taking into account Dark Matter (as % of each entity's GDP)



Source: authors' computations on International Financial Statistics data

Perhaps the most striking feature of Figure 4b is that it shows a world that is surprisingly balanced. Net asset positions of all major regions are fairly small – under 10 percent of

GDP – except for Japan which has a surplus of some over 30 percent and the rest of world that only recently has increased its indebtedness slightly.

Dark matter also sheds a different light on the often discussed savings puzzle. According to the official statistics, the US appears as a profligate consumer with dismal savings. However, these numbers understate the US savings rate by the amount of dark matter it exports and overstates the savings of the rest of the world by the amount of dark matter it imports.

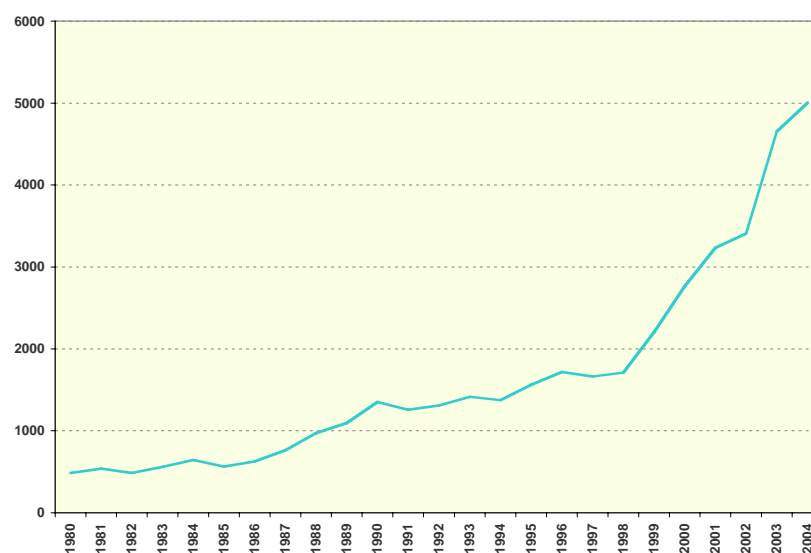
Can dark matter be trusted?

If exports of dark matter are compensating the large trade deficits in the US, is this dark matter something that can be trusted as a way of keeping the net asset position of the US stable in the future? In other words, is dark matter sufficiently stable to hold the world together and avoid global financial markets from running into a crisis? This will depend, ultimately, on how steady is the earning power of the assets that make up dark matter. If it is

just capital gains associated say, with exchange rate fluctuations, it would be quite unreliable. If is the know-how deployed abroad by US corporations, it can be expected to be fairly resilient.

Figure 5 shows the evolution of accumulated stock of dark matter by the US. The stock stands now at over 40 percent of GDP. Since 1980 it has fallen only in 6 years and the largest drop, which took place in 1985, was barely to 1.9% of GDP. In short it would take an unprecedented deterioration of the value of dark matter to even approximate the net asset position that today worries analysts.

In fact, an alternative view would say that the increasing official current account deficit of the US is the consequence of the rising export of dark matter, which has gone from 2.3 percent of GDP in the 1980s and 1990s to 5.6 percent of GDP in the current decade. It is this source of wealth that funds the booming import bill of the US.

Figure 5. The US Stock of Dark Matter (in billions of US dollars)

Source: authors' computations on International Financial Statistics data

In a nut shell our story is very simple. The income generated by a country's financial position is a good measure of the true value of its assets. Once assets are valued accordingly, the US appears to be a net creditor, not a net debtor and its net foreign asset position appears to have been fairly stable over the last 20 years. The bulk of the difference with the official story comes from the unaccounted export of know-how carried out by US corporations through their investments abroad, explaining why the US appears to be a consistently smarter investor, making more money on its assets than it pays on its liabilities and why the rest of the world cannot wise up. In addition, the value of this

dark matter seems to be rather stable, indicating that they are likely to continue to compensate for the measured trade deficit.

Globalization has made the flows of dark matter a very significant part of the story and the traditional measures of current account balances paint a very distorted picture of reality. In particular, it points towards imbalances that are not really there, making analysts predict crises that, for good reason, remain elusive.

RELATED ATTEMPTS AT EXPLAINING THE DARK MATTER PUZZLE

A recent literature has tried to account for the sustained apparent global imbalances. Michael Dooley, David Folkerts-Landau and Peter Garber argue that the imbalance comes from peripheral countries adopting export led strategies with undervalued pegged exchange rates and capital controls. Ricardo Caballero, Emmanuel Farhi and Pierre-Olivier Gourinchas attribute the outcome to a form of financial backwardness in some fast-growing countries such as China which prevents them from writing claims on productive assets. This forces their residents to use their savings to buy foreign assets and allows foreign companies, who can fund their needs abroad, to own the Chinese productive assets. Finally Pierre-Olivier Gourinchas and Helene Rey have explained why the US keeps on making money on its external assets in spite of a widening debt by the fact that the US has been acting both as a world banker (borrowing short and lending long) as well as a venture capitalist (issuing debt and purchasing riskier assets abroad). The last two stories can be seen as attempts to account for dark matter. While we see them as compatible with our own interpretation, they tend to focus on financial distortions, while we see the bulk of the matter arising from knowledge flows.

BOX: Who exports and who imports dark matter?**Major exporters and importers of dark matter**

(annual average for 2000-2004 in billions of dollars)

EXPORTERS		IMPORTERS	
UNITED STATES	559	RUSSIA	62
UNITED KINGDOM	234	IRELAND	61
GERMANY	12	FRANCE	40
KOREA	10	SINGAPOUR	37
		SAUDI ARABIA	35

Want to know more?

A good set of readings by doomsayers include:

Nouriel Roubini and Brad Setser (2004) "The US as a net debtor: The Sustainability of the US External Imbalances" (<http://pages.stern.nyu.edu/~nroubini/papers/Roubini-Setser-US-External-Imbalances.pdf>)

Obstfeld and Rogoff (2005) The Unsustainable US current account revisited, NBER Working Paper 10864, NBER, Cambridge, MA.

Martin Wolf "America on the comfortable path to ruin, Financial Times, August 17, 2004.

The skeptics:

Both Obstfeld, M. (2004) "External Adjustment", *Review of World Economics*, Vol. 140 (4) and Lane P. and G. M. Milesi Ferreti (2005), "A Global Perspective on External Positions", NBER Working Paper 11589, September, acknowledge the stabilizing role of international asset flows and the fact that US net foreign assets have been considerably more stable than the US current account would suggest, yet they still believe the current account is a useful measure of the increasing vulnerability of the US.

The others:

Gourinchas P. O., and H. Rey "From World Banker to World Venture Capitalist: US External Adjustment and the Exorbitant Privilege", Clarida, R. (ed.) *G7 Current Account Imbalances: Sustainability and Adjustment*, The University of Chicago Press, forthcoming 2006.

Caballero, R., E. Farhi and P. O. Gourinchas. "An Equilibrium Model of "Global Imbalances" and Low Interest Rates", Mimeo MIT, September 2005; and Dooley, Michael, David Folkerts-Landau and Peter Garber (2004) "The Revised Bretton Woods System," *International Journal of Finance and Economics*, 2004, v9(4,Oct), 307-313., provide alternative stories that are compatible with dark matter.