The US as a Net Debtor:
The Sustainability of the US External Imbalances

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Executive Summary

Recent headlines touting the latest upswing in the monthly trade deficit have underscored the size of the United States trade deficit. A trade deficit of around $420 billion in 2003 became a deficit of roughly $500 billion in 2004 and, if oil prices stay high, is on track – extrapolating from recent monthly trade data – to reach $550-560 billion for 2004. Imports are currently growing slightly faster than exports (in percentage terms). Yet even if imports grew at the same pace as exports, the large gap between the size of the U.S. import base and size of the U.S. export base would lead the U.S. trade balance to deteriorate. These trade deficits are large absolutely, large relative to U.S. GDP and large relative to the United States' small export base. They imply an even larger deficit in the broader measure of the United States' external balance, the current account.[1] These large current account deficits and the resulting increase in the net foreign liabilities of the U.S. has led to increasing concerns about the sustainability of these external imbalances.

The U.S. trade deficit is the counterpart to low U.S. savings. U.S. consumption and other components of expenditure have been growing faster than U.S. income in the last decade. In mid-late 1990s, the current account deficits reflected a combination of low private savings and strong private investment, not large budget deficits. The financial resources needed to support a surge in private investment were imported from abroad, allowing both consumption and investment to rise. Since 2001, however, the current account deficit has reflected a widening government deficit, not strong private investment. The U.S. now borrows from abroad to allow the government to run a large fiscal deficit without crowding out private investment, even as growing consumption (and necessarily, very low private savings) reduce the United States' ability to finance the fiscal deficit and private investment domestically.

No matter what their cause, large ongoing deficits have to be financed by borrowing from abroad (or by foreign direct investment or net foreign purchases of U.S. stocks). Sustained deficits have made the United States a major net debtor. The broadest measure of the amount the United States owes the rest of the world – the net international investment position or NIIP – has gone from negative $360 billion in 1997 to negative $2.65 trillion in 2003. At the end of 2004, we estimate the net international position will be negative $3.25 trillion. Relative to GDP, net debt rose from 5% of GDP in 1997 to 24% of GDP at the end of 2003 and to an expected 28% of GDP by the end of 2004. Trends are no more encouraging when U.S. external debt is assessed in relation to U.S. export revenues. Exports as a share of GDP dipped a bit during the Asian crisis but then recovered and stood at 11% of GDP in 2001. But exports then slipped dramatically between 2001 and 2003, falling to a low of 9.5% of GDP in 2003 before starting to recover in 2004. Rising external debt and falling exports is never a good combination.

[1] The current account is the sum of the trade balance, the balance on labor income, the balance on international investment income and unilateral transfers (foreign aid and remittances).

At an estimated 280% of exports at the end of 2004 , U.S. debt to export ratio is in shooting range of troubled Latin economies like Brazil and Argentina.[2]

A large, and rapidly growing, stock of external debt – the legacy of our past current account deficits - has not, to date, been much of a burden on the U.S. economy. The U.S. had had no problem adding to its external debt stock to finance ongoing current account deficits. Interest payments on existing external debt have not been a burden on the U.S. economy. The United States has lots of external assets as well as lots of external liabilities. Since U.S. assets have had so far a higher rate of return than U.S. liabilities, the U.S. earned more on its assets than it paid on its liabilities in 2003.

This relatively positive state of affairs, however, is likely to change. The limited cost of the existing U.S. debt reflects the unusually low U.S. interest rates, and the willingness of external investors to continue to finance large U.S. current account deficits at these low rates. As debt stocks rise and interest rates return to more normal levels, the need to make net payments on the existing debt stock will start to exert a small, but still noticeable drag on the economy. The fall in interest rates reduced interest payments on existing US external debt by roughly $130 billion between in 2000 and 2004.[3]

The rapid deterioration of US net external debt position implied by large trade and current account deficits cannot continue indefinitely. At some point, the interest rate that the U.S. needs to pay to attract the external financing it needs to run ongoing deficits will rise, slowing the U.S. economy and improving the trade balance even as higher interest rates increase the amount the U.S. must pay to its existing creditors. The U.S. will increasingly have to learn to live with the vulnerabilities associated with being a major net debtor -- vulnerabilities that are attenuated by the dollar's continued position as a reserve currency, but not entirely eliminated.

Large current deficits in the U.S. have to be offset by current account surpluses elsewhere, and rising U.S. debt implies that foreigners are increasingly their holdings of financial claims on the U.S.. Both Europe and East Asia (taken as a region) run substantial current account surpluses vis-à-vis the U.S.. However, the major European currencies float freely against the dollar while most Asian currencies do not. China, Malaysia, Hong Kong explicitly peg their currencies to the dollar, and other countries often intervene heavily to prevent their currencies from appreciating against the dollar (and the Chinese renminbi). Recent data leaves little doubt that the reserve accumulation of Asian central banks is financing a growing share of the United States' current account

[2] Before its crisis, Argentina's debt to export ratio varied between 375% and 425%, depending on world commodity prices. Brazil's debt to export ratio reached 400%, but it now is heading down and is below 300% on the back of current account surpluses and strong export growth following the 2002 depreciation of the real.

[3] The $130 billion estimate comes from taking the estimated stock of U.S. liabilities at the end of 2003 (10.52 trillion) and multiplying that stock by the difference between the 2000 rate of 3.61% and the 2003 rate of 2.40% (the 2003 rate is the estimated 2004 rate). Returns on the United States $7.9 trillion in external assets have also fallen between 2000 and 2004, but not by as much. If payments on US assets and payments on US liabilities both returned to 2000 levels, the net U.S. interest bill would rise by about $45 billion.

deficit. The U.S. current account deficit, in turn, provides an enormous stimulus to East Asian economies.[4]

So far, the U.S. has been able to avoid most of the standard costs associated with being a major debtor by passing all financial risks off to its creditors – a most unusual outcome. But that means that the United States' creditors, in particular East Asian central banks, are taking on the risk. This system – a system that Dooley, Folkerts-Landau and Garber (2003, 2004 a, b) have labeled Bretton Woods Two -- has provided the U.S. with the financing it needed in 2002, 2003 and 2004 to run large current account deficits. But the tensions created by this system are large, large enough to crack the system in the next three to four years.

- Right now, the US has to mortgage one year's worth of export revenues every two years to finance its trade deficit. That is not a sustainable pace. It is hard to run a current account deficit of more than 5% of GDP off a roughly 10% of GDP export base. U.S. external debt is no longer small in relation to United States' small export sector.
- Barring a U.S. recession, the U.S. current account deficit is likely to expand, not contract. The dollar's recent depreciation against the euro has not been matched by a comparable depreciation against many other U.S. trade partners. The real dollar remains at its 1990-2004 average, a level that is probably consistent with continued, albeit more modest, increase in the trade deficit. As favorable shocks to income payments from the recent fall in US interest rates dissipate, net income payments will turn negative, adding to the current account deficit. The likely outcome, absent any major policy changes: current account deficits of more than 7% of GDP by 2008.
- This deficit is not being financed by foreign direct investment the US, nor is it significantly financed by foreign purchases of U.S. stocks. Outward foreign direct investment has substantially exceeded inward foreign direct investment over the past few years, so the U.S. needs to finance outward foreign direct investment of $100-$150 billion as well as a current account deficit of at least $550 billion. The annual borrowing need of the United States is $700 billion or more. Unless trends change that will only grow.
- The "resource gap", i.e. the gap between the U.S. trade balance and the trade balance required to stop the increase in the U.S. net external debt to GDP ratio is above 5% of GDP. This means that stabilizing the external debt to GDP ratio at current levels would require reducing the trade deficit (augmented by unilateral transfers and labor payments) by about 5% of GDP, even with optimistic assumptions about the real interest rate on U.S. net external debt.
- Barring immediate adjustment in the trade balance to stabilize the debt ratio right away, the amount of adjustment needed to stabilize the external debt to

[4] East Asia runs a current account surplus with the rest of the world, with its large surplus in bilateral trade to the U.S. offsetting deficits from commodity exporting regions. Intra-regional trade in East Asia has been growing, but some of that growth stems indirectly from growing trade with the U.S., as many Asian economies are supplying components or capital goods to China, which is becoming the world's manufacturing center.

GDP ratio is likely to become larger for two reasons: 1) a higher debt stock implies a larger trade surplus to stabilize the debt ratio; 2) delayed stabilization and higher external debt stocks will lead to higher interest rates and lower growth, thus further increasing the trade surplus necessary to stabilize the debt ratio.

- Without additional adjustment, net debt is on track to increase to about 50% of GDP and almost 500% of export revenues in 2008.
- Private investors are unlikely to be willing to finance deficits of that magnitude at current low interest rates, particularly since the adjustment in the dollar required to eventually stabilize the external debt to GDP ratio implies large capital losses for holders of low-yielding dollar denominated securities (if the adjustment occurs through a fall in U.S. growth, equity investors in the U.S. will take losses). Asian central banks have been willing to finance US deficits despite the risk of future capital losses to support their own export-led growth. However, the scale of financing required from Asian central banks to sustain current account deficits of this magnitude likely exceeds the absorption capacity of Asian central banks. If current trends continue, Asian central bank reserves would have to rise from an estimated $2.3-2.4 trillion at the end of 2004 to $4.3 trillion dollars at the end of 2008 to help support a rise in U.S. net external debt from $3.3 trillion to $6.9 trillion. Chinese and Japanese reserves would need to rise from $1.1 trillion to $2.4 trillion.
- This calculation likely understates the amount of financing the U.S. would need from Asian reserves to sustain current trends. Foreign central banks, mostly East Asian central banks, provided about half the financing the U.S. needs to sustain its current account deficit in 2003. As debt levels rise, private investors are likely to become less willing to finance ongoing U.S. current account deficits at anything like current interest rates. Unless foreign banks step up their financing, the U.S. would need to adjust.
- Valuation effects – capital losses for non-residents, capital gains for residents – have limited the increase in the U.S. NIIP in 2002 and 2003. The depreciation in the real value of the US dollar in 2002-2003 increased the dollar value of U.S. external assets (many of which are denominated in foreign currencies), and the rising value of U.S. external assets helped offset the impact of ongoing flow deficits on the NIIP. However, the scope for large valuation gains is likely to be more modest going forward, as the prospective valuation gains from adjusting vis-à-vis Asian currencies are much more modest than the valuation gains from adjusting vis-à-vis the major European currencies. Moreover, the U.S. should not count on being able to fool all of the people all of the time: expected persistent real depreciation of the U.S. dollar would lead foreigners to require ex-ante higher returns on their US dollar asset holdings to minimize their capital losses.

Even if East Asia is willing to continue to finance large US current account deficits, it is unlikely to be willing to do so on the current, very favorable terms – terms that guarantee East Asian central banks and many other U.S. creditors large losses should the dollar eventually depreciate against their currency.

Pulling off the adjustment needed to unwind the current U.S. external deficit smoothly will be a major policy challenge, both for the U.S. and the world. It is far easier for the needed adjustment to happen smoothly if it starts sooner rather than later: Smooth adjustment means a trade deficit of 5% of GDP gradually falls, with the U.S. adding to its external debt stock both absolutely and in relation to its income during the adjustment process. Our projections suggest that the U.S. external debt to GDP ratio double over the medium-long run – peaking at around 50% of GDP after 2010 -- even if the U.S. trade deficit started to shrink by about 0.5% of GDP annually.[5] Such a measured adjustment would eliminate the trade deficit by 2015; faster adjustment would be hard to square with sustained US and global growth.

If the U.S. waits until its debt to GDP ratio is already at 40 or 50% of GDP before beginning the needed adjustment, the U.S. will have less leeway to allow its external debt to rise during a process of gradual adjustment. Not only will the needed adjustment be larger, but the adjustment will likely happen much faster. Such sharp adjustment would not pleasant, either for the U.S. or for the rest of the world.

As many analysts have noted, reducing the U.S. trade deficit will require that US income grow faster than consumption and overall domestic expenditure. The only way this can happen without a slowdown in U.S. growth is if exports growth picks up the slack, and net exports start to drive the U.S. economy. The rest of the world, and in particular dynamic Asian economies, must shift from relying on U.S. demand to spur its growth to providing a surplus of demand that helps support U.S. growth, just as the U.S. shifts from an economy driven by consumption growth to an economy driven by income growth. In other words, current patterns need to reverse themselves.

The large U.S. current account deficit reflects macroeconomic policy choices, notably the large U.S. fiscal deficit and East Asian government's policies of reserve accumulation to support export-led growth. Consequently, the needed adjustment in the U.S. current account deficit will happen smoothly only if backed by supportive macroeconomic policies, including:

- Fiscal adjustment in the United States. A low savings economy like the U.S. can only run large budget deficits without crowding out domestic investment by drawing on the world's savings. Right now, the U.S. depends on Asian reserve accumulation for cheap financing of its budget deficits cheaply. Put differently, if the U.S. continued to run a large deficit and Asia reduced its pace of reserve accumulation, U.S. interest rates would have to rise, crowding out productive investment. Recently, the U.S. has sacrificed exports (and jobs in export sectors of the economy) for cheap financing from East Asia (and jobs in interest sensitive sectors of the economy). The U.S. economy can only reduce its dependence on cheap financing if the U.S. government reduces its own borrowing need.

[5] Since 2001, the U.S. trade deficit has deteriorated at a similar pace. Such adjustment requires US exports to grow roughly twice as fast as US imports.

- Exchange rate adjustment and policies that support demand growth in East Asia. A current account deficit of 5% of U.S. GDP cannot be reduced if the fastest growing, most dynamic parts of the world economy continue to maintain exchange rates that suppress domestic consumption by keeping the domestic price of imports high. Europe has already let its exchange rate adjust, and, even with policies directed at supporting domestic demand growth, the aging, already developed economies of Europe will not be able to contribute as much to global demand as younger, more dynamic economies.
- China sits at the center not just of East Asia's economy, but also of the global economy. China is now too big not to play a more constructive role in global economic management. Given its large stock of reserves, its rapidly expanding economy and its ability to attract $50 billion a year in foreign direct investment, there is no reason why China should not run a modest current account deficit. The rest of Asia will not adjust if China does not adjust.

Introduction

This paper analyzes the sustainability of U.S. external deficits[6] and the "Bretton Woods Two" international monetary system that is integral to their financing. It therefore examines the sustainability of what Larry Summers has called the "balance of financial terror"[7] – a system whose stability hinges on the willingness of Asian central banks to both hold enormous amounts of US Treasuries (and other US fixed income securities) and to add to their already enormous stocks to provide the ongoing financial flows needed to sustain the U.S. current account deficit and the Bretton Woods Two system. Our analysis suggests that the Bretton Woods Two system is fragile, and likely will prove unstable. Even if the United States continues to maintain a privileged place in the international monetary system and thus remains able to borrow on terms that other, comparable, debtors could not imagine, our analysis suggests that the U.S. is on an unsustainable and dangerous path.

The basic tools of our analysis may not be familiar to those who follow the American economy. However, they should be familiar to students of emerging economies, who traditionally have had to worry about external sustainability. At the same time, some of the details of the analysis will seem strange to students of emerging economies, since the U.S. is in no way a typical external debtor. Most emerging economies do not have negative real interest rates on their debt, or see valuation gains that improve their net international investment position as their currency depreciates.

Our analysis is organized into six sections.

- The first section reviews developments in the United States' current account, capital account and net international investment position since 2001, highlighting the United States growing external deficit, the marked changes in the way this deficit is being financed and the now significant net debtor position of the United States.
- The second examines the macroeconomic sources of the U.S. external imbalance, highlighting the how the recent increase in the trade deficit has been driven by the

[6] Indeed, a number of authors have recently expressed serious concerns about the sustainability of the current U.S. fiscal policy, current account deficits and external debt accumulation. They include Rubin, Orszag and Sinai (2004), Summers (2004), Rogoff (2003, 2004), Obstfeld and Rogoff (2004), Roach (2004a, b), Wolf (2004a, b) Mussa (2004), Truman (2004), Mann (2004) and IMF (2004a, 2004b). For different views from the Fed, see Kohn (2003), Greenspan (2003) and Gramlich (2004); but the Fed views may have recently changed as the minutes of the June 29th-30th FOMC meeting suggest (http://www.federalreserve.gov/fomc/minutes/20040630.htm). For earlier studies of the determinants and sustainability of the U.S. current account deficit, see Mann (1999, 2003) and Freund (2000). See also the materials in Roubini's Global Macro site section on the U.S. current account sustainability: http://www.stern.nyu.edu/globalmacro/cur_policy/cad.html.

[7] Summers (2004).

deterioration in the government's financial position, not by strong private investment (the "twin deficits" phenomenon[8]).

- The third section lays out a scenario for the evolution of the U.S. external deficit if the dollar remains at its current levels, both the US and the world grow at trend rates and U.S. fiscal policy is unchanged. It also explores the scale of the adjustment in the trade balance (non-interest current account) that is required to stabilize U.S. external debt – i.e. to produce a stable debt to GDP ratio. It looks at the adjustment needed to stabilize the debt at current levels, but also, more realistically, at substantially higher levels. Barring a sharp contraction in the U.S, the US trade deficits won't disappear quickly, so in any smooth adjustment scenario the U.S. stabilizes its external accounts at a higher net external debt level.
- The fourth section highlights how a higher debt level will eventually make the United States vulnerable to financial shocks. One of the problems with financing a large external debt with near negative real interest rates is that it simply does not get any better: the risks of negative shocks exceed the chance of any further positive shocks.
- The fifth section looks at the counterpart to U.S. deficits: rising East Asian foreign exchange reserves. It tries to assess the willingness of Asian economies to continue to accumulate claims on an ever more indebted United States without demanding a higher premium to compensate for the growing risks.[9]
- The last section presents our conclusion and policy prescriptions to prevent the current U.S. global imbalances from causing severe financial and economic distress to the U.S. and global economy.

Many parts of our analysis overlap with existing assessments of U.S. external sustainability. Many macroeconomists have examined how recent falls in national savings have led the U.S. current account to widen. We think our analysis adds several new dimensions to existing contributions. We carefully examine the financing of U.S. external imbalances, and provide an estimate on the scale of foreign reserve accumulation in the rest of the world that would be needed to sustain large U.S. current account deficits. We look at the currency composition of U.S. external assets to assess the scope for further valuation gains. We calculate the scale of the trade adjustment required to stabilize the U.S. debt to GDP levels, both at current levels and at higher levels. We provide scenarios outlining the future evolution of the U.S. net international investment

[8] The theoretical and empirical academic literature on the relation between fiscal policy, the current account and the real exchange rate is quite wide. For a recent study that includes a survey of this literature see Kim and Roubini (2004).

[9] Eichengreen (2004) emphasized that continued reserve accumulation by Asian economies requires coordination to overcome potential collective action problems, since an individual East Asian central bank would be better off if it held its reserves in say euros rather than in dollars, while other Asian economies continued to hold their existing reserves in dollars and add to their dollar assets. Indeed, Asians can defect either by accumulating smaller amounts of reserves or by diversifying their holdings of existing reserves away from US dollars towards Euros and other currencies. The incentives for first are limited because of domestic support for export led growth; but the incentives for latter are significant given scope for large financial losses on holdings of U.S. dollar reserves.

position if the trade deficit widens, if the trade deficit stays roughly at its 2003 level and if the trade deficit starts to narrow significantly. All this analysis points to one simple conclusion: the U.S. needs to start adjusting now in order to maximize the chances for a relatively smooth adjustment process. The U.S. external imbalance is too large to be closed quickly without a hard landing if adjustment is delayed; and the large deficits in the early stages of a smooth adjustment path will still result in significant additional debt accumulation.

Section 1. Review of Recent Developments

1.1. The current account deficit.

The current account deficit is the sum of the trade balance, the balance on investment income, the balance on labor income (usually small) and unilateral transfers (foreign aid and remittances).[10] However, since net investment income has recently fluctuated around zero, the current account balance recently has been equal to the trade balance plus U.S. transfers (both foreign aid and remittances sent to their home country by U.S. workers). The U.S. has run large current account deficits since 2000 – with deficits of $413 billion in 2000, $386 billion in the recession year of 2001, $474 billion in 2002 and a record $531 billion in 2003. [11] Current trade data suggests a 2004 current account deficit above $600 billion, or 5.2% of GDP.

	2000	2001	2002	2003	2004 (f)
Trade balance	-378	-363	-422	-497	-559
Unilateral transfers	-56	-47	-59	-68	-71
Balance on labor income	-5	-6	-5	-5	-5
Balance on investment income	26	30	12	38	22
Current account balance	-413	-386	-474	-531	-614

The 2000 deficit itself was the product of a noticeable shift relative to 1997, when the U.S. current account deficit was only $136 billion. The Asian financial crisis led East Asia as a whole to shift from a substantial current account deficit to a significant surplus; the sharp fall in Asian currencies and a booming U.S. economy meant that this swing was offset largely by a widening of the U.S. current account deficit. However, the large – and one would expect temporary – swing in the U.S. current account deficit that followed naturally from a contracting Asia and a booming U.S. persisted even after East Asia resumed strong growth and the U.S. economy cooled.

The gap between the United States' $1.5 trillion import base (estimated to rise to around 1.7 trillion in 2004) and its $1 trillion in U.S. exports base (estimated to rise to around

[10] Unilateral transfers generally average a bit under 0.5% of GDP.

[11] Data on the U.S. current account, savings and investment come from the Bureau of Economic Analysis (http://www.bea.gov/beahome.html) that publishes comprehensive National Income and Product Accounts (NIPA).

1.15 trillion in 2004) makes the U.S. trade deficit difficult to close quickly in the absence of a sharp recession. U.S. exports have to grow at a significantly faster percentage rate than U.S. imports just to prevent the trade deficit, in dollar terms, from widening. 10% export growth sounds good, but 10% export growth combined with 10% import growth implies a substantial – roughly $50 billion -- widening in the trade deficit. 10% export growth and 5% import growth only reduces trade deficit by about $25 billion.

1.2. The capital account.

Large, ongoing current account deficits have to be financed with capital inflows. A $500 billion current account deficit implies that foreigners are either lending the U.S. $500 billion, providing $500 billion in FDI, buying $500 billion of U.S. stocks or a mix of all three. Indeed, the current account balance (appropriately corrected for valuation effects) is, by definition, equal to the change in the net international investment position.[12]

There clearly has been a major change in the composition of financial inflows to the U.S. since 2000. Rather than relying on inward foreign direct investment to finance a portion of the current account deficit, the U.S. now is borrowing from abroad to finance its outward FDI. Financing from official central banks (through the purchase of reserve assets, mostly U.S. treasuries but also some other securities) and from private purchases of U.S. government Treasury bills has surged. Foreigner inflows have moved from financing private sector investment to financing the growing budget deficit.

Net financial flows to the U.S.
(positive = net inflow, negative = net outflow)

	2000	2001	2002	2003	2004 (q1)
Reserves (net)	41.5	22.7	110.7	250.6	126.3
Of which, U.S. treasuries	-5.2	33.7	60.5	169.9	100.1
Foreign private purchases of US treasuries	-70.0	-14.4	100.4	113.4	66.4
Currency	5.3	23.8	21.5	16.6	-1.8
Securities (net)[13]	338.0	310.0	301.4	178.7	47.1
Of which, debt securities	267.7	300.4	269.8	241.8	
Of which, equity securities	93.1	12.6	37.5	-63.2	
FDI (net)	162.1	24.5	-62.4	-133.9	-39.2
Claims reported by non-banks (net)	31.9	57.6	32.6	55.1	1.6
Claims reported by banks (net)	-31.7	-7.5	66.1	65.2	-42.1
Net financing	477.1	416.1	570.2	545.8	158.3

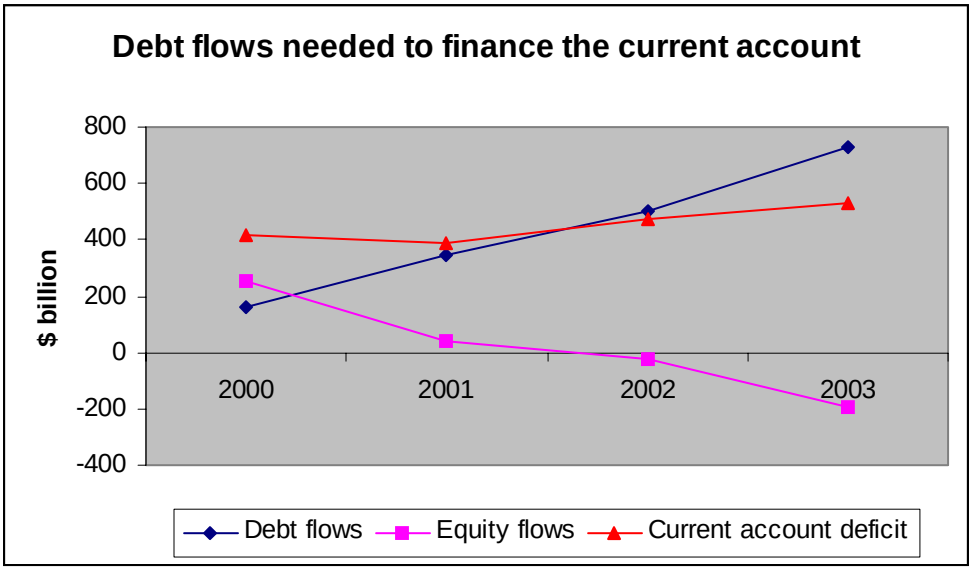
The data on the breakdown between purchases of equities and debt is not reported in the quarterly balance of payments data, but data from the annual report on the Net International Investment Position or NIIP allow us to estimate the breakdown. There is

[12] Data on the Net International Investment Position of the U.S. come from the Bureau of Economic Analysis (http://www.bea.gov/bea/di/home/iip.htm), as does data on the current and capital account.
[13] Securities (net) is not the sum of debt and equity securities. The debt and equity securities series are taken from the NIIP data, which provides a more detailed breakdown than the capital account data.

little doubt that debt claims now make up the majority of securities purchased by foreigners.[14] For example, in 2003, the foreigners bought $37.3 billion of U.S. equities (net), while Americans bought $100.4 billion in foreign equities. Indeed, since 2002 the U.S. has been financing its external equity investments (both foreign direct investment and portfolio equity) by selling debt to foreigners, effectively acting as a financial intermediary as well as a net borrower. This only adds to the United States ongoing need to attract non-FDI financial inflows.

	2000	2001	2002	2003	2004 (q1)
Current account deficit	-413	-385	-474	-531	-145
Portfolio equity (net)	93	13	38	-63	n.a.
FDI (net)	162	25	-62	-134	-39
Total financing need net of equity	158	347	498	728	184

While complete data on net portfolio equity flows is not yet available, U.S. Treasury data indicates that foreigners have been net sellers of U.S. equities in the first half of 2004 (U.S. Treasury, 2004), leaving little doubt that the U.S. external financing need net of FDI and equity remains extremely large.



1.3. The net international investment position.

The U.S. net international investment position (NIIP) is the total stock of accumulated foreign claims on the United States (both debt and equity) minus the stock of US claims on the rest of the world. The NIIP was positive until 1989 (valuing assets and liabilities at market value), then slowly deteriorated through the 90s. The NIIP was only negative $306 billion in 1995, but the pace of deteriorated accelerated markedly as the decade progressed. The NIIP reached –$1 trillion in 1999. However, large recent current account deficits have implied a large deterioration in the NIIP.

[14] TIC and BEA.

	2000	2001	2002	2003	2004 (f)[15]
NIIP ($ billion)	1583	2314	2553	2651	3265
As % of GDP	-16.3	-22.9	-24.4	-24.1	-27.8
As % of exports	-149	-231	-262	-260	-289
Net equity position	192	-102	173	729	1029
Net debt position	-1777	-2212	-2729	-3380	-4144
From the current account	-413	-386	-474	-531	-614
Valuation changes	-123	-345	236	432	[0]

The combined current account deficit in 2001, 2002 and 2003 was $1391 billion, yet the U.S. NIIP only deteriorated by $1068 billion. This is because the NIIP reflects both ongoing deficits, which add to the stock of external claims on the United States, and changes in the valuation of the existing stock of US assets and U.S. liabilities.

A quick analysis of the overall NIIP indicates that the roughly $800 billion improvement in the net equity position over the past few years has offset rapid deterioration in the net debt position, and prevented ongoing current account deficits from producing a larger deterioration in the NIIP.

What explains these gains – particularly the large valuation gains in 2003?

Changes in stock market values are not the answer. The U.S. stock market did increase substantially in value in 2003, but so did European and Japanese stock markets. Rising foreign stock markets increased the value of U.S. external assets, but rising U.S. stock markets increased the value of foreign assets in the U.S (U.S. external liabilities). So long as movements in global equity prices are correlated, they have little overall impact on the net U.S. investment position.[16]

The valuation gains are largely the product of the dollar's adjustment against the major European currencies – the euro, the pound and the Swiss franc. An asset worth say $100 Euros was worth maybe $90 in 2001 is now worth about $120 dollars. Because an overwhelming share of U.S. foreign equity assets are in Europe, the fall in the dollar relative to the major European currencies had a major impact on the value of US assets abroad (just as the rise in the dollar in 2001 reduced the value of U.S. assets abroad). Indeed, since Europe accounts for a much larger share of the US foreign equity investments than of the U.S. trade, the recent adjustment against the Euro had a big and

[15] We assume that the U.S. finances net purchases of $150 billion in foreign equities and FDI with net debt inflows of an equal amount, leading the net debt position to deteriorate by more than the current account.
[16] By the end of 2003, the value of U.S. holdings of foreign equities (and FDI) slightly exceed foreign holdings of U.S. equities (and foreign FDI). This largely reflects the large valuation gains the U.S. enjoyed from a falling dollar. But the gap remains small enough ($800 billion) that even a 20% increase in global equity markets would deliver only a $160 billion net improvement in the U.S. net international investment position.

immediate impact on the U.S. NIIP, but only a small impact to date on the U.S. trade though the full impact of the 2003 euro/ dollar adjustment has yet to manifest itself on the trade balance because of J-curve lags.

	2003 data
FDI[17]	
% in Europe	54%
% in Europe, Canada and Australia	67%
Portfolio Equity	
% in Europe	56%
% in Europe, Canada, Australia	63%
U.S. trade	
% with Europe	22%
% with Europe, Canada and Australia	43%

In a sense, by adjusting against the Euro area but not against the Asian area (BIS, 2004), the dollar adjusted in a way that delivered the biggest possible valuation gains to existing U.S. external assets while offering the prospect of only relatively modest gains in the current account. This benefited the U.S. net international position in 2003, but it also reduces the changes of comparable gains going forward. A comparable adjustment against the major Asian currencies would not deliver comparable valuation gains.

Consider the following the impact of a 20% fall in the dollar against Europe, Canada and Australia against the impact of a 20% fall in the dollar against the major Asian currencies in conjunction with the 2003 data on the currency composition of U.S. holdings of FDI and long-term foreign securities.[18] A 20% fall against the European currencies, no change in the Asian currencies and a 10% fall against all other currencies produces a one off valuation gain of $575 billion (incidentally, $575 billion is not far from the $668 billion in valuation gains in 2002-03, when the dollar fell by more than 20% against the Euro). A 20% fall against the Asian currencies, no change against European currencies, the Canadian dollar and the Australian dollar produces and an additional 10% fall against all other currencies produces a valuation gain of $210 billion. In other words, even if the U.S. is only half way through a 20% decline in the dollar against all currencies, the U.S. has realized far more than half of the potential valuation gains from dollar depreciation by depreciating first against Europe, Canada and Australia – the places where the U.S. has to most external assets. U.S. investments denominated in European currencies and in other currencies that have already adjusted against the dollar are about three and a half times as large as U.S. investments in East Asia, so the prospective valuation gains from changes in Asian exchange rates are much smaller than the valuation gains realized from adjusting against the Euro.

[17] Data from BEA. Data on the country by country breakdown of U.S. FDI is only available on a historical cost basis. See Abaroa (2004) and Borga and Yorgason (2004).

[18] Between January 2002 and February 2004, the dollar declined by 43% against the Euro (it subsequently has rebounded back from 1.29 to around 1.21-1.22), 30% against sterling, 51% against the Australian dollar, and 20% against the Canadian dollar. It also fell by a smaller magnitude against the yen. See BIS (2004)

Currency Composition of Select U.S. external assets[19]

US external assets: FDI, equity securities and long-term debt securities

Assets denominated in European currencies, Canadian dollars and Australian dollars	$2.57 trillion
Assets denominated in Japanese yen and other Asian currencies	$0.73 trillion
Assets denominated in other currencies	$0.63 trillion
Assets denominated in U.S. dollars (long-term debt securities)	$0.33 trillion
Total	$4.26 trillion

It should be noted that the currency composition of U.S assets and liabilities is the opposite of a typical net international debtor. The average emerging economy with a large debt stock has debts denominated in a foreign currency while the United States' external debt is largely denominated in its own currency. A typical emerging economy Consequently sees its net debt increase substantially as its currency depreciates. The U.S. in contrast, saw the value of its euro denominated assets increase while the value of its dollar denominated external liabilities (and some assets) stayed constant.

1.4. The interaction between the net international investment position and the current account.

By virtue of the dollar's position as a reserve currency, the U.S. traditionally has been able to borrow from abroad at low rates. Many U.S. external assets, in contrast, earn a high rate of return. Consequently, even after the U.S. net international position turned negative, the U.S. often has had a positive balance on investment income. The extra income from the high rate of return on U.S. external assets compensated for the fact that U.S. external debts exceeded U.S. external assets. In this way too, the U.S. differs from a typical emerging economies, since most emerging economies have to pay a significant premium to borrow from abroad (or to attract FDI), while a large fraction of their foreign assets are in low yielding liquid foreign reserves. Consequently, even an emerging economy with external assets and liabilities of equal size typically has to pay far more on its liabilities than it earns on its assets.

This discrepancy between U.S. payments on its external debts and U.S. earnings on its external assets widened after 2000, as the cost of servicing the United States external debt fell faster than the returns on U.S. assets. The fall in the interest rate the U.S. paid on its

[19] Data from the Bureau of Economic Analysis, particularly Borga and Yorgason (2004), and U.S. Treasury (2003). FDI data is on a current cost basis. On this basis, total U.S. external assets at the end of 2003 totaled $7.20 trillion (v. 7.86 trillion at market value), and total U.S. liabilities totaled $9.63 trillion (v. 10.51 trillion at market value), so the US NIIP on a current cost basis is –2.43 trillion at rather than –2.65 trillion. Our calculation only looked at the currency composition of $4.26 trillion of the $7.20 trillion total in U.S. external assets. Implicitly, we are assuming that the remaining assets – mostly claims reported by banks and non-banking concerns -- are denominated mostly in dollars. This is likely to be correct, though we know it is not entirely accurate: U.S. government reserve assets are part of the total, and they are denominated in foreign currency. However, U.S. official reserves are relatively small.

stock of debt more than offset the impact of a rapid increase in total external debt. Extraordinarily low U.S. "policy" interest rates reduced U.S. external debt service from 360 billion (on 8.9 trillion in gross liabilities) to 250 billion (on 10.5 trillion in gross liabilities).[20]

	2000	2001	2002	2003
U.S. gross liabilities	8934	9205	9166	10515
Average cash return	3.61	2.77	2.74	2.40
Income payments	-322	-255	-251	-253
U.S. gross assets	7350	6891	6661	7863
Average cash return	4.73	4.12	3.99	3.70
Income payments	348	284	264	291
NIIP	1583	2314	2553	2651
Inv. Income balance	25	29	13	39

To date, the United States has been able to pull off an extraordinary coup. The U.S. is now a large net debtor; but rather than having to make major payments to the rest of the world, the investment income balance (the difference between what the US pays and what it receives from the rest of the world) has fluctuated between a small deficit and a small surplus. Moreover, the deterioration in the United States' net international investment position since 2000 has not translated into higher income payments, nor reduced the United States ability to finance its large ongoing trade deficit.

What explains the United States ability to attract large net capital inflows to fund its current account deficit? The standard answer – that the current account deficit reflects the United States' unique attractiveness for foreign investment -- rings less and less true. Foreigners recently have not been investing (net) in the U.S. equity market, or providing new (net) FDI inflows. Inward FDI has fallen substantially since the dotcom bust in 2000, and US outward FDI now exceeds inward FDI by a substantial margin. In contrast, foreign purchases of U.S. debt, particularly relatively low yielding U.S. treasury bills have surged. Foreigners are investing in the U.S. not for attractive returns, but for the perceived safety and security of U.S. debt markets.

But this only heightens the core puzzle of the U.S. external account. Standard economic theory suggests the currency of a country with a large, growing external debt and a large ongoing trade deficit should fall over time. Why should foreigners want low-yielding dollar denominated claims when large ongoing trade deficits and a growing stock of net debt imply that the dollar is likely to fall in value?

The answer to this puzzle, at least in part, is that an increasing portion of the United States current account deficit is being financed not by private investors, but by foreign central banks. Just as current account deficits in the U.S. are the counterpart to current account surpluses in other counties, the growth of the U.S. external debt implies the

[20] We have calculated the average returns on U.S. foreign assets and liabilities by taking the ratio of income payments and receipts from the current account to the stock of U.S. foreign liabilities and assets.

growth in external assets in other countries. Specifically, most Asian economies have been building up their reserves, either to maintain a fixed exchange rate or to offset pressure for currency appreciation in the context of a managed float. A large share of these reserves are invested in the U.S., typically in U.S. treasuries or other safe assets (central banks seeking a bit higher return than offered by US treasuries often invest in agency bonds). Claims on the U.S. make up a large share of the rest of the world's external financial assets. Growing US net external debt implies growing assets abroad and recently, Asian current account surpluses and the resulting increase in central bank reserves have accounted for a large share of those assets.

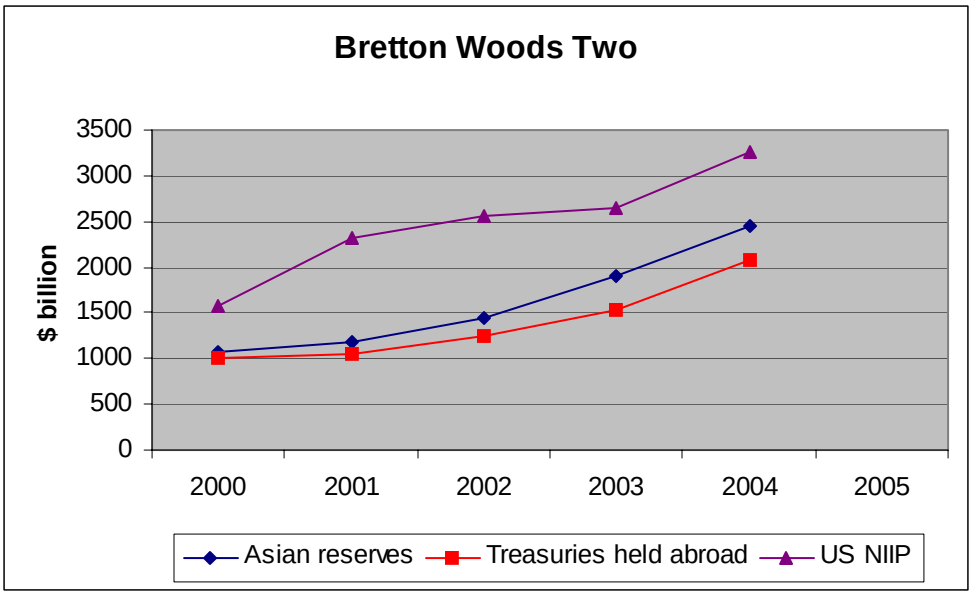
$ billion

	2000	2001	2002	2003	2004 YTD	*2004 (f)*
Net U.S. debt position[21]	1777	2212	2729	3380		*4144*
Foreign holdings of US treasuries[22]	1015	1040	1239	1528	1799	*2069*
O/w treasuries held by foreign central banks	609	619	763	934	1084	*1238*
Asian reserves (IMF data)	1069	1189	1437	1911	2178	*2445*
O/w Japan and China	523	611	752	1071	1271	*1471*

The chart below represents graphically the sharp increase in Asian central banks foreign reserves since 2000; as the chart shows, U.S. Treasuries held abroad are highly correlated with Asian reserves. Of course, not all Asian reserves are invested in Treasuries, and not all Treasuries held abroad are held by Asian central banks. But Asian financing of the U.S. fiscal deficit is large enough are that the two tend to rise in strong parallel. The unusually large deterioration in the NIIP in 2001 reflects the impact of the dollar's real appreciation, and the unusually small deterioration in 2003 reflects the dollar real depreciation. We will return to the topics of the Asian financing of U.S. deficit and the impact of valuation effects from movements in the value of the dollar later on in sections 3 and 4.

[21] The net debt position is closely related to the net international investment position, which is the sum of the net debt position and the net equity position. Recently, the U.S. has been financing its current account deficit largely by adding to its net debt, not by adding to the stock of equities (stocks and foreign FDI) held abroad. Indeed, recently, the net debt position has been deteriorating more rapidly than the net international investment position, both because the U.S. has been borrowing from abroad to finance its FDI and purchase of foreign equity assets and because the U.S. has enjoyed substantial valuation gains on its foreign equity assets.

[22] U.S. Treasury (http://www.treas.gov/tic/index.html)



Section 2. The Current Account as the Savings-Investment Balance

2.1. The current account as the difference between national savings and investment

A basic identity of macroeconomics links a country's trade balance – or more specifically its current account balance -- to the difference between national savings (the sum of private and public savings) and national investment. If savings exceed domestic investment, the country is exporting capital and necessarily will run a current account surplus. If investments exceed savings, the country must borrow from abroad (import capital) to fund the excess of domestic investment relative to domestic savings and it necessarily runs a current account deficit. There is no mystery behind this analysis. National savings are the difference between national income and national consumption (the sum of private and public consumption). If private consumption is rising faster than income, private savings necessarily are falling – and higher consumption implies higher imports, since a fraction of consumption is going towards imports.[23] An increase in investment similarly implies an increase an aggregate demand, and therefore an increase in imports, as does an increase in government spending/ a fall in taxes (i.e. larger budget deficit and a fall in public savings). [24]

[23] See Mann (2004) for an interesting decomposition of the U.S. trade deficit. The deficit is entirely the product of a deficit in autos and consumer goods. U.S. trade in capital goods remains in rough balance. Her analysis graphically illustrates how a boom in consumption (a fall in savings) resulted in a widening deficit in consumer goods, and thus a rising overall trade deficit.

[24] For simplicity, we assumed that when one component of aggregate demand goes up (be it consumption or investment or government consumption), GDP or output remains unchanged; thus, for every dollar increase in domestic expenditure on C or I or G, the trade balance worsens by a dollar. If such increase in aggregate demand leads to some increase in output, a dollar of increase in C or I or G will lead to a worsening of the trade balance that is less than a dollar. This latter case is more realistic.

The expanding U.S. trade and current account deficit reflects the fact that U.S. total consumption has grown faster than U.S. income over an extended period of time. As Steven Roach has emphasized, U.S. national savings fell from around 10% of GDP in the 60s and 70s to about 6% in the 1980s and a bit under 5% in the 1990s. The fall would have been much sharper in the 1990s if not for government surpluses, i.e. government savings.[25] National savings fell even further after 2000, recently averaging only 3% of GDP.[26]

Falling national savings does not necessarily imply a widening current account. If both savings and investment fall, the current account will remain constant. But if investment stays constant, either a fall in private savings (i.e. private consumption is increasing faster than national income) or a fall in public savings (i.e. a larger budget deficit driven by higher public spending or lower revenues) leads to a growing current account deficit. The current account can also increase if savings stays constant and investment increases. Conversely, the U.S. can only rely on foreign savings to consume more than it produces (or to fund a growing budget deficit) if the rest of the word produces more than it consumes, and therefore generates savings that are lent to the United States.

2.2. 1990s: a widening of the U.S. current account reflecting a surge in investment

During the 1990s, the U.S. current account went from an approximate balance in 1990 and a small deficit during the first part of the 90s[27] to a 4% plus deficit by the year 2000. This deterioration stemmed primarily from an investment boom: private savings did fall throughout the decade, but the fall in private savings was partially offset by rising public savings. The U.S. went from a $290 billion fiscal deficit to a $250 billion fiscal surplus. Private savings fell faster than public savings rose, leading U.S. national savings to fall bit in the 1990s. But private investment also increased sharply. By importing capital from abroad during the boom years of the 1990s, the US was able to have its cake and eat it too. The expected returns from high levels of investment promised higher future incomes, and the U.S., in effect, borrowed against that future income to support high current levels of consumption.

Current account deficits are neither intrinsically bad or good; a country with a low level of debt may want to borrow from abroad to finance the imports associated with a surge in investment while a country with a large existing debt stock generally would be well advised not to borrow from abroad to finance a large budget deficit (and associated imports). In one case, the current account deficit is associated with a surge in investment that should provide higher future incomes, in the other, the additional debt is being taken on largely to finance current consumption (assuming the deficit does not reflect high levels of public investment). Consequently, the initial widening of the U.S. current

[25] Godley et al estimate that private sector expenditure (consumption and investment) increased faster than income "by an amount equal to 12% of GDP" between 1992 and 2000.
[26] Stephen Roach, August 16, 2004, Twin Deficits at a Flash Point, MSDW Global Economic Forum.
[27] 1990 was an unusual year for many reasons. The U.S. received substantial transfers to help pay for the Gulf War and the U.S. went into a recession while growth in the rest of the world – particularly in Europe – was strong.

account following the Asian crisis posed little concern: the U.S. still had a relatively low level of external debt, the rising deficit was driven primarily by an investment boom and it was financed mostly by equity/FDI inflows. The US in the 1990s was like a fast growing firm that has more investment than savings internal to the firm and has thus to rely on external capital markets to finance its investments.

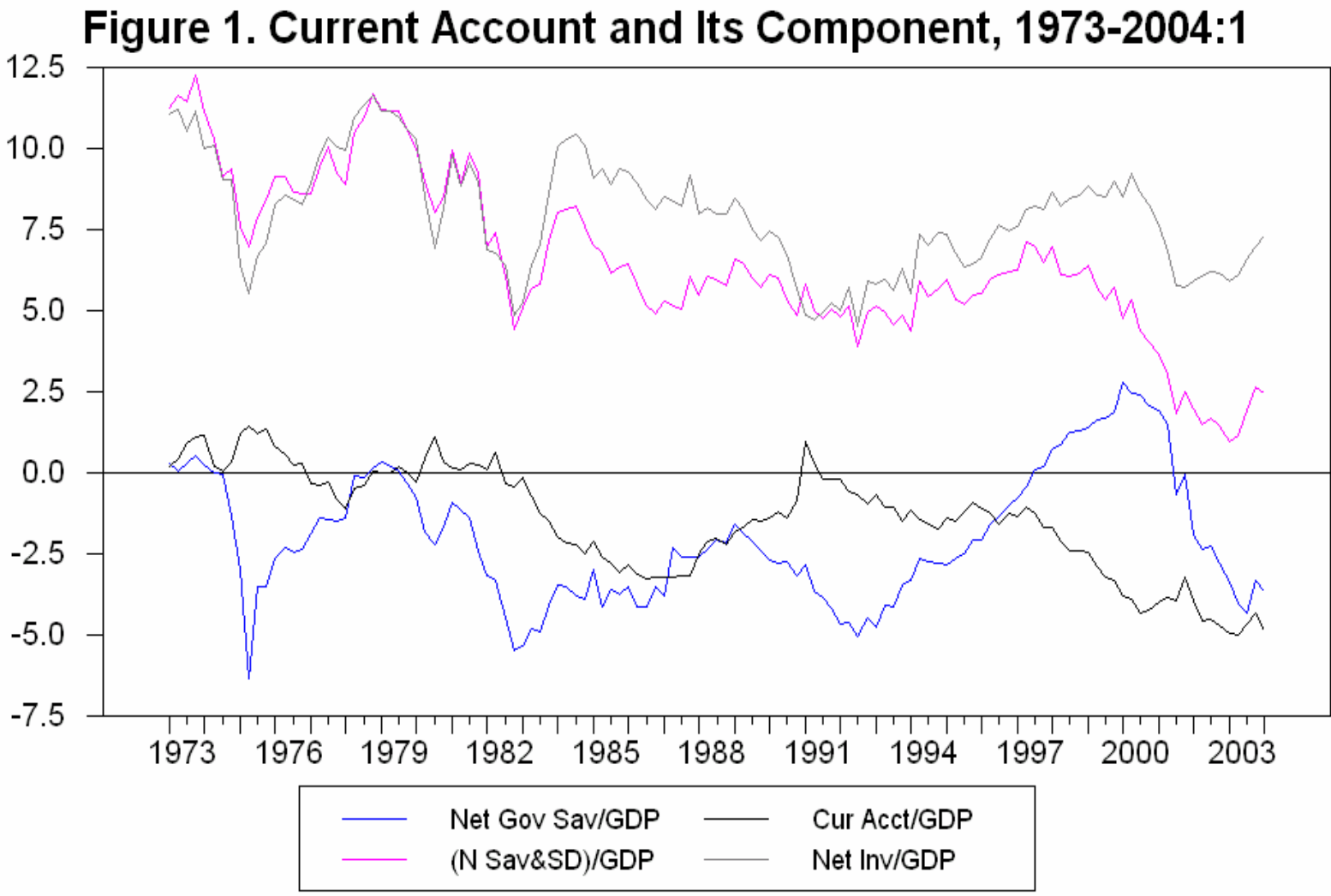
2.3. "Twin deficits" since 2001: recent worsening in the current account reflecting the large and growing fiscal deficits.

The current account deficit has remained large after 2000, but it no longer reflects an up-tick in private investment. Rather, it stems from a sharp fall in national savings. The bursting of the high tech bubble led national investment to fall by almost 4% of GDP between 2000 and 2003 (with a small recovery in 2003). If national savings had remained constant, the fall in investment should have led to an improvement of the US current account of about 4% of GDP as well. However, the US current account deteriorated by over 1.0% of GDP between 2000 and 2003, going from a deficit of 4% of GDP in 2000 to a deficit of 5.0% of GDP in 2003. National savings fell by more than investment, leading US current account balance to worsen. National savings fell mostly because the fiscal balance went from a 2.5% of GDP surplus in 2000 to a deficit of about 4% of GDP in 2003. The 6.5% of GDP fall in public savings overwhelmed the fall in investment and even offset a small rise in private savings.

The deficits since 2000 reflect the need for a low savings country to borrow from abroad to finance large budget deficits, not the need for a low savings country to borrow from abroad to finance a surge in investment without reducing its current consumption. There was a case for running counter-cyclical fiscal policy to moderate the economic impact of the end of the 1990s boom, but not a case for using the need for temporary stimulus to institute a permanent, and in our view reckless, tax cuts even as government expenditure was growing rapidly.[28]

Recessions usually lead to significant improvements in the current account. The 2001-02 slump in the U.S., however, produced only most changes in the overall current account deficit, as rising government expenditures, falling government taxation and rising consumer spending offset a sharp fall in private investment. The net effect was a small dip in the current account during the recession, and now a sharp expansion in the current account deficit as the economy recovers. Private savings remain low, the fiscal deficit remains large (it expanded in 2004 even though economy growth picked up) and the recovery is increasing investment demand.

[28] For an analysis of the U.S. fiscal position, since Rubin, Orszag and Sinai (2004).



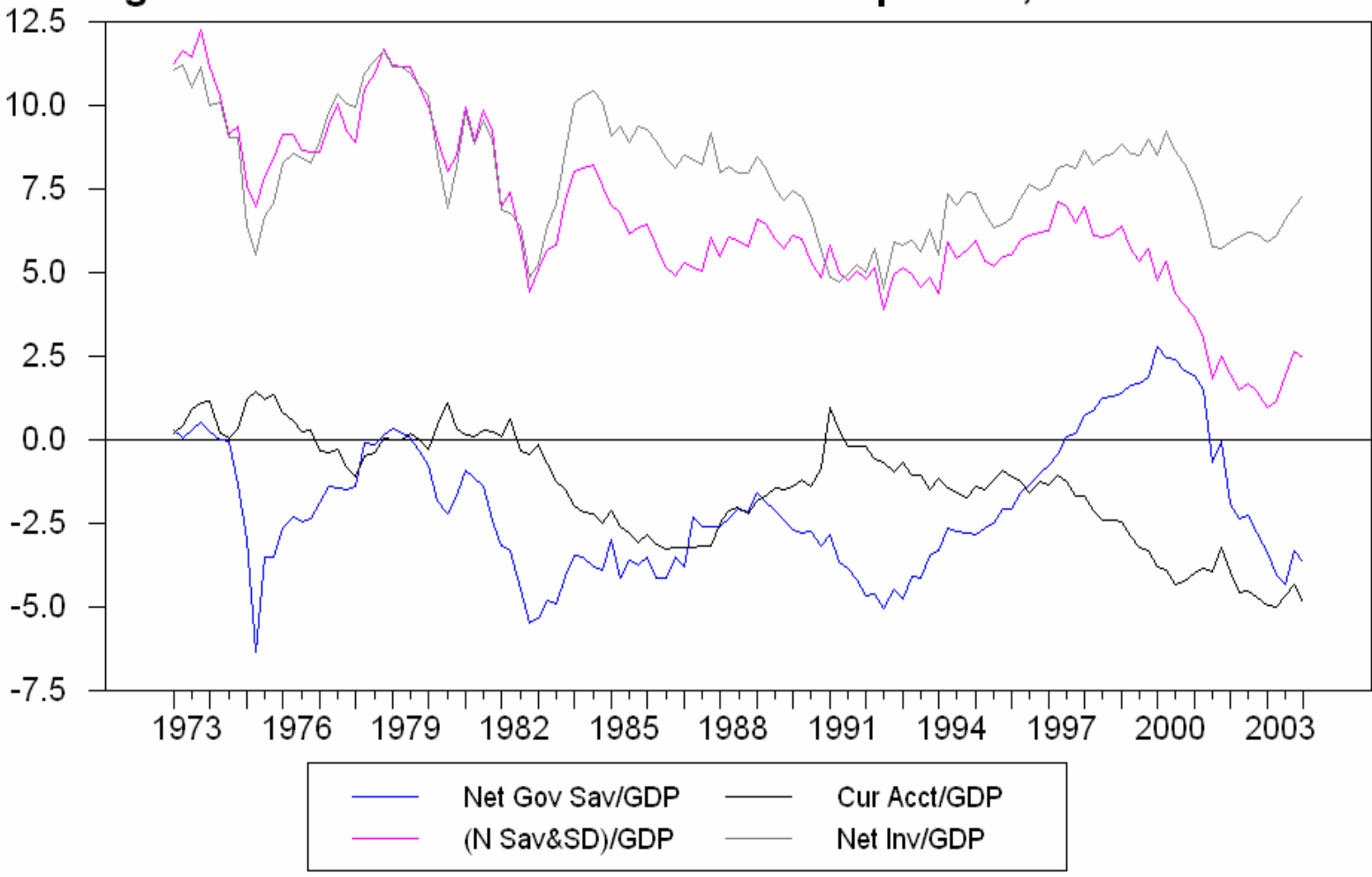
If the US maintains its current fiscal policies it would likely continue to run a fiscal deficit of about 4% of GDP for the next decade. Such a fiscal deficit (negative public savings) implies a "twin" current account deficit of about 5% of GDP if current rates of private savings and private investment are maintained, and a larger current account deficit if private investment increases and private savings stay constant. Of course, a fiscal deficit in the 4-5% of GDP range could well have an impact on private savings and investment. The fiscal deficit could start to crowd out private investment, particularly if foreign investors become less willing to finance the U.S. deficits and real interest rates rise. At some point US taxpayers may start to realize that fiscal deficits today imply tax hikes (or fewer government benefits) tomorrow and may start to save in anticipation of the future hit to their real income implied by large current deficits (Ricardian equivalence). Indeed, unless the U.S. can rely on foreign savings indefinitely, private savings must increase over time to restore financial balances in the private sector.[29]

A key question that national accounting does not answer, though, is what is the interest rate that will lead foreigners to hold financial claims on the U.S. economy – and specifically U.S. government debt -- as a large fraction of their financial assets. So long as the U.S. is running ongoing fiscal deficits financed in part by external capital flows, it

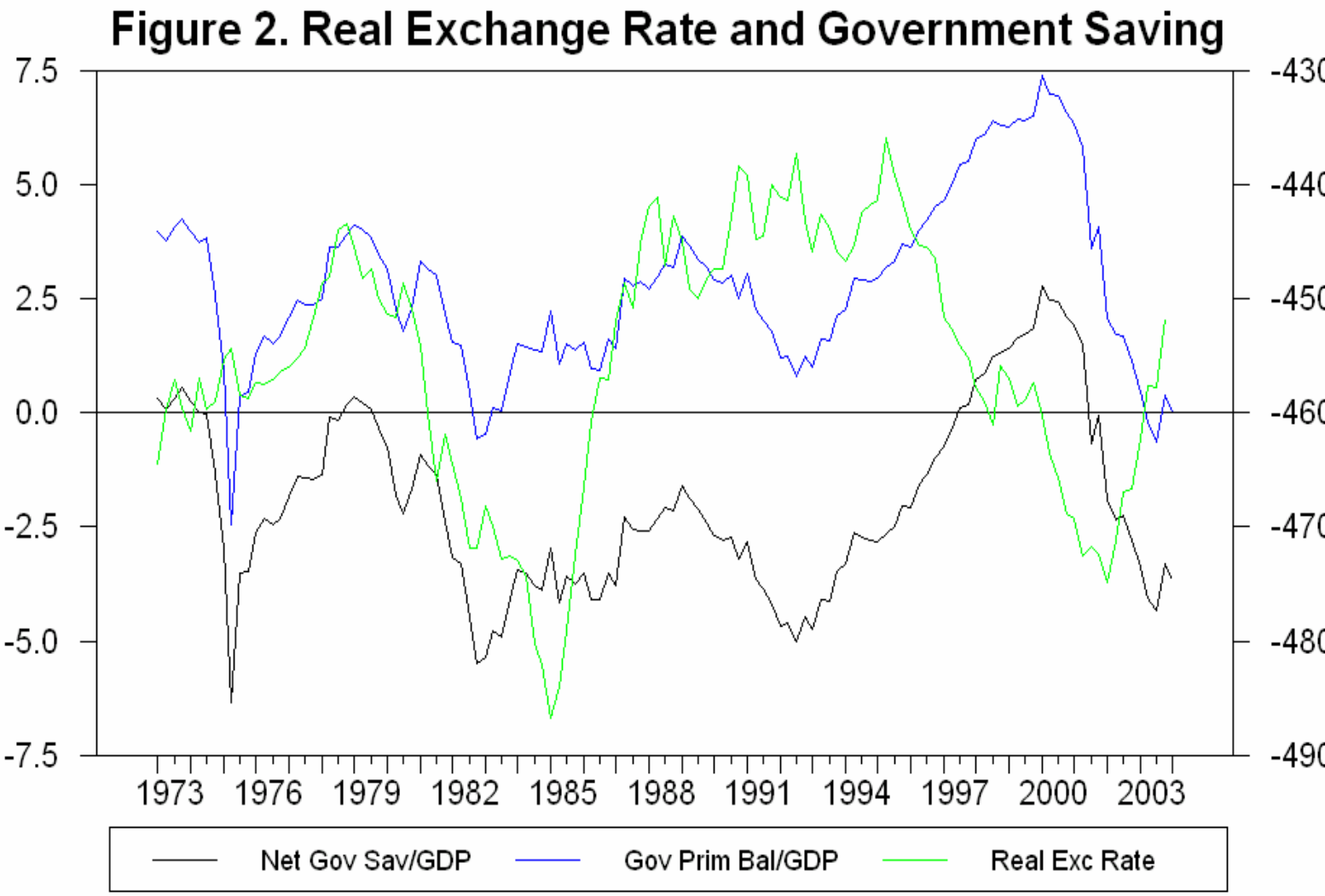
[29] See Godley et al. (2004)

needs to convince foreigners to increase their holdings of U.S. government debt. If they are not willing to do so at the existing interest rate, the interest rate must rise. The higher interest rate both helps the U.S. government attract needed financing, and reduces private demand for financing, since higher interest rates reduce private investment (crowding out). Higher interest rates also reduce private consumption (while increasing private savings). Higher interest rates would thus reduce the overall current account deficit even

Figure 1. Current Account and Its Component, 1973-2004:1



if the U.S. did not reduce its fiscal deficit. This, though, is hardly a good way to bring about the needed current account adjustment. The US has to pay higher interest rates to finance a large fiscal deficit, and lower private investment implies lower growth.



Section 3. The sustainability of the U.S. external deficit

3.1. The sustainability of the U.S. current account deficit and external debt accumulation.

The sustainability of large ongoing current account deficits – and the associated gap between national savings and private investment that requires the U.S. to import savings from abroad -- ultimately hinges on the amount of external debt that the U.S. economy can sustain. Common sense says that as person or a firm's debt increases, it will have to pay higher interest rates to compensate creditors for greater risk and, should debt levels rise high enough, eventually it would lose the ability to take out more debt. The same is true for a nation. As a country's debt level increases, at some point financial markets start to limit its ability to take on new debt – that is to finance on current account deficits by borrowing from abroad. As students of recent emerging market crises know, the market can swing from being willing to finance large ongoing current account deficits (and overlook the macroeconomic and policy problems that gave rise to them) to being unwilling to finance further deficits quite quickly.[30] Modern financial markets have

[30] Rubin, Sinai and Orszag (2004) emphasize the risk of the U.S. could experience a different kind of discontinuity in their analysis of the risks associated with large ongoing budget deficits: a sharp increase in the price the U.S. government has to pay to borrow as foreigners become less willing to hold dollar denominated U.S. assets.

many virtues, but they are not necessarily known for facilitating the smooth adjustment of large macroeconomic imbalances.

The sustainability of any country's external debt is partially a function of other countries' willingness to provide the indebted country with sufficient financing at a low enough cost to make the external debt burden viable. In the case of the U.S., the real question is not whether the U.S. can sustain its current debt burden – it clearly can, if it adjusts. Rather, the key question is when will the United States ever rising debt burden constrain the United States ability to continue to finance large – and if current trends continue, growing – current account deficits.

There is no easy answer to way to answer what the upper limit on the United States' external debt is, or put differently, when the United States debt will exceed the world's willingness to hold claims on the U.S. economy. Alan Greenspan has argued that financial integration is increasing foreign demand for U.S. assets[31] and higher demand for U.S. assets plus new financial technology that allow higher levels of leverage will allow the U.S. to continue to build up its external debt. But even if Greenspan is correct, the pace of U.S. debt accumulation may exceed the pace that is allowed by improvements in financial technology. The minutes of the June 29th-30th FOMC meeting indicate growing concern with the U.S. external imbalance inside the Fed: "the staff [of the Federal Reserve Board] noted that outsized external deficits could not be sustained indefinitely....the possibility that the adjustment could involve more wrenching changes could not be ruled out."[32]

Others point out that some advanced economies have accumulated net international debt of more than 50% of GDP without obvious adverse effects. Australia's net international investment position is a negative 64% of GDP. New Zealand and Canada also have substantial negative net international investment positions. Many emerging economies do too, though usually with less pleasant results. There are, however, good reasons to believe that the U.S. cannot sustain as high a debt level as many smaller economies.

- First, the pace of accumulation matters as well as the size of the debt stock. Australia and Canada have sustained high debt levels for a long time in part by keeping their trade close to balanced. Their ongoing current account deficits reflect payments on existing debt, not structural trade deficits – a stable debt to GDP ratio is consistent with ongoing current account deficits, but not ongoing trade deficits. The U.S. does not (yet) have as much debt as these high debt economies, but the U.S. debt to GDP ratio is rising at a rapid clip because of the United States' large trade deficit. Annual U.S. current account deficits of $500 billion and more require that the U.S. attract a large share of all new cross-border

[31] See his November 2003 speech at:
http://www.federalreserve.gov/boarddocs/speeches/2003/20031120/default.htm

[32] The analysis, as usual for the Fed, was cautious and included all sorts of caveats: "the historical evidence indicated that such deficits could be quite persistent, and the adjustment of imbalances was not necessarily imminent. The adjustment, once under way, might well proceed in a relatively benign fashion." Still, this new staff report suggested increasing alarm at the Fed, which had not previously expressed concern about the U.S. current account deficit. See FOMC, June 29th, 2004.

investment. Right now, U.S. deficits are estimated to suck up 2/3s of the world total current account surplus.

- Second, it is a lot easier for a small economy to have a large external debt stock than the world's largest economy. A $100 billion economy with a 100% of debt to GDP ratio needs to place $100 billion of asset abroad, its assets will still account for a relatively small share of the world's savings. If the U.S. had a comparable level of debt, it would need to place $11 trillion in debt abroad; claims on the U.S. would account for the majority of cross border assets.

- Third, the U.S. external debt needs to be assessed in relation to its exports as well as GDP. A country that exports 50% of its GDP is better position to sustain a higher debt to GDP ratio than a country that exports 10% of its GDP, like the U.S.. Australia's debt to export ratio is around 400%, despite a negative 64% of GDP net international investment position, because its exports to GDP ratio is around 16-17%.[33] The U.S., which currently only exports about 10% of its GDP, will push the limits of a country's debt to export ratio before it touches the limits of the debt to GDP ratio. [34]

It is reasonable to suspect that the willingness of foreigners to hold financial claims on the U.S. – particularly claims that have relatively low interest rates -- will hinge in part on the external credit worthiness of the United States. One of the weaknesses of analysis that argues that current U.S. deficits are sustainable because a relatively small fraction of the world's total financial wealth is invested in the United States is that it is entirely divorced from any analysis of the "credit" fundamentals of the United States. The world's appetite for low yielding U.S. assets that offer little protection against the risk of further dollar depreciation may be satiated well before the world's appetite for dollar assets is satiated. As understanding of the risks associated with lending to a large debtor with ongoing external deficits grows, the United States creditors could start charging higher rates to lend their savings to the U.S., forcing the U.S. either to cut back on its external borrowing or commit a higher share of its future income to make payments to foreigners.

Thus, we propose two different, but closely related ways, of assessing the United States creditworthiness. First, we have also constructed a simple model to examine the

[33] See www.abs.gov.au/Austats/. Canada's net international investment position was at high as 40% of GDP in the mid-1990s, but it has subsequently fallen to about 30% of GDP, and Canada exports are more than the U.S. New Zealand's net international investment position is around 80% of its GDP, but New Zealand also exports 30-35% of its GDP, so its debt to export ratio is below that of the United States, despite having a much higher international debt.

[34] Note that Obstfeld and Rogoff (2000) argue that the US small tradeables base requires a larger amount of exchange rate adjustment to get the current account adjustment, and that the overall need for large current account adjustment implies large exchange rate adjustment. BIS (2004) calculations suggest the US dollar has returned to levels of the mid 1990s now, a level that produced slow deterioration in current account, not major improvements or even stability. Consequently, it is reasonable to think that the current exchange rate adjustment is only the beginning – current adjustment may be enough to slow the pace of deterioration but not enough to lower current account deficit as a share of GDP.

evolution of the US current account and its net international investment position. This model is not complex: the current account balance is the sum of the trade balance, the balance on transfers and the balance on investment income. The trade balance and the balance on transfers are exogenous to the model, they hinge on assumptions about the pace of export growth, import growth and GDP growth. Since deficits have to be financed, ongoing deficits imply growing external debt and a deteriorating balance on investment income. This model allows us to test the sensitivity of the US external balance to different assumptions about export and import growth as well as to different assumptions about the relative returns on US external assets and US external liabilities. The key to producing a useful model is to set the key parameters at reasonable levels.

Second, we use resource gap analysis to determine the conditions that would prevent the US external debt to GDP ratio from rising. This analysis lets us determine the amount of adjustment that is needed to keep the debt to GDP ratio from rising from current levels, and the amount of adjustment needed if the debt to GDP ratio rises to a higher level before the U.S. starts to adjust. These calculations require only a few variables – an estimate of the debt to GDP ratio, an estimate of the real growth rate and an estimate of the real interest rate the U.S. will have to pay on its debt. The amount of adjustment typically rises along with the level of debt, all other things being equal. Realistically, though, other things will not be equal: higher debt levels typically imply less growth and higher real interest rates, and thus more adjustment. This analysis helps to explain the debt to GDP paths that emerge from our simple model under different assumptions.

3.2. U.S. External Debt Dynamics: Forecasting the U.S. NIIP.

The U.S. NIIP to GDP ratio – which for the sake of simplicity we will call the U.S. external debt to GDP ratio – stood at 24% of GDP at the end of 2003. It is likely to be around 28% of GDP at the end of 2004. We assume that both export and import growth will be strong in 2004 (consistent with the monthly trade data), nominal GDP will increase at 6.5% (consistent with a 4% increase in real GDP and a 2.5% increase in the price level, or a 4.5% increase in real GDP and a 2% increase in the price level), transfer payments will rise in line with nominal GDP (i.e. stay constant as a share of GDP) and the cost of servicing the United States' existing debt and the return on the United States' existing assets will remain at their 2003 levels. Under these conditions, the U.S. trade deficit would increase to about $560 billion, and the U.S. would run a current account deficit of $615 billion. Since the real dollar is expected to remain roughly constant, there will not be offsetting valuation gains on the existing stock of U.S. external assets. The U.S. NIIP would deteriorate by an amount equal to the current account deficit.

The future path of the U.S. NIIP is more uncertain. It obviously depends on the performance of the U.S. economy, which influences the pace of import growth, the performance of the global economy, which influences export growth, the value of the dollar and, as we emphasized earlier, U.S. fiscal policies, which impact on the savings-investment balance and therefore on the trade balance. We developed three scenarios.

- Our first scenario tries to outline the likely impact of current fiscal policies, assuming that the U.S. dollar remains roughly constant in real terms and the U.S. economy continues to grow. The current value of the JP Morgan dollar (93.4) happens to be close to the average value of the JP Morgan real dollar index between 1990 and 2003 (93.4), so we assume that average US and world growth rates will lead imports and exports to grow at their 1990-2004 average rates. In other words, we assume that an average real exchange rate from the past 14 years will result in average export and import growth rates over the past 14 years, export growth of 5.5% and import growth of 7.25%.[35]
- Our second scenario examines what would happen if the trade deficit remained constant in real terms at its 2003 level of around 4.5% of GDP. This implies that exports will need to grow faster than imports in 2005 to offset the deterioration in the trade balance that occurred in 2004, and then both exports and imports will grow in line with nominal GDP. We believe this scenario would require some additional depreciation in the dollar, probably on the order of 5-10% in real terms.[36]
- Our third scenario examines what would happen if exports grew substantially faster than imports, allowing the trade deficit to shrink by about 0.5% of GDP annually.[37] Since we are not assuming a slowdown in the U.S. – export growth needs to be particularly strong to offset continued import growth, so we are assuming exports grow at 9.5% and imports at 5.1%. In broad terms, this scenario implies that net exports begin to make a substantial contribution to U.S. economic growth, that imports remain constant as a share of GDP, and that the trade deficit shrinks because exports grow as a percentage of GDP. Consequently, this scenario likely implies substantial dollar depreciation and a significant fiscal adjustment. Godley et al (2004) and Michael Mussa have suggested that a 10% depreciation in the real dollar produces a 1% of GDP improvement in the trade balance. If his analysis is correct, this scenario implies a steady yearly 5% depreciation in the real dollar over ten years, or about a 50% real depreciation total.[38]

[35] If the export and import growth observed in the first half of this year are sustained in the second half of the year, import growth between 2000 and 2004 will be about 4.8% and export growth was about 2.25%, so we are assuming both that stronger U.S. and global growth leads to higher growth rates in both imports and exports. We are also implicitly assuming that the fall in the dollar from its 2001 highs leads to some improvement in the relative growth rate of exports and imports, the ratio between import growth and export growth would fall from over 2 to below 1.5

[36] Godley et al (2004) estimate that at the current level of the real dollar, the U.S. trade deficit would stabilize at around 6% of GDP.

[37] Initially, the gains would be smaller than 0.5% of GDP, more like 0.4% of GDP. When the adjustment process starts, the U.S. has to fight against the handicap created by its relatively large import base and relatively small export base. At the size of the export base rises in relation to GDP, the stronger growth rate in exports produces a larger impact on the trade deficit.

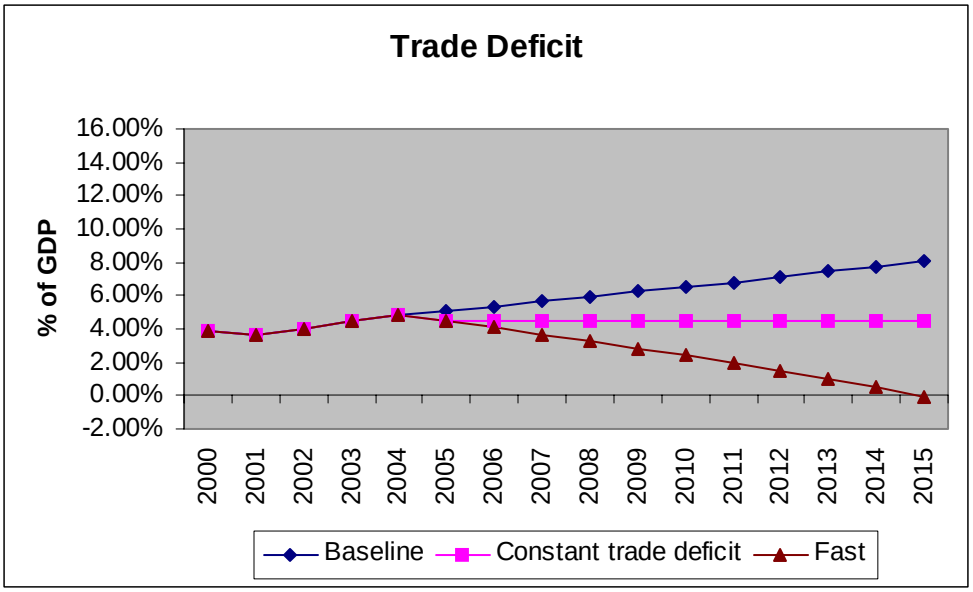
[38] There is no doubt that a large exchange rate adjustment is needed, but the 50% real depreciation produced by this rule of thumb appears a bit excessive. Also, the impact of a fall in the real exchange rate may not be entirely linear; a 10% fall may generate an improvement of 1% of GDP, but a 20% fall might produce an improvement of more than 2% of GDP.

The following table summarizes the specific assumptions in each of these three scenarios.[39]

Key assumptions	Baseline	Modest Adjustment	Strong (but smooth) Adjustment
Nominal GDP growth	5.1%	5.1%	5.1%
Real GDP growth	3.5%	3.5%	3.5%
Import Growth	7.25% (average of past 14 years)	5.1% (in line with growth in nominal GDP)	5.1%
Export Growth	5.5% (average of past 14 years)	8.7% in 2005, and then 5.1% (in line with nominal GDP).	9.0%
Income payments	Between 2004 and 2008, the nominal returns on the external assets held by the U.S. will rise from 3.7% to 4.7%, and the returns foreigners receive on the US assets (U.S. liabilities) will increase from 2.4% to 4.8%. Growing U.S. debt will lead the returns foreigners demand on U.S. to rise to 5.1% in 2010 and 5.7% in 2012 .	Between 2004 and 2008, the nominal returns on the external assets held by the U.S. will rise from 3.7% to 4.7%, and the returns foreigners receive on the US assets (U.S. liabilities) will increase from 2.4% to 4.8%. After 20087, both rates then converge to 5.1%, to the nominal and real interest rate on U.S. external debt is equal to nominal and real U.S. growth.	Between 2004 and 2008, the nominal returns on the external assets held by the U.S. will rise from 3.7% to 4.7%, and the returns foreigners receive on the US assets (U.S. liabilities) will increase from 2.4% to 3.6%. After 2008, returns on U.S. liabilities rise to 4.1%.
Implicit exchange rate assumption	Real exchange rate remains around 93-94 (on the JP Morgan real exchange rate index)	Real exchange rate depreciates somewhat and then stabilizes.	Real exchange depreciates substantially over time.
Implicit fiscal policy adjustment	Fiscal deficit remains @ 4% of GDP	Fiscal deficit remains constant or is reduced somewhat	Fiscal deficit is reduced to 2% of GDP by 2008 and eliminated by 2012.

[39] A few caveats are worth emphasizing. First, the assumed returns on U.S. external assets and liabilities are based on the assumed average return across all U.S. assets and liabilities. We did not do a disaggregated calculation that tries to capture different returns on debt and on equity, for example. We define returns as cash flow payments – i.e. the income payments that show up in the current account divided by gross assets or liabilities – not as a combination of cash flow and changes in valuation. Second, we did not build any valuation changes into the model. In scenarios with dollar depreciation, the dollar depreciation would tend to reduce the NIIP slightly – though, unless the depreciation occurs mostly against the euro, the pound, the Swiss franc and the Canadian dollar – future depreciation will likely produce proportionately smaller valuation gains than the 2002-2003 depreciation. Third, we did not try to model the United States' current need to borrow to finance net FDI outflows. This could be modeled, for example, by making the U.S. stock of debt liabilities increase by an additional $100 billion a year, and have that offset by rising equity assets of $100 billion. Such a refinement would not change in the deterioration in the U.S. net asset and liability position, since the change on the assets and liabilities side would offset. However, if the U.S. systematically earns substantially higher returns on its FDI/ equity assets than on it has to pay on its liabilities, the gains from this kind of financial intermediation would help offset the trade, transfers and remittances balance. But since the scale of this financial intermediation is relatively small, the gains would have to be enormous to have an impact.

Our assumptions for import and export growth do not emerge from a formal model, but they are based on what models and previous empirical estimates suggest it would be reasonable to forecast.[40] It is worth recalling that the trade deficit expanded slightly throughout the first part of the 1990s even though the real dollar was below 90 – i.e. at a level substantially below its current level. Standard formal analysis of the U.S. trade account finds that the income elasticity of U.S. imports is greater than the income elasticity for U.S. exports (the Houthakker-Magee asymmetry), so the trade deficit has a tendency to expand unless the dollar depreciates over time.[41]



Our forecasts for future income payments assume that the U.S. continues to benefit from the dollar's position as a reserve currency. A nominal rate on U.S. external liabilities of

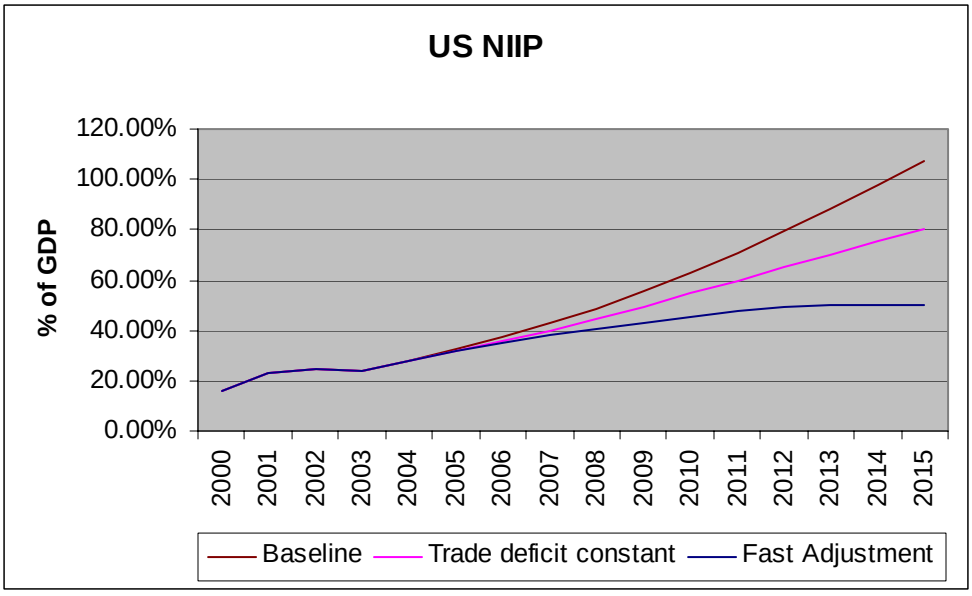
[40] Godley et al assume slightly lower real GDP growth than we do (3.2% v. 3.5%), and they estimate that at this growth rate, and with strong 4% growth in world output, the U.S. primary external balance (the balance on trade, transfers and remittances) would stabilize at about 6% of GDP as a result of the lagged impact of the dollar's depreciation in 2002 and 2003. They note that this forecast is "rather optimistic." Godley et al. model import and export prices, something we do not attempt to do. But if you assume that import and export prices are constant, their underlying growth rates for the U.S. and their empirically determined elasticities (1.7 for U.S. import growth, 1.4% for U.S. export growth) are consistent with import growth of around 5.4% and export growth of 5.6%, a result that is close to export and import growth rates in our "modest adjustment to keep the trade deficit constant as a share of GDP" scenario.

[41] Some may argue that such income elasticities may change over time in ways that may help to reduce the U.S. trade deficit; but there is not, so far, evidence of this happening. If anything, all the evidence is that the famous "Houthakker-Magee asymmetry" is still robust. This well known empirical regularity is that that the U.S. import elasticity to US income is greater than the foreign income elasticity for U.S. exports. Thus, even if the U.S. were to grow as fast as the rest of the world, the U.S. trade balance would worsen as import demand would grow faster than foreign demand for US exports, at unchanged exchange rates. Consequently, the world needs to grow much faster than the U.S. for the U.S. trade deficit not to deteriorate. But in the last decade U.S growth has been greater than its OECD trade partners, especially Europe and Japan. Developing countries now account for a significant share of U.S. trade, but growth in the developing world also has been highly variable.

between 4.1% and 4.7% in 2008 is hardly high[42]; it corresponds to a real rate of between 2.5% and 3.1% if inflation is around 1.6%. Consequently, in all our scenarios, the real interest rate on the net U.S. debt would remain slightly lower than the real growth rate of 3.5%.

In our baseline scenario, we do assume that rising U.S. external debt after 2008 does leads the nominal interest rate on U.S. external debt eventually to rise to 5.7%, and the real rate to rise to around 4%. However, this is in some ways an optimistic assumption, given the deterioration that would occur in the United States external position in this scenario. With an external net debt of 60% of GDP and a large trade deficit that augers a fast rising debt to GDP ratio, the real interest rate on U.S. debt would still only be a half percentage point above the real growth rate.

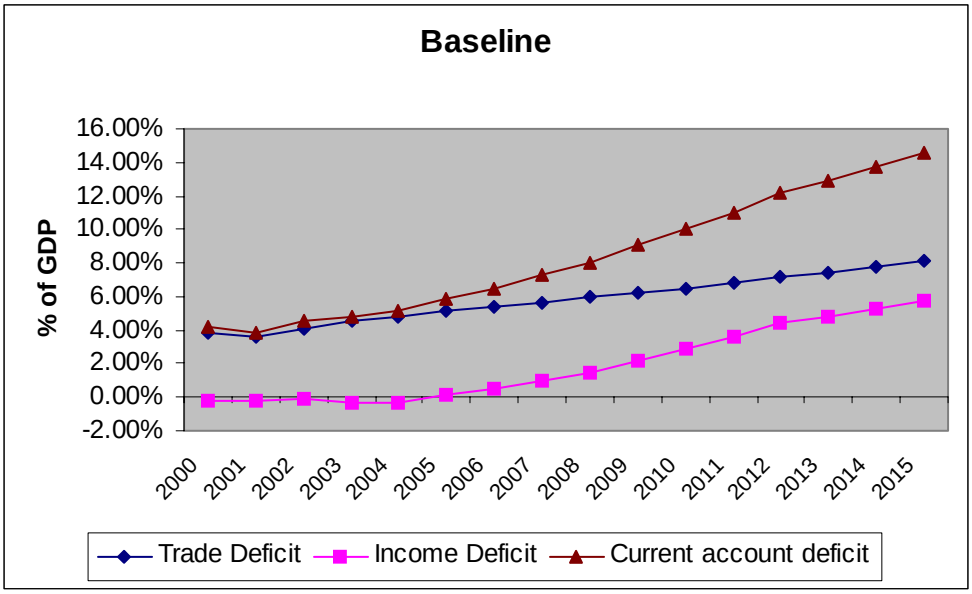
All these assumptions are somewhat arbitrary. They are meant to be illustrative. Adjustment in the U.S. external balance could come about through a fall in U.S. imports rather than a rise in U.S. exports, a scenario that could be consistent with slower growth in both the U.S. and the world. Current exchange rates may be consistent with a stable U.S. trade deficit as a share of GDP, not a widening trade deficit, slowing the pace of debt accumulation. In a sense though, the precise details do not matter. The first scenario models any combination of growth and real exchange rates that leads the trade deficit to expand, the second models any combination that produces a constant trade deficit, and the third models any combination that leads to a sustained fall in the trade deficit. The bottom line is fairly clear: unless the trade deficit shrinks substantially, US external debt levels will rise rapidly, no matter what other assumptions are made.



[42] Godley et al estimate the average U.S. interest rates on its stock of external liabilities will rise to 5.5% by 2008, in line with Treasury bill rates.

3.2.1. Baseline Scenario.

In our baseline scenario, the U.S. external accounts start looking quite bad quite fast. In 2006, debt is 38% of GDP and current account is 6.5% of GDP; in 2008 it is 49% of GDP and the current account is 7.8%.



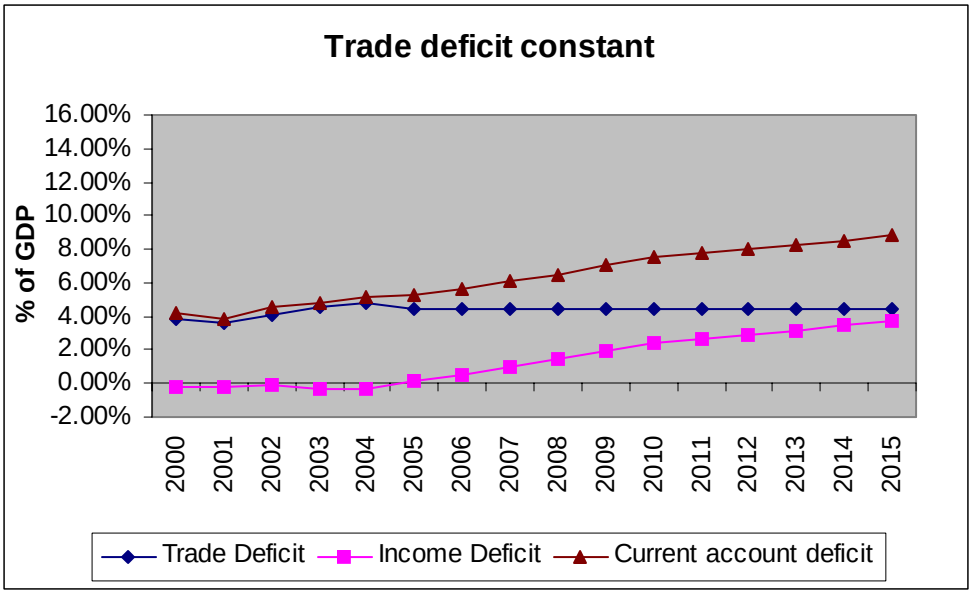
In our judgment, the deterioration in the U.S. external accounts implied by the baseline scenario is too rapid to be viable. As the table below indicates, the current account balance becomes exceptionally large in relation to U.S. export revenues, in part because of income payments on the United States' fast growing debt stock. If the U.S. was on a trajectory that led debt levels to rise rapidly, external investors would be unwilling to provide the financing needed for large external deficits without substantially higher interest rates – interest rates that would slow the economy and reduce the pace of US import growth. The U.S. would be forced to begin to adjust.

Flow indicators – Base scenario

	2004	2008	2010	2012
Trade balance (% of GDP)	-4.84	-5.93	-6.52	-7.15
Trade, transfers and remittances balance (% of GDP)	-5.45	-6.55	-7.13	-7.74
Income balance (% of GDP)	+0.28	-1.51	-2.91	-4.41
Income as % of exports	--	15	29	43
Current account (% of GDP)	-5.17	-8.06	-10.19	-12.13
Current account as % of exports	52	79	99	118

3.2.2. Trade deficit constant as a share of GDP

In our second scenario, the trade deficit remains constant at around 4.5% of GDP. In our view, this likely requires additional adjustment, i.e. a further fall in the dollar and/or some reduction in the fiscal deficit. Modest adjustments, though, are not enough to substantially change the basic analysis. The U.S. simply is not on a sustainable path so long as the trade deficit remains at close to current levels. Ongoing trade and current account deficits imply a growing external debt stock, and payments on the stock of debt start to lead the current account to widen significantly.



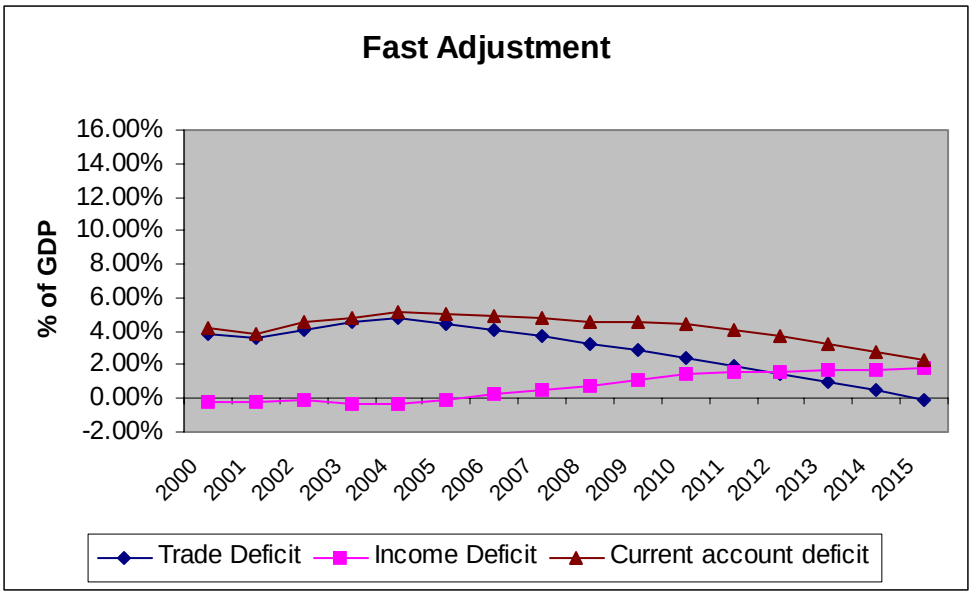
Flow indicators – constant trade deficit

	2004	2008	2010	2012
Trade balance (% of GDP)	-4.84	-4.50	-4.50	-4.50
Trade, transfers and remittances balance (% of GDP)	-5.45	-5.11	-5.11	-5.11
Income balance (% of GDP)	+0.28	-1.43	-2.47	-2.97
Income as % of exports	--	14	24	29
Current account (% of GDP)	-5.14	-6.52	-7.55	-8.05
Current account as % of exports	52	63	73	78

3.2.3. Strong, Smooth, Sustained Adjustment

Only in a scenario where there is a significant reduction in the trade deficit between 2005 and 2010 is the U.S. on a path that will eventually lead the debt to GDP ratio to stabilize. So long as the adjustment in the trade deficit is smooth, the debt to GDP ratio still stabilizes at a much higher level. If the trade deficit falls by half a percent per year for the next ten years, leading to a small trade surplus in 2014, the U.S. debt to GDP ratio

stabilizes at around 50%. The cost of servicing this debt is not small, even with relatively favorable interest rate assumptions: annual interest payments are 1.5-1.7% of GDP from 2010-2015 (with an implicit nominal interest rate on the U.S. net external debt stock of only about 3.8%).



Rising income payments are an important reason why improvements in the current account lag improvements in the trade balance: in this scenario, the current account deficit remains around 4.5% of GDP in 2008 even though the trade balance has fallen to 3.25%, and the current account balance is 4.4% of GDP in 2010 even though the trade deficit is 2.4% of GDP. This reflects the fact that the underlying size of the 2004 U.S. current account deficit is masked by unusually low U.S. interest rates. The current account balance is on track to deteriorate naturally as interest rates rise. Adjustment in the trade deficit is needed simply to prevent the current account deficit from widening.

Flow indicators – strong, smooth adjustment

	2004	2008	2010	2012
Trade balance (% of GDP)	-4.84	-3.28	-2.41	-1.47
Trade, transfers and remittances balance (% of GDP)	-5.45	-3.89	-3.02	-2.09
Income balance (% of GDP)	+0.28	-0.72	-1.43	-1.62
Income as % of exports	--	6	12	12
Current account (% of GDP)	-5.14	-4.62	-4.45	-3.70
Current account as % of exports	52	40	36	28

3.3.1. Intertemporal budget constraints and the theory of debt sustainability.

The basic theoretical criterion for external solvency is simple: the country must pay off its current debt over time (the intertemporal budget constraint). Such a restriction rules

out Ponzi schemes where a country borrows to pay for the interest payments on its net external debt. This condition implies that the sum of all future current accounts (or, equivalently, the discounted sum of all future trade balances) must be equal to the initial foreign debt of the country. An indebted country which is initially running a trade deficit eventually will need to run trade surpluses to remain solvent. But a country can accumulate a large stock of debt so long as it can, over the infinite future, repay that stock by running small external surpluses (that is, making net payments on its existing stock) over a very long time.[43] The formal criteria that emerge from the requirement for eventual payment provide little practical guidance for assessing external sustainability. [44] In practice creditors will conclude that an indebted country's promise to run future trade surpluses is not credible well before it reaches any theoretical maximum for external debt accumulation.

3.3.2. A stable debt to GDP ratio and the "resource gap".

Most practical analysis of external sustainability looks at a more indirect measure of external sustainability, namely the conditions that lead to a stable *foreign liabilities to GDP ratio* (for simplicity, we call this the debt to GDP ratio, though in reality some foreign claims will be equity claims, not debt claims). A country whose debt to GDP ratio is on track to increase without bounds is clearly will become insolvent at some point if it does not make needed adjustments. Therefore, looking at the scale of adjustment needed so that the external debt to GDP ratio eventually stabilizes offers a useful basis for assessing external sustainability.

This type of analysis only indicates the amount of adjustment needed to prevent the debt to GDP ratio from growing without bound, not what level of debt is unsustainable. A country with a debt to GDP ratio of 50% of GDP may need to adjust more than a country with a debt to GDP ratio of 25%, but the higher debt level may be as sustainable as the lower debt level. .

[43] Similar conceptual difficulties in determining solvency emerge when one considers whether a country's government, rather than the country as a whole, is solvent, i.e. whether the (domestic and foreign) public debt of a government is sustainable or not. This is important because, in practice, a large fraction of the foreign debt of a country may be government debt. Again the theoretical criteria for government solvency are quite loose. Specifically, as long as the discounted value of the government debt is not increasing without bounds in the infinite time limit, the public sector is solvent; this means only that the government cannot increase its debt faster than the real interest rate on this debt or, equivalently, that is must run persistent trade surpluses over time to avoid a Ponzi game where new borrowing occurs to finance the interest rate on the old debt. Subject to this constraint, any path of the fiscal (cum interest) surpluses/deficits such that the infinite sum of all fiscal balances is equal to the initial debt of the government is consistent with public sector solvency. The stock of public debt could increase without limit as long as it does not increase faster than the real interest rate. The solvency constraint requires that the discounted value of primary balances should be at least equal to the initial public debt; if a government is initially running primary deficits and has a stock of initial debt, it needs to run primary surpluses over time to remain solvent. But it does not necessarily need to start running primary surpluses immediately so long it runs primary surpluses at some point in the future.

[44] Mathematically, the need to eventually repay requires that the discounted value of the country's foreign liabilities not grow without bounds in the infinite limit. The stock of foreign liabilities of the country can increase as long as it does not increase faster than the real interest rate the country has to pay on its debt.

Using a stable foreign liabilities to GDP ratio as a proxy for external sustainability leads to the concept of the "resource gap".[45] The resource gap is the difference between the a country's trade, transfers and remittances balance (the non-interest current account, or the primary external balance) an economy can run without seeing its debt to GDP ratio rise and the country's *actual* trade, transfers and remittances balance.[46] The size of the required trade, transfers and remittances surplus is a function of the differential between the real interest rate and the growth rate of the economy and the country's debt levels.[47]

The bigger the gap between real interest rates and real growth rates and the bigger the debt stock, the larger the trade surplus that is needed to keep the debt to GDP ratio from rising, so do high real interest rates. One important note: if the real interest rate exceeds the real growth rate in the economy, a stable debt to GDP ratio requires that a country run a trade surplus but not a current account surplus. A country can maintain a stable debt to GDP ratio with a small trade surplus even if a negative balance on income payments leads to a current account deficit.

Emerging economies often end up defaulting on their external debt, both because they often have to pay high real interest rates to borrow and because most of their external debt is denominated in foreign currencies. The currency composition of the debt matters, since the devaluation needed to generate improvements in the trade balance simultaneously increases the real value of their debt stock.[48] This can produce a debt trap that leads to default.

Since most U.S. debt is denominated in dollars, United States debt levels would have to rise to very high levels before outright default is a realistic risk. No matter: for a country

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[45] Formally what matters for external sustainability are the net foreign liabilities of a country rather than its gross external debt. Such liabilities included both external debt and equity claims of non residents net of the foreign assets of the country. We will interchangeably use the terms foreign debt, foreign liabilities and NIIP even if, formally, foreign debt excludes non-debt assets and liabilities relative to non-residents.

[46] Thus, our measures of the "resource gap" are based on measures of the current and permanent "non-interest account", not just the strict "trade balance".

[47] A similar practical criterion can be used to assess the sustainability of public debt: public debt can be viewed as sustainable as long as the public debt to GDP ratio is non-increasing. In a country where the public debt to GDP ratio is growing, the fiscal "primary gap" is the difference between the fiscal primary balance and the primary balance required to stabilize the debt to GDP ratio.

[48] Both movements of the real exchange rate and terms of trade shock importantly affect debt dynamics. For a country whose foreign debt is in foreign (domestic) currency a real depreciation of the currency leads to an increase (decrease) in the foreign debt to GDP ratio (as it increases (decreases) the real value of foreign currency denominated liabilities (assets) of a country) and will worsen (improve) the debt sustainability of a country. A larger (smaller) trade surplus will be required to stabilize the debt to GDP ratio when a real depreciation increases the debt to GDP ratio. Argentina is a prime case in point. Similarly, a negative terms of trade shock (a fall in the relative price of the exports of a country) will also lead to an increase in the debt to GDP ratio (as it reduces the real income of the country) and will thus require a larger trade surplus adjustment to avoid an unsustainable increase in the debt to GDP ratio. While a real depreciation increases the stock for debt (relative to GDP) for a country with foreign currency debt, it may also improve the external balance, helping to improve external sustainability. A real depreciation in conjunction with a large stock of foreign-currency denominated debt unambiguously hurts fiscal sustainability, since a real depreciation does not automatically lead to improvements in the primary fiscal balance.

like the U.S. with an substantial initial debt stock and a large trade deficit, the adjustment – likely both a recession and/or a sharp fall in the dollar and/or a sharp increase in real interest rates – needed to stabilize the United States' external debt to GDP ratio would feel like a crisis. The practical risk facing the United States is not that its debt will reach a level where the US won't be able to pay, but rather that the US will have to undergo a wrenching period of slow growth and a weak dollar (perhaps combined with high domestic interest rates to convince foreign creditors to rollover their dollar debts) to demonstrate that its debt is not on an ever increasing trajectory.

3.3.4. The current and permanent resource gap for the United States

The current resource gap.

At the end of 2003, the net foreign liabilities of the US (at market value) were 24.1% of GDP, the trade deficit for the year was 4.52% of GDP, the current account deficit 4.83% while net factor income payments and unilateral transfers were 0.47% of GDP. Net factor payments – mostly the balance on investment income -- were a positive 0.30% of GDP while unilateral transfers – a combination of foreign aid and private remittances -- were a negative 0.61% of GDP. Consequently, the balance of trade, transfers and remittances was a negative 5.13% of GDP.

The first point to observe here is that, at *current* values, net factor payments are still positive, even though the U.S. is a net debtor. As discussed earlier, the average return on US assets abroad was greater than the average return on US foreign liabilities. So, at 2003 values, the nominal interest rate on the net debt of the U.S. was a negative 1.5% (net debt times a negative rate produces a positive income stream). With inflation close to 1%, the real interest rate was roughly –2.5% (-1.5% - 1%). Real GDP growth in 2003 was 3%.

Based on these figures, the external debt stabilizing trade, transfers and remittances balance is:

$(r - g)\, D/Y = (-0.025 - 0.03) * 24.1\% = -1.33\%$

In other terms, since the current real interest rate is below the real growth rate of the economy, the US can run forever a trade, transfers and remittances deficit equal to 1.33% of GDP (a trade, transfers and remittances balance of approximately 1.3% of GDP translates into a trade deficit of around 0.7% of GDP) and still stabilize the external debt ratio.

However, this is hardly comforting, since the actual non-interest rate balance (trade deficit plus remittances) was 5.13%. Stabilizing debt levels at 2003 levels would require shrinking the trade balance deficit from 5.13% of GDP to 1.33%; the *current resource gap* is 3.8% of GDP (1.33% - 5.13%). Conversely, maintaining the 2003 trade deficits,

real growth rates and real interest rates would lead to the external debt to GDP ratio would increase by about 3.8% per year.[49]

The resource gap probably shrunk a bit in 2004, even though the trade deficit is on track to widen significantly and the U.S. debt to GDP ratio will be higher – probably close to 28%. We estimate that the trade deficit will be around 4.84% of GDP, and the balance on trade, transfers and remittances will be around 5.45% of GDP – about 0.4% of GDP worse than in 2003. The nominal interest rate on the U.S. net external debt probably became a bit less favorable to the U.S. – we estimate it at around -1.2% rather than –1.5%. With inflation of around 2%, than produces a real interest rate of around –3.5%. With real growth of around 4%, that produces a real rate minus real growth term of around –7.5%. Ironically, this negative number in conjunction with higher debt level increases the sustainable balance on trade, transfers and remittances to a deficit of 2.1%.

$$(r - g)\, D/Y = (-0.035 - 0.04) * 28\% = -2.1\%$$

The current resource gap for 2004 therefore would be around 3.35% of GDP (5.45%-2.1%) – a bit better than in 2003.

The fall in the resource gap, however, is solely the result of the very favorable real interest rate minus real growth term, which increased the sustainable trade, transfers and remittances balance. Consequently, the current resource gap is probably unrealistically small. As real interest rates rise, it will fall.

Permanent Resource Gap

3.2.3. The "permanent" or the "current" values of the resource gap

If the current real interest rates, GDP growth rates or the trade balance differs substantially from their likely medium or long-run values, many argue that debt sustainability analysis should be based on the "permanent" rather than "current" resource gap. In other words, stabilization of the debt to GDP ratio should be considered in a medium term perspective, not a short term one.[50] For example, if a recession temporarily increases a country's primary fiscal deficit and lowers its real growth rate, it may make sense to look at the cyclically adjusted primary deficit and the country's average growth rate when assessing long-term fiscal sustainability.[51]

[49] We say "about" as compounding changes slightly the correct figure.

[50] This is particularly important in the fiscal context, since a recession tends to both lower the growth rate and, given automatic fiscal stabilizers, to reduce the country's primary balance. A recession therefore works against fiscal sustainability. It is less obvious for the case of the external sustainability; while a recession tends to work against fiscal sustainability, a recession can improve a country's trade balance and thus its external solvency.

[51] There are risks associated with using long-term values as well. The IMF, for example, assumed Argentina's growth rate would pick up substantially when assessing Argentina's fiscal sustainability in 2000 and 2001. But the assumption that Argentina's recession was temporary was a poor one. Argentina's recession was likely to be prolonged, since a prolonged recession was a necessary condition for correcting Argentina's substantial real overvaluation through deflation. It only makes sense to use better numbers for

What are reasonable estimates for the permanent rather than the current, values for growth, real interest rates and the trade balance in the U.S.? Consensus estimates put the US potential real growth rate at around 3.5% -- a bit above 2003 levels and a bit below 2004 levels.

However, the permanent long-term value for the real interest rate on U.S. external debt is unlikely to remain at its current, very low levels. Since monetary policy is very accommodative right now and nominal policy interest rates are very low, there is good reason to believe that nominal and real interest rate on the U.S. external debt are well below its permanent value. Low short-term policy rates, combined with large – and as we will discuss later, likely unsustainable – inflows from Asian central banks have combined to keep longer-term nominal and real interest rates very low. .

Estimating the permanent real interest rate on the net U.S. external debt is complicated. On one hand, dynamic efficiency would suggest that the long run real interest rate should be higher than the growth rate, and rising levels of external debt would also suggest that real interest rates should rise over time. On other hand, the U.S. has consistently obtained a higher rate of return on its external assets than it has had to pay on its external liabilities, lowered the effective rate the U.S. has to pay on its external debt.[52]

Since we do not know how these factors will interact, we consider three scenarios for the long-run real interest rate: in the benign scenario, the real interest rate is 1.5%, a rate well below the real growth rate, in the middle scenario, the real interest rate is equal to the growth rate, i.e. 3.5%; in the malign scenario (alas, also the scenario that is more consistent with economic theory), the real interest rate is 2% larger than the real growth rate. Such a differential is consistent with a real interest rate of 5.5% and real growth of 3.5%, or a real interest rate of 3.5% and the real growth rate is 1.5%.

For the sake of simplicity, assume that the permanent balance on trade, transfers and remittances is roughly in its current range. This is not an unreasonable assumption: a permanent trade, transfers and remittances deficit around the 2003 level of around 5.08% of GDP is hardly small. On the other hand, it likely understates the true permanent trade deficit if there is not additional dollar depreciation. 2003 real growth was a bit below the estimated long-run potential of the U.S. and higher real growth would tend to widen the trade deficit. As indicated in our previous analysis, we suspect that the dollar would

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long-term sustainability analysis when there is a plausible reason to believe that the country's conditions will improve. For more, see the IMF Independent Evaluation Unit's report on Argentina (2004).

[52] In 2003, the US also benefited from a large one off gain resulting from the dollar's depreciation against the euro, which increased the value of the United States' European assets; this gain can be modeled as a fall in the real rate the U.S. has to pay the world on its liabilities. In other words, a sharp real depreciation of the US dollar that increases the value of existing US external assets is equivalent, in the national accounting system, to a temporary one year reduction in the real service cost of net foreign debt. A sustained slow depreciation can be interpreted as an ongoing reduction in the real cost of servicing the United States external debt. Unfortunately, the 2003 gains are unlikely to be repeated consistently. Such gains require that the US dollar depreciates by 20% against the euro and other European currencies every year. The US will not receive a similar valuation gain should the dollar depreciate against Asian currencies.

need to depreciate a bit from its current levels to keep the permanent deficit in the 5% of GDP range.

At these estimated permanent values, the debt stabilizing trade balance is 0% if we assume that the permanent (r-g) differential is 0%. It is about a negative 0.5% of GDP if we assume that such differential is -2% (=0.24.1*-0.02), that is to say, a stable debt ratio is consistent with a permanent trade, remittances and transfers deficit. It is a positive 0.5% of GDP if the differential is a positive 2%, that is to say, if the real interest rate exceeds the real growth rate, the U.S. must run a trade, transfers and remittances surplus to keep its debt to GDP ratio stable. Thus, with a permanent trade, transfers and remittances deficit of 5%, the permanent resource gap is 5% of GDP if we assume a 0% differential and 5.5% of GDP if we assume a 2% differential, and 4.5% of GDP if we assume a –2% differential.

The resource gap is primarily a result of our large current trade deficit, not our estimates of the real interest rate/ growth differential. Since net foreign debt was around 25% of GDP in 2003, a 1% change in the real interest rate minus growth differential changes the resource gap only by 0.25% of GDP. Consequently, our estimate of the permanent resource gap is very insensitive to even large changes in the permanent (r-g) ratio. Even a 4% shock to the r-g ratio changes the resource gap only by 1% of GDP.

Estimating the resource gap at higher levels of debt

Given the large gap between the trade deficit that is consistent with a stable debt to GDP ratio (even under the most optimistic assumptions) and the current trade deficit, it is safe to say that the U.S. debt to GDP ratio is not going to stabilize at current levels. Even if the trade deficit were to start narrowing in 2005 or 2006, it will take several years before it reaches a level consistent with a stable (or even a slowly rising) debt to GDP ratio.

Consequently, it is interesting to analyze what the resource gap would be if the US were to maintain current levels of the trade deficit throughout the decade. If current policies are consistent with a trade deficit (including remittances) in the 5.0% of GDP range, this scenario is consistent with maintaining current policies through 2010. If current policies, as is more likely, current policies are consistent with a slowly deteriorating trade balance, this scenario is consistent with some fiscal tightening and real depreciation. We therefore think this analysis is consistent with the second scenario in our previous analysis.

If the U.S. maintains a 5% of GDP trade plus transfers and remittances deficit through 2010, real interest rate is 3.5 and the real growth is around 3.5%, the U.S. external debt/ GDP ratio will rise by 5% annually. The U.S. external debt to GDP ratio will therefore increase by approximately 30% over six years, and reach 58% of GDP in 2010 (28+30). This is a bit higher than in our earlier constant trade deficit scenario for a simple reason. In our scenario, the real interest rates minus real growth rate differential gradually moved to zero rather than starting at zero. But the numbers are still close – fundamentally, they are attempting to model the same basic dynamics.

Even at higher debt levels, the resource gap remains constant at 5% of GDP so long as the r-g differential stays at zero. But this no doubt underestimates the impact of high debt levels on the resource gap. Rising debt ratio are likely to increase the real interest rate and reduce the long run growth rate. It is thus not far fetched to assume that the r-g differential is 2% or even 3% if the debt ratio were allowed to rise to between 55 and 60% of GDP. High debt levels also magnify the impact of any differential between real interest rates and real growth rates. A 1% differential, a 5% of GDP trade, remittances and transfers deficit and a 55% debt to GDP ratio implies a resource gap of 5.55%, a 2% differential implies a gap of 6.1%, and a 3% differential implies a gap of 6.65%, and so on. Higher debt levels consequently have two costs: first, they tend to increase the gap between real interest rates and real growth, and second, they tend to magnify the impact of any differential.

These sensitivity stress tests suggests that there are significant costs involved in not closing the resource gap as fast as possible: if debt ratios were allowed to increase for a number of years before being stabilized, the resource gap could become as much as 2% of GDP higher (6.65% v. the 4.5% level) than it would be if the resource gap were to be eliminated in 2004. Thus, delaying the fiscal and/or real exchange rate adjustment or other policy changes that eliminate the resource gap can make the resource gap much larger over time.

Resource gap analysis also helps to explain the outcomes of our earlier simulations. In the first simulation, the trade deficit is widening, and a rising trade deficit and growing debt levels are leading real interest rates and real growth rates to converge and then for the real interest rate to exceed the real growth rate. The resource gap is widening, and the U.S. is a long-way way away from external sustainability. In the second scenario, the U.S. the trade deficit remains constant, slowing the pace of debt accumulation. But with large trade deficits, the U.S. remains a long way away from external sustainability. The resource gap is not getting worse, but it also is not getting better. In the third scenario, a steady fall in the trade deficit is wiping out the resource gap, and overwhelming the slow rise in the real interest rate the U.S. has to pay on its debt stock. The resource gap is shrinking over time.

Resource gap analysis in 2010 using our three scenarios

	Estimated trade deficit	Real interest rate	Real growth rate	Differential	Debt to GDP ratio	Debt stabilizing trade deficit (surplus)	Gap
Baseline	7.1%	4.1%	3.5%	+0.6%	63%	(0.4%)	7.5%
Constant trade deficit	5.1%	3.5%	3.5%	-0.0%	55%	0.0%	5.1%
Fast adjustment	2.4%	2.2%	3.5%	-1.3%	46%	0.6%	1.8%

This highlights an important point: so long as the adjustment needed to close the resource gap happens smoothly, the U.S. debt to GDP ratio will continue to rise during the adjustment process. A steady 0.5% fall in the resource gap starting in 2005 still leads the debt to GDP ratio to rise by 20% of GDP in our fast adjustment scenario, as the debt to GDP ratio bit under 30% of GDP to around 50% of GDP. If the U.S. lets its debt to GDP ratio rise to 50% of GDP without important adjustments, a smooth adjustment path would imply that the debt to GDP ratio would peak well above 70% of GDP (at higher debt levels, the adjustment has to happen faster to avoid an even higher peak). That is another cost of higher debt levels: high debt levels increase the probability that a country will not able to afford a smooth, slow adjustment path.

Section 4. The consequences of a large net external debt.

It is worth spelling out explicitly the costs of a large external debt.

The first, and most obvious, consequence of relying on foreign savings to finance domestic investment is that foreigners get the proceeds that flow from their investments. Net interest payments on U.S. external debt will soon start to exercise a drag on the U.S. economy. As both interest rates and the U.S. external debt rise, the cost of making debt payments will cease to be negligible. So long as the U.S. is running a substantial trade deficit, the US also will need to rely on foreign borrowing, not ongoing export earnings, to finance interest payments on its existing stock of debt. This means a given capital inflow can finance a smaller trade deficit (since some of the capital inflow has to cover interest payments on existing debt), or that the U.S. will have to borrow more (and attract larger capital inflows) to be able to run the same trade deficit. Our simulations indicate that it is not unrealistic to believe that net interest payments will be 2% of GDP or more in 2010 if the U.S. does not adjust, and above 1% of GDP even if the U.S. does adjust, even if the U.S. retains the advantages associated with issuing the world's reserve currency.

The second cost of running a large structural current account deficit is that it constrains a country's ability to run an even larger current account deficit in the event of an economic boom. The U.S. has a substantial deficit right now even though the economy is not firing on all cylinders – over the past few years, consumption growth has been strong but investment has not, and employment and wage growth have been anemic. If investment boomed, consumption stayed at its current level and the government remained a large net borrower -- i.e. continues to run substantial deficits -- the current account necessarily would widen. Under these assumptions, investment would increase while national savings would remain roughly constant. Yet it is hard to finance a current account of 6% or even 7% of GDP at low rates if you already have a substantial stock of debt. As the current account deficit increased, the interest rate the U.S. would need to pay to attract the necessary external financing would also tend to rise and at some point, rising interest rates would tend to choke off the boom. The large existing current account deficit makes a replay of the 1990s unlikely – the U.S. cannot experience a simultaneous boom in investment and consumption. Investment can increase (as a % of GDP) without driving

the current account deficit up only if national savings increase, whether from rising personal savings or improvements in the government's fiscal balance.

Third, U.S. risks not simply finding it difficult to attract the financing needed to run even larger trade deficits, but losing access to the financing needed to sustain existing trade and current account deficits. After all, the current trade deficit implies a rapid increase in the United States debt stock, both absolutely and in relation to U.S. income. Even gradual adjustment would not be pleasant, since cutting the deficit either requires a fall in income to reduce demand for U.S. imports or a fall in the dollar to increase the price of imports and make U.S. exports more attractive.[53] But as debt levels rise the risk of being forced to adjust suddenly increase, and sharp, sudden adjustment (adjustment is a euphuism for falls in income and falls in the real dollar, or external purchasing power) is never pleasant.

Any sharp adjustment poses two particular problems for the U.S.. First, the U.S. economy is relatively closed, despite its large trade deficit. Consequently, the fall in the dollar needed to start to make significant improvements in the U.S. trade deficit could be quite large. A country like the U.S. that exports 10% of GDP and imports 15% of GDP is in a worse position than a country that exports 50% of GDP and imports 55% of GDP, even if both countries are running a 5% of GDP trade deficit. If both countries are forced to adjust and all the adjustment comes from a fall in imports (as is usually the case in the short-run), the country that imports 15% of GDP has to reduce its imports by a third while the country that imports 55% of GDP has to reduce its imports by about 10%. (see Obstfeld and Rogoff (2000)).

Second, the U.S. economy is large enough in relative to world GDP (roughly a quarter) that a slowdown in the U.S. would cool the global economy. Since U.S. demand has been growing faster than U.S. income, the U.S. accounts for a higher share of global demand growth than it does world GDP. External adjustment would require that U.S. demand start to grow slower than U.S. income, something that would, absent offsetting adjustments in other countries to support global demand, slow the economies of those countries most dependent on exports to the U.S..[54]

Finally, the countries with large external debt become increasingly vulnerable to purely financial shocks, that is to say shocks that increase the burden of servicing the country's existing stock of debt.

The United States' vulnerability to such shocks is reduced by the favorable currency composition of its debt stock. The U.S. is not exposed to the common risk that a real depreciation – no matter how necessary to close a trade imbalance – simultaneously

[53] See Razin and Milesi Ferretti (1998) for a study of current account reversals and currency crises. Recently, a whole literature on sudden stops has analyzed analytically and empirically the reversals of capital flows that triggers a painful current account adjustment. See Mendoza and Arellano (2002) for a survey.

[54] For example, Godley et al (2004) estimate that a 33% real depreciation in the dollar between 2002 and 2008 would lower world growth from 4.0% to 3.6% during the period of dollar adjustment.

increases the real burden of the country's external debt since almost all of the United States external debt is denominated in dollars (a real depreciation increases the real burden of debt denominated in foreign currency). Indeed, the valuation gains the U.S. enjoyed in 2003 show that the U.S. NIIP actually improves as the dollar falls, since U.S. debts are in dollars while many U.S. assets are denominated in foreign currency, and particularly in Euros, Canadian dollars, British pounds and Swiss francs. The 13.2% real depreciation from the end of 2001 to the end of 2003 translated into a $680 billion valuation gain, notably a $440 billion valuation gain in 2003. During periods of dollar depreciation, the U.S. nominal net investment position deteriorates by less than the nominal current account deficit.

The U.S., though, should not bank on similar gains in the future, for two reasons. First, the U.S. only obtains significant valuation gains if the dollar adjusts against European currencies. A disproportionate share of US external assets are denominated in European currencies, so the valuation gains from large moves against the Euro and other European currencies are much larger than the prospective valuation gains from comparable moves against East Asian and other currencies. However, since the dollar already has adjusted significantly against most European currencies but not against most Asian currencies, it is reasonably to expect that future adjustment will involve comparatively larger moves against Asian currencies and small moves against the Euro and other major European currencies (the pound and the Swiss franc).

As discussed earlier, a 20% adjustment against major Asian currencies leads to valuation gains of $210 billion, v. valuation gains of $575 billion from a 20% adjustment against major European currencies (assuming that all other currencies adjust by 10% in both scenarios). The dollar would have to fall by 40% or so against Asian currencies to generate a one off valuation gain comparable to those the U.S. enjoyed in 2003 ($470 billion). If the dollar fell in real terms by 20% (twice its current depreciation) and that depreciation was biased toward Asian currencies rather than European currencies, so that all currencies adjusted proportionately to generate a 30% overall depreciation from the dollar's 2001 peak (European currencies might fall an additional 10%, the Canadian dollar a bit more, the yen by an additional 20% and the renminbi by the full 30%), back of the envelope calculations suggest that the U.S. would experience a valuation gain of about $600 billion, with about half the gain coming from the dollar's fall against the European currencies and the Canadian dollar, despite the smaller percentage size of these changes.[55] That is about equal to the estimated 2004 U.S. current deficit. At the end of

[55] If the U.S. dollar were to fall in real terms by a much larger amount, roughly 50% from its 2002 peak (40% from its current levels) by 2012, with the adjustment from 2004 on biased toward currencies that did not adjust against the dollar between 2002 and 2004 (to make the math simple, assume that the dollar would fall by an additional 30% against European currencies and the Canadian dollar, by 50% against Asian currencies and by 40% against other currencies), the U.S. would experience a valuation gain of around $1.4 trillion, with about half the valuation gain stemming from the dollar's fall against Europe and Canada. Combining this calculation with our fast adjustment scenario allow us to estimate that the depreciation would reduce the U.S. net external debt from $8.6 trillion to $7.2 trillion, or from 49.5% to 41.5% of estimated 2012 GDP. This calculation, however, no doubt overstates the impact of valuation gains on the U.S. NIIP, since it assumes that the U.S. would be able to systematically "fool" its external investors. Foreign investors would take valuation losses of $4.44 trillion on their $11.1 trillion in claims

the day, valuation gains simply cannot overcome the impact of persistent trade and current account deficits of 5% of GDP or more per year.

Second, as the saying goes, "you can fool some of the people all of the time and all people some time, but you cannot fool all people all of the time". The flip side of the valuation gains the U.S. experiences on its external assets from dollar depreciation are the capital losses experienced by foreign investors who purchased dollar-denominated U.S. assets (U.S. Treasury bonds, corporate bonds, real assets such as real estate, stocks, dollar denominated bank accounts). Some foreign investors may be willing to accept some unexpected capital losses, at unchanged expected nominal returns, as part of the price of holding onto "safer" U.S. assets. Foreign central banks, who hold about 15% of total foreign claims on the U.S. (and account for roughly 1/3 of the U.S. net debt position) may even view the future capital loss as an acceptable price to pay for keeping their currencies at a level that makes their exports competitive in the U.S. markets. The expected capital loss is a *de facto* – though to the chagrin of U.S. manufacturers – not a *de jure* export subsidy. But there are still limits on the expected capital loss foreigners will systematically accept on their holdings of U.S. assets.

In other terms, trying to devalue yourself out of your debt will, over time, force foreign investors to demand and get higher U.S. interest rates in dollars to avoid such capital losses from their dollar investment. Since the stock of gross U.S. foreign liabilities is massive (about $10.5 trillion at the end of 2003 or about 100% of U.S. GDP (update), the potential capital losses foreigners could experience in the event of further expected U.S. dollar depreciation are massive. If a persistent depreciation of the dollar was expected, private foreign investors would want to reduce their holdings of U.S. assets at current interest rates. This would trigger a further weakening of the U.S. dollar. A sharp increase in the ex-ante rate of return on US dollar assets would be required to convince foreign investors to continue to hold U.S. assets.

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on the U.S. in the event of an unexpected 40% devaluation in the near future, and much larger losses should U.S. debt levels rise prior to the unexpected devaluation. If U.S. creditors anticipate such losses, they will charge higher interest rates. For example, a 5% expected real depreciation can be offset by a 5% increase in the nominal interest rate. Expecting the U.S. to obtain large valuation gains from a depreciation while foreigners take large losses consequently is somewhat unrealistic. It only can happen if the depreciation is entirely unexpected. Consequently, lowering the debt level in the our fast adjustment scenario to reflect expected valuation gains for the U.S. is rather unrealistic, since the scenario also assumes relatively low nominal and real U.S. interest rates -- rates that are only possible if foreigners do not expect any offsetting valuation losses. A realistic scenario that incorporated valuation gains for the U.S. would also need to include higher interest rates on U.S. liabilities to compensate U.S. external creditors for their expected valuation losses. These higher interest rates, in turn, would push the U.S. net debt well above the 50%. This highlights one paradox of the United States' current situation. Adjustment in the dollar should lower the long-term real interest rate on the United States' external debt, since a real depreciation in the dollar is needed to improve the United States external credit fundamentals. Currency adjustment, however, would make explicit the risks foreigners are taking lending in dollars to the United States. A gradual process of currency adjustment consequently should lead foreigners to demand higher interest rates to offset their ongoing losses from dollar depreciation, and thus increase interest rates during the process of dollar adjustment. The estimated 41.5% NIIP in 2012 thus should be considered an absolute lower bound on the eventual long-term external debt level of the United States. It assumes a steady dollar depreciation that U.S. external creditors continuously fail to anticipate, so foreigners end up absorbing all the capital losses from dollar depreciation without demanding an interest premium.

The fact that the risks of dollar devaluation are born by the United States' external creditors, not by the U.S. itself, highlights the real risk facing the United States: a financial shock that sharply increases the cost of servicing the United States external debt. There are four reasons why this risk is particularly acute for the United States.

- Existing debt servicing costs are very low, and the chances of further falls in U.S. interest rates are small, the chances of an increase a high. The nominal returns foreigners are earning on their existing loans and investments in the U.S. are very low relative to the risks of further dollar depreciation.
- The maturity profile of U.S. external debt is relatively short. Foreigners hold lots of treasuries, and in particular lots of short-term treasuries as reserve assets. The average maturity of all U.S. treasuries is a bit under 5 years, and the average maturity on US treasures held by foreigners is probably somewhat shorter. It will not take that long for higher interest rates on new issuance to work their way through the entire US external debt stock.
- Gross US liabilities are much larger than net US liabilities. At the end of 2004, we estimate the U.S. will have external liabilities of 11.12 trillion (a bit more than 95% of estimated GDP) and assets of 7.86 trillion, with a net debt (NIIP) of 3.26 trillion (28% of GDP). If the U.S. runs an annual trade deficit of 4.5% of GDP, we estimate that U.S. gross liabilities will increase to around 14.24 trillion (about 100% of GDP) in 2008 while U.S. assets will remain about 7.86 trillion (about 50% of GDP), barring large valuation gains on U.S. assets.[56] With liabilities of 100% of GDP and assets of 50% of GDP, any difference between what the U.S. earns on its external assets and what it pays on its external liabilities can magnify the impact of being a major net debtor. Suppose US interest rates increase from 4 to 6%, and the rate the US gets on its external assets is 5%. At 4%, net US interest payments on its net debt of 50% are 4-5*100 + 4*50, or 1% of GDP. At 6%, net interest payments are 6-5*100 +6*50% or 4% of GDP. A 50% increase in interest rates produces a 400% increase in net interest payments.
- Higher levels of debt imply a larger eventual adjustment to generate the trade surpluses ultimately required to service the debt (assuming the real interest rate exceeds the real growth rate), and thus a larger future depreciation of the dollar. External creditors, particularly if they are holding dollar claims and bearing the risk of future dollar depreciation, should be expected to demand higher interest rates to offset the risk.

Some argue that foreigners cannot diversify away from US assets since they already hold so many claims on the U.S. (a bit under 95% of U.S. GDP at the end of 2003, and probably a bit over 95% of GDP at the end of 2004). Where could foreigners invest such

[56] These calculations are meant to be rough approximations. Strong nominal GDP growth in both the U.S. and the rest of the world would tend to increase the value of both U.S. FDI abroad (and other equity claims) and foreign equity investments in the U.S.. Consequently, it is likely that the nominal value of both U.S. assets and liabilities would be a bit higher than in these estimates. Our focus is on estimating the future evolution in the net position, not the gross position.

a large amount of assets? This point is full of fallacies: by definition, foreign investors cannot reduce the amount of nominal claims they hold on the U.S.; someone abroad has to hold, in equilibrium, the net foreign debt of the U.S.. Unless the U.S. starts running current account surpluses and paying down its debt, the existing stock of U.S. will remain in foreign hands. The relevant issue is the interest rate or rate of return that foreign investors will demand to hold such a large stock of U.S.? If they expect the dollar will continue to depreciate, they will demand a higher interest rates on their new investments (and the value of their existing securities should fall, raising the yield on their current assets). At some point the ex-ante rate of return that foreigners will require to hold the existing stock of U.S. debt will sharply increase, causing significant real and financial distress for the US in terms of falling asset values and higher nominal and real interest rates.

Some may argue that the reduced amount of "home bias" in international portfolios may allow the U.S. to finance its large current account deficits for a long time at a relatively low cost. But this argument is substantially wrong for a number of reasons. First, it is true that the degree of home bias has fallen over time: the US foreign liabilities (assets) were close to 95% of GDP (71% of GDP) in 2003. But there is still substantial home bias: most agents still prefer to hold most of their wealth in domestic assets. As a share of the total financial and real wealth of the U.S., U.S. foreign assets are still relatively low. Second and more important, even if home bias were to fall further, this does not mean that foreigners want to increases their net (as opposed to gross) asset position in the U.S. as a share of their wealth portfolios. In the standard case of reduced home bias, foreign demand for domestic assets increases as much as domestic demand for foreign assets. Such a symmetric fall in home bias has no effects on the net international asset positions of either side. So, it is fallacy to argue that reduced global home bias implies that foreign investors would want to increase significantly their net asset positions relative to the U.S, as inflows into the U.S. would be matched by outflows from the U.S..

Net financing from abroad of U.S. deficits requires the U.S. to retain its home bias while foreigners reduce their home bias and put an increasingly large share of their net (not gross) wealth in U.S. assets at unchanged expected returns. This reduction in foreign home bias (for given U.S. home bias) has to occur even though economic logic suggests that those assets values and returns will fall in real foreign currency terms as the dollar falls.

No doubt the dollar's position as the world's reserve currency and the depth of U.S. financial markets creates an intrinsic source of demand for both dollars and dollar denominated assets. Without these advantages, the U.S. would have difficulty attracting the external investment needed to develop a –28% (estimated end 2004) net international investment position. However, over time, the United States' privileged position in the international financial system could prove to be mixed blessing. The United States' legacy of financial stability and the dollar's privileged position could increases the risk that the world will finance large U.S. trade deficits for too long, leading to excessive U.S. debt accumulation, particularly in relation to the United States small export base. Such debt accumulation, however, seems at odds with the United States' capacity to sustain the

dollar's position as a reserve currency over the long-run, since large external debts and a rising trade deficit imply the eventual need for a substantial depreciation in the dollar. A reserve currency in theory should provide a solid store of global value, yet correcting a large U.S. trade deficit requires a fall in the dollar and thus a fall in the global purchasing power of all those with savings in dollars.

Former Treasury secretary Robert Rubin (in Peterson, 2004b) has warned that "the traditional immunity of advanced countries like America to third-world-style crises is not a birthrate." In a nightmare scenario, the United States would have to cut its current account deficit sharply to reduce the amount of new financing that it needs to attract from the rest of the world even as it is starting to lose the advantages of being a reserve currency. In such a scenario, the U.S. would have to offer foreigners much more attractive returns – either higher interest rates or forms of borrowing that transfer the risk of further depreciation from U.S. creditors to U.S. borrowers – to convince foreigners to continue to hold their savings in the United States. The price the U.S. has to pay to convince foreigners to keep their savings in the U.S. is not fixed. The U.S. could face higher interest rates on its existing stock of debt even as it has to curtail its new borrowing.

Section 5. Are we back to a new Bretton Woods 2 global system of fixed exchange rates and is this regime stable and sustainable?

Some authors – namely Dooley, Folkerts-Landau and Dooley (2003, 2004a, b) - have argued that the reemergence of a new Bretton Woods regime of fixed exchange rates (Bretton Woods 2) will allow the U.S. to finance large external imbalance at a low cost for a long time, and consequently, the United States growing new indebtedness poses few immediate concerns.[57] The argument goes as follows. The U.S. is currently running a large current account deficit while most of Asia is running a large current account surplus. After the Asian crisis, most Asian economies decided that a growth model based on financing investment via external capital (i.e. running current account deficits, as they had done in the early 1990s) was not desirable, given their vulnerability to a sudden reversal of capital flows. Immediately after the crisis, they needed to run current account surpluses to rebuild their reserves, but they then maintained large current account surpluses and continued to rely on export-led growth. In a world of floating exchange rates large current account surpluses (and in China's case, large capital inflows, including large FDI inflows) would naturally tend to lead to currency appreciation. To avoid appreciation, many Asian economies, including those whose currencies are formally floating, started to intervene aggressively in the foreign exchange market. Some Asian currencies are formally pegged to the US dollar, mostly notably the Chinese renminbi (also the Hong Kong dollar and the Malaysian ringitt). But many other countries intervene heavily, and thus are to effectively pegged to the U.S. dollar (and more importantly, to the Chinese renminbi. (India, Korea, Taiwan, Thailand, Indonesia and

[57] McKinnon has also argued in favor of a region of exchange rate stability in Asia and the emergence of a Dollar Standard; see McKinnon (2003) and McKinnon and Schnabl (2004).

even Japan). This aggressive intervention manifest itself in the huge accumulation of foreign exchange reserves by Asian central banks.

At least along the U.S. –East Asia axis, the heavy intervention of the "periphery" to prevent appreciation of their currencies against the core (the U.S.) effectively has created a new Bretton Woods system of fixed exchange rates. The Bretton Woods gold-dollar fixed exchange rate regime has been replaced by a new dollar-renminbi fixed exchange rate regime. This new regime is based on structural current account deficits in the U.S. and structural current account surpluses in Asia, with the Asian current account surpluses recycled to provide cheap financing for the US current account deficits. The U.S. gets to consume more than it produces and finance budget deficits cheaply, while strong export growth drives East Asian growth rates and rapid industrialization absorbs the labor surplus created by China's underemployed rural population.

China is at the center of this arrangement, as an undervalued renminbi propels spectacular growth in China's exports, and particularly its exports to the United States. But, so long as China maintains its current peg and resists letting its currency appreciate, other Asian countries have to intervene to avoid an appreciation that would cause a loss of competitiveness relative to China in Asian and global markets.

Large-scale intervention is not costless. Weak currencies mean that the terms of trade of these countries are worse than they could be. This, however, is not necessarily viewed as a problem in East Asia: expensive imports are part of the reason why domestic consumption in China and other Asian economies is low and national savings are high. A depreciated exchange rate thus supports an economic model based on export-led growth financed largely by domestic savings. The currency intervention needed to appreciation also has its costs. Asian central banks are accumulating huge stocks of low-yielding foreign reserves (essentially low yielding T-bills and other US government debt). To prevent reserve accumulation from leading to an increase in the domestic money supply, East Asian central banks must issue local currency debt, sterilizing their intervention in the foreign exchange market. However, difference between the interest rate Asian central banks pay on their local currency debt and the interest rate they receive on their reserve assets creates an ongoing fiscal cost. In addition to the ongoing flow costs created by the interest rate differential, Asian central banks are exposed to the risk of large capital losses by, in effect, financing the purchase of low yielding dollar debt with the issuance of high-yielding local currency debt. If Asian currencies were to eventually appreciate relative to the US dollar, the local currency value of their dollar denominated reserve assets would fall sharply, while the value of their local currency debt would stay constant. Finally, the scale of local debt issuance needed to sterilize the current pace of reserve accumulation poses many technical difficulties. Particularly in countries like China, difficulties with sterilization are leading to potentially inflationary growth in monetary aggregates.

To proponents of the Bretton Woods two hypothesis though, these costs are trumped by the benefits of export led growth and a weak currency. The capital loss that countries with large dollar reserves would experience the day their currencies appreciate against the dollar is a worthwhile price to pay for the benefits of high economic growth today.

Particularly in China, the explosive growth of the export sector is supporting the massive transfer of millions of underemployed labor from rural areas and loss-making state-owned enterprises. Consequently, it is in the interest of China and all the other exporting countries in Asia to continue to resist currency appreciate, to accumulate large reserves and to lend these reserves back to the U.S. at a low rate (rather than say invest their reserves in assets that offer protection against dollar depreciation, such as euros).

Proponents of the Bretton Woods hypothesis also argue that this system is in the short-run interest of the U.S. - in spite of the squeeze that it puts on the tradable and import-competing labor-intensive manufacturing sector – since cheap financing from Asian central banks keeps U.S. asset values high and supports a consumption led expansion. Without Asian central bank financing, U.S. interest rates would spike upwards, risking a severe recession. Thus, it is in the interest of both the United States and Asia to maintain the new BW2 regime, a regime based on an overvalued U.S. dollar, high U.S. consumption, continued spending growth above income growth and a structural current account deficit in the U.S. financed by the reserve accumulation that stems from undervalued Asian currencies, with Asian consumption and spending growth squeezed by unfavorable terms of trade and high import prices to generate structural current account surpluses.

So far, this new Bretton Woods 2 regime is not global. Europe allows its currency to float relative to the U.S. dollar and some emerging market economies, unlike those in Asia, are still capital-importing (i.e. running current account deficits) rather than capital-exporting (i.e. running current account surpluses).[58] But soon enough, Europe and Latin America may be forced to join the pegged regime bandwagon. Many Latin American economies, especially countries that experienced a recent a recent crisis and thus have undervalued currencies, are either running current account surpluses or are close to balance (Argentina, Venezuela, Brazil). Fixed exchange rates in Asia transfer the pressure for dollar depreciation to Europe. But the trend of euro appreciation against the dollar that started in 2002 is not sustainable. If the euro were to keep on appreciating, it would lose competitiveness relative to both the dollar and the Asian currencies. The loss of European competitiveness and the increase in import penetration of Asian goods in Europe would sap European growth (until recently, driven largely by exports) and lead to severe protectionist pressures in Europe. Europe would either respond by slapping major protectionist tariffs on Asian exporters or, as more likely, when the ECB would start to intervene aggressively to prevent further Euro appreciation. In that latter case Europe would also join the Bretton Woods 2 regime of fixed exchange rates.

In the view of its supporters, the Bretton Woods regime is stable and sustainable for at least a generation (about 20 years or so), until China's agricultural labor surplus is

[58] The image of Latin America as a major capital importing region is now somewhat dated: its two largest economies in South America – Argentina and Brazil – are currently running current account surpluses and thus exporting capital. Latin America is increasingly a low savings region that can no longer afford to import capital because of its high existing external debt load. The remaining Latin capital importing economies are Mexico, Colombia, Chile, Peru, Bolivia, and some smaller countries in the region. . Mexico's growing concerns about competition with China suggest that it has an incentive to resist peso appreciation against the dollar.

transferred to the tradable sector. The pressures created by the current, partial system of fixed exchanges are more likely to be solved by expanding the current Asian dollar peg fixed exchange rate regime to include Europe and Latin America than by the collapse of the Asian dollar peg. Since it is in the short-term interest of both sides to maintain the imbalance created by the new Bretton Woods dollar-renminbi exchange rate system, the new regime is stable for a long time in the view of Bretton Woods 2 apologists. Of course, eventually the system will unravel as the accumulation of US external debt will become at some point unsustainable. But since this accumulation is financed by the official sector of Asia (their central banks) and not private agents, it can be maintained as long as it is in the interest of Chinese and Asian authorities to maintain this export-led growth model.

How strong are the arguments that a new system of fixed rates has emerged, and that this new regime is stable and sustainable over time?

The first part of the argument – that a new system of fixed exchange rates has emerged – is the strongest, but even this argument needs to be qualified in two ways. First, a managed float is not quite the same thing as a pegged exchange rate, and far more Asian economies have managed floats than pure pegs. Second, the new Bretton Woods system of managed floats is providing far larger financial flows than the initial Bretton Woods system of fixed exchange rates.

Japan, of course, is the most important example of a country that intervenes in currency markets to manage a float, rather than to maintain a pegged exchange rate. No one doubts that Japan intervenes aggressively in market: aggressive intervention during calendar 2003 and Q1 2004 led the Bank of Japan to accumulate $347 billion in reserves. While this intervention no doubt has kept the yen from appreciating further, the Yen still moved from 132-134 yen to the dollar in early 2002 to around 109 to the dollar now -- a 20% nominal and real depreciation. Aggressive intervention when the Yen gets close to 100 is very different from a peg. The same argument holds for many other Asian currencies: Korea, Thailand and Indonesia have allowed some appreciation of their currencies relative to the US dollar (around 10% in Korea, Thailand and Indonesia relative to the beginning of 2001-2002 level) even as they intervene to avoid too much appreciation. Other Asian economies (Taiwan, India, and to a degree Singapore) have been more aggressive in preventing – via massive intervention- major changes of their currency values relative to the US dollar.

The overall picture is mixed: Asian currencies do not float freely but they have not returned to totally fixed exchange rates. Most countries allow some exchange rate flexibility but intervene aggressively to prevent appreciation they judge to be excessive. In some sense, though, U.S. sustainability – at least in its current form – hinges on the scale of the intervention, not whether the intervention comes in the context of a peg or a heavily managed float. Both forms of intervention have contributed to the build-up of foreign exchange reserves in Asia and provided steady, and cheap financing of the U.S. twin deficits.

The scale of reserve accumulation and the associated financing of the U.S. current account deficit is another difference between Bretton Woods one and Bretton Woods two. As Barry Eichengreen (2004) has emphasized, Bretton Woods one never financed US current account deficits on a comparable scale to the current U.S. current account deficit. The U.S. actually ran trade and current account surpluses throughout the1960s.[59] On one level, the postulated new Bretton Woods system is based on a weaker commitment to exchange rate stability than the initial Bretton Woods system. On another level, the financial flows required to sustain the new Bretton Woods system are far larger than those associated with the initial Bretton Woods system.

This inconsistency is at the core of the system's weaknesses. The scale of the financial flows required to sustain it are likely to exceed the financial flows that arise naturally from East Asia's limited commitment to exchange rate stability.

In our view, there are five reasons why this new regime will not prove to be stable.

1. *Internal dislocations in the United States*. Bretton Woods two keeps U.S. interest rates below what they otherwise would be (particularly given large U.S. fiscal deficits), helping interest-sensitive sectors of the U.S. economy. However, the financing comes at the expense of import-competing sectors of U.S. economy, since Asian current account surpluses are needed to generate the cheap reserve financing the U.S. needs. If Bretton Woods two is sustained, those sectors in the U.S. that compete with Asian exports would be increasingly crowded out and the associated job losses and related economic dislocation risk leading to intense protectionism. Indeed, the jobless recovery and weakness of employment in the U.S. manufacturing sector is already leading to protectionist pressure. The U.S. politically cannot allow its manufacturing base to decline as sharply as a sustained Bretton Woods two system would imply. Nor is it entirely clear that it is in the long-run economic interest of the U.S. for its tradeables sector to contract to the extent likely implied by the new Bretton Woods system. After all, in long-run, the U.S. needs its tradeables sector to grow to pay for its current borrowing. While resources are currently flowing out of the tradables sector into sectors that benefit from low interest rates, in the long run, resources will have to flow back into the tradables sector and out of the non-tradeables sector.
2. *The strains placed on Europe.* If the Asians keep on pegging their currencies, most of the downward pressure on the US dollar will be channeled towards the Euro. This is not a politically sustainable disequilibria. Europe cannot allow its tradable sector (both export and import competing) to be crowed out by Asian competition. Europe could respond by joining Asia in pegging against the dollar, expanding the Bretton Woods two system. The ECB, the bank of England and the Swiss national bank would join the Bank of Japan and the

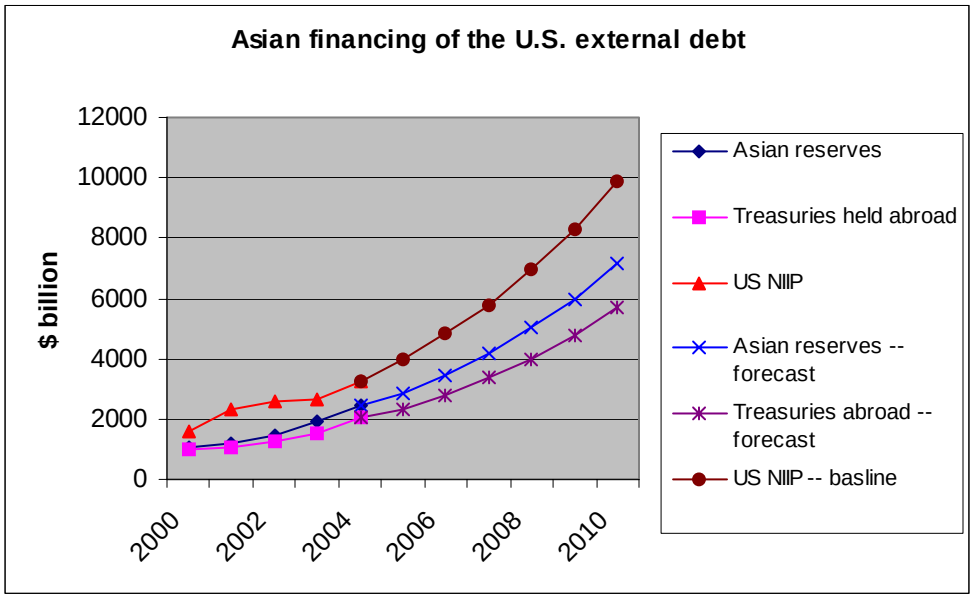
[59] The size of the imbalance that led to the collapse of Bretton Woods one now seems rather quaint, because it is so small in nominal terms. U.S. gold reserves fell from around $20 billion to around $10 billion during the course of the 1960s, and offsetting official dollar reserves (claims on the U.S. gold) moved in the opposite direction during the 1960s, surpassing U.S. gold reserves in 1965. See Eichengreen (2004).

Bank of China in providing large-scale financing to the United States. But it more likely that Europe will join with the United States to put political pressure on the Asian economies to allow their currencies to appreciate (alternatively, there could be an upsurge in European protectionism).

3. *The strains placed on China's domestic financial system*. Particularly in China, the sterilization of the foreign exchange intervention required to prevent upward appreciation against the dollar is becoming increasingly difficult. The stock of domestic financial assets is not large enough to allow the easily sterilization of an annual reserve buildup of $100 billion a year (roughly 10% of China's GDP). If sterilization is incomplete, the ensuing monetary growth will lead to higher inflation, and higher inflation in turn will lead to a real appreciation via inflation. Real appreciation through inflation is slow – and will be even slower if distortionary steps like internal price controls are partially successful at limiting the pace of inflation. But such real appreciation still will tend to reduce the current account surplus over time. China's inflation rate is rising (even though it is partly repressed by official policy actions) and China's 2004 current account surplus looks to be … though it is likely that the shrinking surplus is more the product of increased imports of higher priced oil and other commodities (price rises that stem in part from rising Chinese demand for these commodities), not of any incipient real appreciation through inflation (Since the renminbi has remained stable v. the dollar, it has depreciated v. the euro and the yen). Moreover, the growing monetary supply inside China is helping to feed a credit boom, and that credit boom in turn risks feeding an risk asset bubble (in housing, commercial real estate and even in new manufacturing plants). The rest of Asia learned in 1997 that credit booms can turn into credit bust even in high savings, high growth economies.[60]
4. *The financial risks associated with continuing to provide low-cost dollar denominated financing to the United States*. Asian central banks are already taking an enormous financial risk by holding most of their reserves in dollar denominated assets, given that the United States' large current account deficit suggests the need for further dollar depreciation. Yet sustaining the current system requires that Asian central banks continue to keep their existing stock of reserves in dollars (and not, for example, diversity into Euro, putting pressure on the Euro/ dollar rate and ultimately on their own rates as well) but also substantially increase their holdings of U.S. dollar denominated assets. Indeed, recent trends suggest that private investors are becoming increasingly unwilling to take the risk of capital losses on US assets in return for current returns. Relative to 2000, Asian central banks and other official actors are financing a larger share of the US external imbalance and private actors are financing a smaller share, and the share financed by Asian central banks was particularly high in 2003. As the U.S. current account continues to expand, the absolute amount of financing the U.S. needs will also increase, even as rising deficits

[60] Chinese banking sector that is already burdened with a massive stock of non-performing loans (NPL). Indeed, the risk of a banking and financial crisis in China in the next few years cannot underestimated as the official figure on the size of the NPL problem put it already at about 40% of GDP while unofficial estimates by some are as large as 60 to 70% of GDP.

and a growing debt stock suggest that the risk of further dollar depreciation also is rising. It seems likely that the U.S. would only be able to finance such large deficits implied by the current system without a major increase in interest rates only if Asian authorities are willing to absorb an ever larger share of an ever increasing US external deficit. Consequently, current trends imply an accumulation of reserve assets by Asian and foreign central bank that is truly exorbitant. As the attached chart shows, Asian forex reserves may have to increase to over $7 trillion by 2010 based on our baseline forecast of the US NIIP. This forecast could well be an underestimation, since it does not assume that the U.S. has to turn increasingly to Asian central banks for financing as the debt levels rise. Rather, it assumes that the current ratio between the US NIIP, Asian reserves and Treasuries held abroad stays constant.



5. *Incentives to free ride and opt out of the cheap dollar financing cartel.* Individual Asian countries at some point will have an incentive to diversify out of US dollar reserves into Euro reserves, so as to avoid capital losses should their currencies appreciate relative to the US dollar. The incentive to do increases over time, as the United States growing stock of external debt increases the risk of a major depreciation and the Asians growing stock of dollar assets increases their prospective losses in the event of a devaluation. Indeed, while an individual country can diversify its reserves out of US dollar assets without affecting either its currency value relative to the US or the value of the US dollar relative to the Euro, if a large number of Asian central banks were to start such diversification the value of the US dollar will start falling relative to the Euro thus causing capital losses on US dollar reserves. If all Asian economies tried to diversity their reserve holdings, they would put pressure on the dollar/ euro rate, reducing the value of their remaining dollar reserves and put pressure on their own currencies to appreciate versus the dollar. The Bretton Woods system can only be sustained if the Asian central

> banks act as a cartel and both keep their existing reserves in dollars and invest the reserves obtained from ongoing current account surpluses in dollars. An individual central bank can only protect itself if it either shifts out of dollars and into euros ahead of the others, or buys a euro/dollar hedge before everyone else. This gives rise to a classic problem of collective action: all central banks may be better off if no bank tries to diversify its reserve holdings, but as the risks of dollar depreciation grows, each central bank has an incentive to defect and to try to protect itself from large losses. Moreover, as Barry Eichengreen (2004) has emphasized, Asia lacks the institutions that helped the first Bretton Woods system survive when it faced an analogous problem in the 1960s.[61] Consequently, it is likely that the current equilibrium where everyone invests in mostly U.S. dollar reserves will eventually unravel.

In summary, Asia's desire to avoid dollar appreciation has created the kernel of a new Bretton Woods system of fixed exchange rates. But this regime is highly unstable, fragile and unsustainable and more likely to break apart than to expand and consolidate. The flow and stock imbalances associated with Bretton Woods Two are much larger than the imbalances created by the initial Bretton Woods regime. The scale of these imbalances and the difficulties sustaining a cooperative equilibrium in a game with strong incentives for free riding make it likely that the Asian dollar-renminbi standard will crash in years, not decades.[62]

Section 6. Conclusion: Cooperating to end the balance of financial terror

U.S. net external debt has increased sharply since 2000. U.S. external borrowing has not financed a boom in investment, or investment in the export sector. Foreign direct investment in the U.S. has fallen sharply. The U.S. has become increasingly dependent on foreign purchases of fixed income debt securities – and in particular purchases of U.S.

[61] European central banks held more dollar reserves than could be converted into gold at the dollar/ gold exchange rate the U.S. was committed to maintain as part of the initial Bretton Woods system. To support the gold/ dollar fixed exchange rate, European central banks had to refrain from converting their dollar reserves into gold, though each central bank would gain if it held more gold and fewer dollars when the system collapsed. Eichengreen (2004) highlights three major differences between Bretton Woods in the 1960s and the current dollar-renminbi Bretton woods two system: (1) the euro is a more attractive alternative reserve currency than the pound; (2) Informal mechanisms for institutional consultation and cooperation between Europe and the United States in the 1960s (through the OECD and the G-10) are far more developed than institutions for U.S.-East Asian cooperation (the U.S. and Western Europe were also bound together in a military alliance, the U.S. and China are not) and (3) European central banks cooperated to support the gold dollar standard through institutional arrangements such as the 1961 gold pool (which shifted some of the costs of maintaining a $35 gold price in London to European central banks) and the 1968 "Gentleman's agreement" (European central banks promised not to convert their inherited dollar balances into gold) while Asian central banks have yet to develop comparable mechanisms for cooperation.

[62] Posen (2004) proposes that the U.S., Europe and Japan would agree to a "dual-key" intervention regime that would not allow one of the three players to intervene unilaterally to prevent its currency from moving relative to the other two. Operationally, this would only constraint the Japanese intervention (and possibly in the future European intervention). It would not affect the forex interventions by China and other Asian economies. Posen suggests that, over time, this dual-key system may lead China (and, by default, the rest of Asia) to modify its intervention policy; but such outcome is not obvious.

treasuries by Asian central banks – to fund a boom in government borrowing, a boom in consumption and a boom in residential construction. The global imbalances needed to finance the now huge U.S. current account deficits have become massive, the U.S. is absorbing an enormous fraction of all cross-border capital flows.[63]

Our analysis suggests that without any policy changes, the US current account deficit will rise to above 7% of GDP in 2008 as the U.S. debt stock increases to around 50% of GDP by 2008, in part because of rising interest payments to foreigners. The amount of financing needed sustain such a run up in the U.S. debt stock is truly enormous. If most of the financing for the deficit continues to come from Asia, Asian central bank reserves would need to double, from $2.5 trillion (end 2004 estimate) to 5 trillion, and if most of the external financing needed to run such deficits continues to go into the Treasury market, foreign holdings of treasuries would rise from $2 trillion (end 2004 estimate) to $4 trillion. We doubt that Asian investors, even Asian central banks, will be willing to take on the financial risk implied by holding such a large stock of dollar claims on a country whose external credit fundamentals are deteriorating at anything like the U.S. current low nominal (let alone real) interest rates.

It is true that East Asia cannot dump its existing holdings of U.S. treasury bills without paying a financial price. East Asian economies' holdings of dollar assets are so large that they cannot diversify the currency composition of their reserve holdings – holding more euros and fewer dollars as a hedge against dollar depreciation – without triggering a downward adjustment in the dollar's value. Indeed, East Asian central banks have to do more than hold onto their existing stock of dollar assets. They have to continue to buy additional U.S. treasuries to provide the ongoing new financing the U.S. needs. Otherwise, the value of their existing stock of dollar denominated reserve assets will fall sharply.

But the U.S. should not take comfort in the fact that East Asian economies cannot extricate themselves from their enormous financial bet on the U.S. dollar without causing severe pain to themselves. The U.S. cannot extricate itself its dependence on the cheap financing provided by Asian reserve accumulation any more easily. The U.S. economy can only expand at its current pace on the back of the implicit subsidy provided by Asian central banks. But this subsidy to the interest sensitive sectors of the U.S. economy comes at a cost. The boom in housing created by low interest rates and, for that matter, the surge in value of all financial assets linked to low interest rates is coming directly at the expense of the U.S. manufacturing sector. The continued transfer of resources out of tradables production bodes ills for the long-run health of the U.S. economy: eventually the US will have to transfer resources back into the production of tradable goods (or

[63] As Peter Peterson has wisely noted: "Never before has the global economic system allowed nations with floating currencies to trade such a large share of their production and savings across borders. Perhaps system is too strong a word, since it has become perversely warped, like a billiard ball on a featherbed, around US demands for plentiful credit and foreign demands for plentiful exports. Incredibly, the U.S. current account deficit now absorbs, directly or indirectly, two-third of the total reported current account surpluses run by every other nation on the planet" (Peterson (2004a), page 95). One may also note that one cost of the U.S. absorbing large amounts of global current account surpluses is that there is less left for investment in poor, low savings economies – something that it may likely to lower long-run global growth.

services) to slow the pace of debt accumulation. It is not in the long-run interest of the U.S. economy to try to support an ever-increasing external debt load on the back of a shrinking tradables sector. At some point, the external side of U.S. economy has to expand to pay for the United States' imports, or the amount that the U.S. can import will have to fall.

Despite all the long-term costs of large external deficits, immediate adjustment to end U.S. external deficits would be extremely costly, both for the U.S. and the world economy. The stability of the world economy hinges on the willingness of all parties to what Larry Summers accurately called the balance of financial terror to double down their existing bets.[64]

It bears emphasizing that the large U.S. current account deficit reflects government policy choices as much as it reflects market forces. If the U.S. maintains the unsustainable combination of large fiscal deficits and private savings fiscal policy, one of the two following scenarios is likely to develop:

1. *Asian central banks will continue to finance the U.S. fiscal deficit allowing the U.S. to continue to spend more than its earns for bit longer.* This implies that Asian currencies will remain weak. But this path is not sustainable for at least three reasons. First, it leads to an accumulation of the U.S. public and foreign debt at rates that are not acceptable over time. Second, the U.S. will become even more hostage to the political decision of foreign central banks to continue to finance this deficit (and rollover their existing holdings of U.S. debt) rather than shift into other assets. Third, the continued shrinkage of the US manufacturing sector risks generating a severe protectionist backlash somewhere down the line.
2. *Asian central banks stop intervening on the scale needed to finance the U.S. deficit and the U.S. will have to adjust.* This adjustment would take two forms. First, the dollar would depreciate sharply without the support provided by Asian central banks. Second, U.S. interest rates would have to rise sharply to attract the financing the U.S. government needs to run large fiscal deficits. There is not a pool of private capital willing to make up the gap at current low U.S. interest rates if Asian central banks stopped financing the U.S. fiscal (and current account) deficit.[65] U.S. consumption would have to fall to generate the higher private

[64] The nature of this balance of financial terror has been clearly noticed also by Peterson (2004a): "the skeptics tell us not to worry because governments around the world will never allow a crisis to happen. They would intervene massively to support the dollar by buying dollars. Well, they might try. But foreign governments might well lose their nerve before investing vast sums of their taxpayers' money into declining dollar denominated assets. And once the mood of global investors changes decisively, there is not much that governments can do even if they had nerves of steel …. The skeptics are right about one thing: most governments have no great desire to correct the current imbalance of global trade and finance. Foreign leaders are as eager to stimulate their economies with a bustling export sector as US political leaders are to keep running budget deficits at low interest rates. It's an ugly but politically convenient arrangement." (page 94).

[65] The precise impact of the loss of demand from Asian central banks on US long rates is a matter of dispute, as it depends on how much private foreign demand for US Treasuries is substitutable for official demand for US Treasuries. If private and public demand were perfectly substitutable, the effect on US

> savings needed to finance the fiscal deficit (public sector dissavings) in the absence of subsidized financing from Asian central banks.[66] The US current account would improve over time but the adjustment would occur in the worst way for the US, via a sharp recession and a fall in private investment. [67]

A sharp adjustment to correct the U.S. current account imbalance and the associated moves in asset prices would cause severe damage to the global economy, not just the US economy. But a sharp adjustment will become unavoidable if large trade deficits continue for much longer. The longer adjustment this necessary adjustment is delayed, the more costly it will be. And the pace of this adjustment is no longer in the hands of the United States, as Pete Peterson (2004b, 98) has noted: "What happens to the dollar and global economy will depend as much on what foreign political leaders do with accounts (their holdings of U.S. assets, particularly treasuries) as on any policy we can pursue alone."

The necessary adjustment cannot happen smoothly without a degree of tacit coordination between the U.S. and the major Asian economies, especially China and Japan.[68] Absent policy steps that would lower the United States government's own borrowing need (and increase net savings), any fall in demand for U.S. assets from Asian central banks would translate into higher interest rates and a stalled U.S. economy. Consequently, the U.S. needs to reduce its fiscal deficit to reduce its dependence on the cheap financing. Conversely, Asia needs to reduce its dependence on export-led growth.

It is far better for the U.S. (and the rest of the world) if the adjustment needed to reduce the U.S. trade deficit comes from rising U.S. exports, not falling U.S. imports. To sustain U.S. growth even as U.S. consumers take their foot off the gas pedal that is currently driving the U.S., net exports need to grow. Yet the U.S. cannot depend on exports for growth if Asia is also looking to depend on exports for growth: Europe could do more, but it is not poised for a dramatic boom in consumption that will sustain export-led growth in both Asia and the United States. The necessary condition for a smooth adjustment in the U.S. is willingness on the part of Asian countries – and others – to see their consumption grow faster than their income.

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rates would be small. But if Asian central banks are purchasing large amounts of US assets exactly because their private sector is not willing to purchase such assets at current US interest rates, US rate will have to go up by a significant amount to make up for the diminished public demand for such assets. It is not unrealistic, in our view, to think that US interest rates might increase by between 100-150 bps.

[66] The implicit subsidy is the capital loss Asian central banks will sustain should the dollar eventually depreciate against their currencies. Current U.S. interest rates clearly fail to compensate Asian central banks for this risk.

[67] If the Asian central bank were to stop intervening and let their currencies to strengthen, the result would be, over time, higher production and employment in our export and tradeables sector. But since the traded manufactured goods sector is small relative to the sectors that would be hurt by higher interest rates, the negative impact of higher interest rates on the entire economy could well more than offset expanding employment in the production of tradable goods and services in the short-run.

[68] The role Europe could play in the global rebalancing is not clear as potential growth is relatively low in this region because of demographic and structural factors.

The policy mess created by large U.S. fiscal deficits, meager private savings and resulting dependence on cheap external financing – and Asia's equally ingrained dependence on the U.S. to help drive its own growth -- cannot be solved overnight. The scale of the needed adjustment is just too big. The good news of our analysis is that it is possible to conceive of a scenario where the U.S. begins to adjust before it is forced to adjust, and Asian economies gradually reduce their dependence on export led growth. Even in this scenario, the U.S. still will see its external debt to GDP ratio rise significantly, to about 50% of GDP and the U.S. debt to exports ratio also rise to levels that would be alarming for any country that is not able to borrow from abroad in its own currency. But that is why the adjustment process needs to start now: the quicker the adjustment process begins, the higher the odds that the adjustment process will take place gradually. It is far better for the U.S. debt to GDP ratio to gradually rise to 50% of GDP and stabilize than for the U.S. debt to GDP ratio to surge to 50% before triggering a crisis. If the U.S. (and the world) start to adjust only when it has to adjust, the adjustment will be sharp and painful.

Policymakers in U.S. and Asia need to recognize that letting the current imbalanced disequilibrium continue poses unacceptable political and economic strains. The United States special position in the global financial position means that it can attract financing on exceptionally favorable terms. It also increases the risk that other countries will not exert the necessary discipline before it is too late, particularly since the economies of many of our creditors would suffer in the near term from adjustments that are needed to improve the United States' long-term creditworthiness. But in the long-term, the needed adjustments are also in the interest of the United States major creditors – including Japan, China and the other Asian economies. It does not make sense to produce only to export, as this implies an accumulation of assets that are never spent. A rebalancing of Asian demand with greater reliance on domestic demand (private consumption) and less reliance on foreign demand (export) is consistent with an increase in Asians real income and welfare, just as a rebalancing of US growth so that it based more on net exports and less on consumption growth is necessary for the long-run health of the U.S. economy.

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