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The Dilemmas and Dangers of the Build-Up of US Debt: Proposals for Policy Responses

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Current account deficits of the United States have been the rule for most of the past twenty five years (with only three years of current account surplus in this period). As can be seen in Figure 1, the scale (and share of US GDP) of these deficits have grown dramatically since the late 1990s. The US export income covers less than 65 percent of its imports, which illustrates the scale of the imbalance on the trade account. The current account deficit reached 6.5 percent of GDP in mid-2005. The fact that the US has become a major international net debtor implies that potentially large negative trends are beginning to emerge on servicing net liabilities.

In 2004, US holdings of foreign assets (estimated at $10 trillion) were significantly lower than its foreign liabilities, estimated at $12.5 trillion. While this negative position developed over time, it only started to generate net outflows recently (White, 2006) because net total returns on US assets are reportedly far higher than total real returns on US liabilities (with the difference between both returns reaching around 3.3 percent in the period 1973-2004, according to Gourinchas and Rey, 2005). Should this differential yield diminish, the magnitude of the US imbalance could further increase. There is much literature projecting that if current trends continue, without corrective action, US current account deficits could reach 10 or 12 percent of GDP by 2010 (see Truman, 2005, for a useful overview).

US deficits have in recent years helped sustain more rapid world

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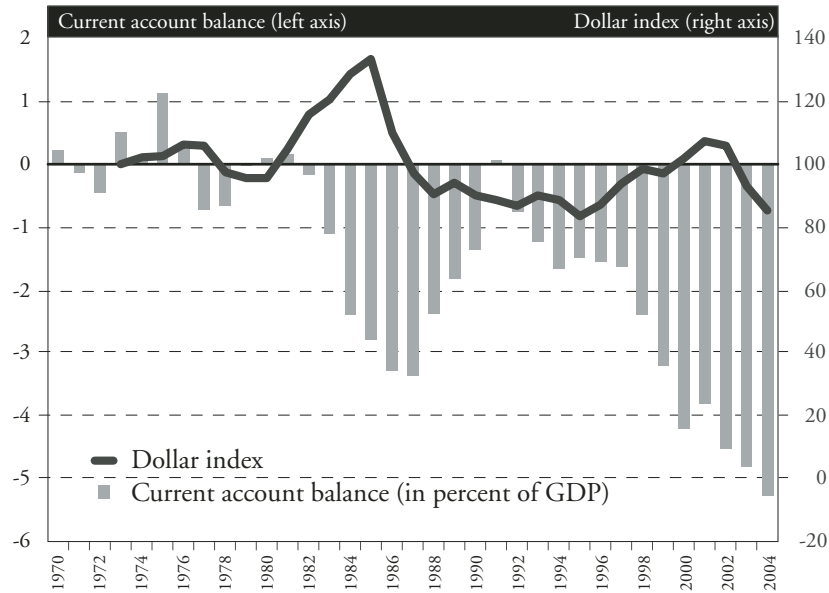
Figure 1 United States Current Account Deficit, 1970-2004



Source: US Department of Commerce, Bureau of Economic Analysis, and US Fed. Figure from UN-DESA (2005).

economic growth, estimated, for example, by Truman (2005) as contributing 0.3 percent of yearly global growth in the last five years. They have also facilitated a major structural change in the world production and trade flows, as Asian developing countries (especially China) have specialised in production of industrial goods, with a high proportion going into exports (Kaplinsky, 2005); the United States has mainly specialised in goods and services that are hardly or not at all traded internationally, mainly thus producing for its own market (Artus, 2005). As a consequence, the US has become not just the world's borrower of last resort – as Martin Wolf (2005) put it – but also the world's consumer of last resort.

These major changes are shaped of course by the use of the US dollar as the major reserve money and instrument for international payments – in trade and in issuance of debt and other financial instruments. The dollar is widely used internationally as a means of payment, a unit of account and a store of value.

In a modified way the Triffin (1960) dilemma still has a certain validity (see UN-DESA, 2005). According to Triffin, the rest of the world needed the US to run a balance of payments deficit to provide liquidity for supporting world growth. However, when the US deficit

rose too much, excess supply of dollars eroded confidence in the dollar; this would lead to instability in exchange rates and in the growth of the world economy. Though Triffin's critique was made in the context of the Bretton Woods system, it still may have relevance in today's non-system, where there is no mechanism to force (or even encourage) countries to change their relative degrees of economic absorption and exchange rates to reduce imbalances in an orderly way. Furthermore, international coordination mechanisms are weaker (and less representative) than in the past and the willingness of major countries to coordinate also seems smaller.

The current international "non-system" and the large size of the current account imbalances have raised two major concerns. Firstly, and greatly discussed, is the issue of sustainability of the US current account deficit and net debt and the risk of a disorderly and potentially deflationary adjustment to the US and the rest of the world. Insufficient attention has been paid to the possibly large negative impact of such an adjustment to developing countries (amongst the exceptions, see Eichengreen and Park, 2006, and World Bank, 2005). This chapter hopes to contribute to such an analysis, especially by suggesting measures that developing countries can take to protect themselves against such an eventuality.

There is a second problem about the current operation of the international monetary system, which relates to fairness. To the extent that the US can run larger current account deficits for far longer periods than other countries, it can afford to live "above its means", because other countries – and/or international financial markets – are willing to finance such deficits. This is particularly problematic when fairly poor developing countries are making a significantly "negative net transfer of resources" to the US (see, for example, UN-DESA, 2005). It is true that these countries benefit from the higher aggregate world growth that the US current account deficit generates, but it is both counter-intuitive and unfair that a fairly poor country like China should be helping to finance the consumption of a very rich country like the US. The case could be made that these resources would be far better invested in China itself or in other developing countries. From the short-term perspective of the continued financing of the US current account deficit, however, it is an important issue whether Asian countries will continue to accumulate such high levels of foreign exchange reserves and continue to invest such a high proportion into US dollar dominated assets.

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However, the main source of funding for the growing US current account deficit is private foreign investments channelled through international capital markets (see detailed discussion below; Truman, 2005). Indeed, it is the very large growth of the US domestic financial markets, particularly of private financial markets, that have enabled such large US current account deficits.[1] Some distinguished analysts (Greenspan, 2004) seem to take comfort from this, believing that financial market flexibility and depth reduce the risk of crisis and a disorderly adjustment of the dollar and the US economy. However, many others (Rubin *et al.*, 2004; Summers, 2004; White, 2006) explicitly or implicitly fear that the dominance of private financing of the US current account deficit, and the history of boom-bust patterns of credit levels and asset prices (including exchange rates) could imply that international financial markets could either trigger a disorderly adjustment of the dollar or deepen it, causing undesirable effects on the US and the world economy. Undoubtedly, these boom-bust patterns of behaviour have caused both costly crises and negative impacts on the real economy in many developing and developed countries in the recent past. There is clearly some risk that they could – at some point – precipitate or deepen a rapid fall in the dollar. The fact that the private flows financing the US deficit are to such an important extent short term, and that a fairly large very short-term "carry trade" plays a big role in this financing increases such risks. As Eichengreen and Park (2006) point out, foreign central banks would have an interest in insuring continued financing of the US current account deficit in such a scenario, to avoid its recessionary effects on their economies – and could increase their purchases of US assets to replace private investors. However, they would have an interest in avoiding capital losses on their dollar reserves, and could be tempted to diversify quickly out of them.

The negative impact of such a disorderly adjustment in the United States on developing countries could be very severe, particularly through the trade, but also through the financial channel, and even more so if these were to interact perversely. The latter could, for example, occur if slower growth or contraction of economic growth triggered wealth effects that implied falling asset prices (in the US and

[1] Though it is true that during some periods (e.g. first quarter of 2004), recorded increases in official assets covered the US current account balance, private capital inflows were 2.5 times official inflows.

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elsewhere). In a context of highly leveraged financial institutions and high levels of US domestic debt (especially household debt), this could lead to a "flight of quality", away from developing economies, even though these latter countries – especially, but not only, in Asia – have very significantly reduced their vulnerability to external financial shocks by their large accumulation of reserves. However, even in Asia, important sources of financial fragility persist, for example in the high level of non-performing loans and low capital adequacy ratios of the Chinese banking system (Griffith-Jones and Gottschalk, 2006). Furthermore, the explosive growth of derivatives and their increased used for currency speculation and especially for "carry trade" also in emerging markets may pose new – and yet not fully understood – sources of financial vulnerability for developing economies, especially in situations of major stress or unexpected changes. The opaqueness of these transactions and the even greater difficulties of regulating them (as they operate offshore) make the existence of these markets potentially more dangerous (UN-DESA, 2005; Dodd and Griffith-Jones, 2006).

Currently, the world economy and most developing countries are growing at a rapid pace. However, increasing imbalances, and especially the growing US current account deficit as well as its net debt position, pose increasing concerns about its sustainability and potentially large negative effects of a possible sharp fall in the dollar and the US deficit. The fact that policymakers seem comfortable with current trends, and are therefore unwilling to take necessary actions – over which there is much consensus – is a further source of worry. This poses a number of challenges. In the long term, there may be a need for a new international monetary system that makes such large and potentially damaging imbalances less likely and that would be more equitable. There is also an immediate clear need for more international policy cooperation and coordination to achieve smooth global rebalancing. A larger and more representative IMF should perhaps have a far larger and stronger role in policy coordination amongst major economies, thus playing a far more active role in managing the world economy (Ocampo, 2001; King, 2005; de Rato, 2004). In spite of the problems of insufficient representation of developing (especially Asian) countries, which requires urgent attention, the IMF is currently the only institution where developing countries could have a voice on global macroeconomic policy consistency and where they already have some voice on macroeconomic imbalances in large economies.

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However desirable it is for the international monetary system to be modified, and for a coordinated international response to the adjustment of global imbalances to start as soon as possible – as well as of course for the US to begin addressing its triple deficits – there is a great likelihood that there will be limited movement on these fronts. We will therefore focus more below on what developing countries themselves can do to further reduce their potential vulnerability to a disorderly adjustment of current imbalances.

In what follows (Section 1) we will look in more depth at US debt and global imbalances, focusing on the US international investment position, on the link in the US between foreign exchange reserves and liquidity creation and on the link between developing countries' savings, their increased accumulated reserves and US credit expansion. In Section 2, we analyse the risks in failing to address the US foreign debt problem and Section 3 focuses on measures to be taken, mainly by developing countries themselves, to mitigate risks to them of a disorderly adjustment of US imbalances or other possible shocks.

1 US Debt and Global Imbalances

Concern about global imbalances has been building since the 1990s and analysts from a variety of disciplines have called attention to aspects of the problem ranging from the unsustainability of the US current account position to the role of "under" and "over" saving rates in deficit and surplus countries.[2] There are, however, some critical issues relating to the build-up in US debt and other global imbalances that we believe have yet to be fully explored. Many analysts assume, for example, that imbalances arise as a result of developments and policies within national economies. We argue that imbalances – including "under" and "over" saving – also result from interactions at the global level and are at least partially shaped by pressures generated by the current international monetary and payments systems. Thus we begin with a discussion of the ways in which a fiat currency and privatised payments system under the guardianship of a few wealthy developed countries and their private multinational financial institutions have, in our view, contributed to the problem.

[2] For earlier analyses of the problem, see Blecker (1999), D'Arista (1999), Godley (1999), Greider (2000) and Plender (2000).

Monetary Arrangements and Global Economic Responses

Most cross-border payments are denominated in the national currencies of relatively few so-called strong currency countries. Other countries – those whose currencies are not widely used in international transactions or held as external savings – "earn" the means of payment by exporting goods and services to strong currency countries or borrow strong currencies on the expectation that current account surpluses to the countries that issue them will provide the external savings needed to service their debts. While this underlying preference toward export-led growth was not initiated by the shift in global monetary arrangements in the 1970s, that shift (and the pricing of oil in dollars) augmented support for such policies in many developed countries while moving export capacity to the centre of development policy. The International Monetary Fund prescribed export-led-growth policies for all developing and emerging economies after the financial crises of the 1980s and 1990s, despite little evidence that strong currency countries other than the US were willing to accept the current account deficits needed to ensure their success.

Meanwhile, the role of key currencies as means of payment ensures that a few strong currencies also have become stores of value in the global economy in holdings of both private investors and official institutions. The rapid growth in key currencies as stores of value since the 1970s is recorded in the international investment positions of countries and the Bank for International Settlements' (BIS) reports of holdings in external markets.[3] The US international investment position is arguably the most important record of the growing importance of the stock of holdings of external savings but, while many analysts focus on the evidence it provides of the rising external debt of the United States, the impact of that debt on the US domestic and global economies is less widely discussed. The following examination of the US international investment position sets the stage for our analysis of its impact on the United States and global economies.

[3] Many third party transactions in key currencies take place in external ("Euro") markets and external savings in those currencies are held there as well. One result is that the value of key currencies can be determined by transactions that do not finance the current accounts of the countries that issue them and do not change these countries' international investment positions.

The US International Investment Position

The status of the US as the world's dominant importer of both goods and capital is relatively recent. When Wall Street crashed in October 1987, US residents still owned more assets abroad than the amount of US assets owned by foreigners. In other words, the US international investment position was still positive, as it had been since World War I. But the increased borrowing required to finance growing trade deficits had already taken a toll on that once-strong creditor position. By 1989, the US became a net debtor nation and its external (i.e. foreign) liabilities continued to mount throughout the 1990s. At year-end 1996, the net debt reached a record $548 billion (with assets at market values). One year later, it crossed the $1 trillion threshold – equivalent to 13 percent of gross domestic product – and by the end of 1998 rose to $1.5 trillion or 18 percent of GDP.

The volume of capital flows to and from the US increased after 1998 and, in 2004, set new records despite concerns about the willingness of foreigners to continue financing the nation's ongoing current account deficits. But, at the end of that year, the magnitude of the gap between a record inflow of new investment in US assets by foreigners ($1,440 billion) and an equally unprecedented outflow for new foreign investment by US residents ($855 billion) was masked by valuation adjustments.[4] The result was a relatively modest $170 billion increase in the net value of US liabilities to foreigners between 2003 and 2004 and a miniscule increase in the net negative investment position from 21.6 percent of GDP in 2003 to 21.7 percent in 2004 (see Tables 1 and 2).

As the data show, the net inflow of foreign investment in 2004 was much larger than the amount needed to finance the US current account deficit ($670 billion) and the excessive inflow of foreign savings resulted in a spillover back into the global economy as US residents recycled the surplus capital they could not use productively at home.[5] Nevertheless,

[4] Dollar depreciation in this period pushed up the value (measured in appreciating foreign currencies) of outstanding US assets abroad by $821 billion while price changes contributed only $406 billion to the rise in the much larger stock of US assets held by foreigners (see Table 2).

[5] It is often argued that the inflow of foreign savings in excess of the amount required to finance the US current account deficit was triggered by the large outflow of US investment abroad in 2004. However, the size and composition of private capital flows suggests that, as former Federal Reserve Board Chairman

Table 1 US International Investment Position, Year-End 2003-2004[1]

(in billions of dollars and percentage of GDP[2])

Net Creditor/Debtor Position (-)				Change: 2003-2004		
2003		2004		Financial Flows	Valuation Adjustments[3]	Total Change
amount	%	amount	%	amount	amount	amount
-2,372	21.6	-2,542	21.7	-585	415	-170

Notes:

[1] Direct investment positions at market value.

[2] GDP in current dollars.

[3] Includes price changes, exchange rate changes, changes in coverage, statistical discrepancies and other adjustments to the value of the assets.

Source: US Department of Commerce, *Survey of Current Business,* Bureau of Economic Analysis, US Department of Commerce, Washington D.C.

even as dollar devaluation moderated the increase in the net negative investment position, the dollar value of foreign-held assets as a share of US GDP rose more rapidly than the rate of US growth. In 2004, foreign-held assets climbed to 106.6 percent of US GDP, up from 97.0 percent at year-end 2003.

There are important asymmetries in the composition of American residents' foreign holdings versus foreign residents' holdings in the US. One is the fact that the majority of US holdings are direct investments in plant and equipment while the majority of US liabilities to foreigners are marketable financial assets (stocks, bonds, government securities and bank liabilities) that can be liquidated more easily than direct investments. Another is the difference in the holdings of US and foreign public sectors. The central bank and other US government agencies own relatively few foreign assets while foreign official institutions owned some $2 trillion of US financial assets or about 16 percent of the $12.5 trillion total stock of foreign investment at year-end 2004. As these asymmetries suggest, the US lacks a pool of liquid foreign assets to sell if there were a decline or abrupt withdrawal of foreign funding, while their already large holdings of US assets might limit

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Alan Greenspan noted (2003), overfinancing has been a chronic development due to rising rates of return on US assets. Thus, we argue, excess inflows financed US residents' capital outflows in this and other years rather than the reverse.

Table 2 Selected Components of US International Investment Position, Year-end 2003-2004
(in billions of dollars)

	2003	2004	Change 2003-2004		
			Financial Flows	Valuation Adjustments	Total Change
US-owned assets abroad	*8,297*	*9,973*	*855*	*821*	*1,676*
US government assets	268	273	-4	9	5
Official reserve assets	184	190	-3	9	6
Other assets	85	84	-1	0	-1
US private assets	8,028	9,700	860	812	1,671
Direct investment abroad	2,718	3,287	252	317	569
Foreign securities	2,954	3,437	102	381	483
Bonds	874	917	19	23	42
Corporate stocks	2,079	2,520	83	358	441
Non-bank claims	597	802	149	56	205
Claims reported by banks	1,759	2,174	356	59	415
Foreign-owned assets in the US	*10,669*	*12,515*	*1,440*	*406*	*1,846*
Foreign official assets	1,567	1,982	395	20	415
US government securities	1,192	1,500	311	-4	307
Other US assets	375	482	84	24	108
Other foreign held assets	9,102	10,533	1,045	386	1,431
Direct investment	2,457	2,687	107	123	230
US Treasury securities	543	640	107	-11	97
Other US securities	3,408	3,988	370	210	580
Corporate and other bonds	1,707	2,059	309	43	352
Corporate stocks	1,701	1,929	61	167	228
US non-bank liabilities	454	581	124	3	127
US liabilities reported by banks	1,921	2,305	323	61	384
US currency	318	333	15	0	15

Note:
2003 figures are revised; 2004 figures are preliminary. Valuation adjustments include changes in prices, exchange rates, coverage, statistical discrepancies, and other adjustments to the value of assets. Direct investment is at market value. Numbers may not add up due to rounding.

Source: US Department of Commerce, Bureau of Economic Analysis, June 30, 2005.

other countries' ability or willingness to cushion withdrawals with loans or further purchases.

In 2004, the net inflow of foreign official funds ($395 billion) broke the previous year's record ($278 billion) and focused attention on these investors as a major source of capital flows to the US. But their contribution to the total inflow was only 27.4 percent. The much larger $1,045 billion of private foreign investment better illustrates the context and incentives for the record volume of flows in that and other years. One incentive was the rapid expansion in global liquidity that, the BIS argued, was created by stimulative monetary policies in industrial countries in response to the recession of 2001-2002 (BIS, 2004a). Ample liquidity and historically low interest rates had sparked a search for yield that, as the Federal Reserve began its measured increases in policy rates, shifted borrowing in dollars for carry trade transactions to borrowing in yen and renewed speculative interest in US financial assets.[6]

The excessive scale of foreign private inflows and the outflows of US investment they financed increased incentives for a rising inflow of foreign official investment in 2004 as well. Sizeable spillovers of investment into emerging economies – again, in response to the search for yield – prompted monetary authorities in these countries to step up the level of intervention to curb currency appreciation and moderate the growth of money and credit in their domestic economies. But the dollars they purchased found their way back into US financial markets in the form of foreign official purchases of US Treasury and agency securities – investments that contributed to further increases in liquidity in US and global markets and additional downward pressure on interest rates.[7]

Former Federal Reserve Board Chairman Alan Greenspan has asserted that capital flows are "exact mirror images of current account balances". But he also acknowledged that rising rates of return on US

[6] Cross-border carry trades involve borrowing in a low-yielding currency and investing in assets denominated in a higher yielding currency. Beginning in the mid-1990s, significant increases in carry trade transactions have helped drive up activity in both credit and foreign exchange markets and have played a major role in the depreciation of funding currencies and appreciation of investment currencies.

[7] The level of activity in external markets in 2004 also reflects the extraordinary build-up in global liquidity in this period. Cross-border and foreign currency claims of BIS reporting banks grew by $2.28 trillion – more than twice the change in 2003 and substantially larger than the previous record increase of $1.33 trillion in 1997 (BIS, 2005b).

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assets "resulted in private capital investments from abroad that chronically exceeded the current account deficit" (Greenspan, 2003, p. 3). What he failed to add is that these excessive investments from abroad expand the supply of credit and have, as their mirror image, rising levels of debt owed by domestic sectors.[8] The link between them is critical in determining whether or not current levels of either external or domestic debt are sustainable because both have the potential to constrain global as well as US domestic demand.

US International Financial Transactions in 2005

The comparison of US international financial transactions in 2004 and 2005 in Table 3 shows that foreign private investment was $26.6 billion higher and foreign official investment $174.0 billion lower in 2005 than for the same period in the previous year.[9] As the rise in foreign private investment in Treasuries ($89.8 billion) and other US securities ($119.4 billion) suggests, new investments by this sector reflected an increase in cross-border carry trades that tended to strengthen the dollar against the yen even as intervention by the Bank of Japan virtually ceased. Meanwhile, the $146.9 billion drop in US bank liabilities to foreigners constrained the sources of funding for cross-border carry trade transactions by these institutions as US banks' foreign claims fell by $137.9 billion. The overall outflow by US residents was $363.8 billion smaller than in 2004 with most of the drop ($230.5 billion) in new foreign direct investment.

The role of carry trades in driving international capital flows appears to have intensified in the fourth quarter of 2005. The BIS notes anecdotal reports of a surge in such transactions by hedge funds using short positions in yen and other low interest rate currencies to fund long dollar positions. But even as US interest rates rose, the search for

[8] Foreign savings have supplied between 10 and 20 percent of total lending in US credit markets in every year since 1994. In 2004 and 2005, foreign private and official investment accounted for 26.8 and 25.7 percent of total lending respectively and helped push the debt of domestic non-financial sectors from 189.8 percent of GDP in 2001 to 211.4 percent at year-end 2005 (Federal Reserve System, 2005).

[9] The data in Table 3 are flows and do not include changes in valuation. Data on valuation changes for stocks of US assets abroad and foreign assets in the US are available about half a year after the end of the previous year.

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Table 3 US International Financial Transactions 2004-2005
(in billions of dollars; seasonally adjusted)

	2004	2005	Change
US owned assets abroad, net (increase/financial outflow[-])	*-855.5*	*-491.7*	*363.8*
US government assets	4.0	21.7	17.7
US official reserve asset, net	2.8	14.1	11.3
Assets other than official reserve assets	1.2	7.6	6.4
US private assets, net	-859.5	-513.4	346.1
Direct investment	-252.0	-21.5	230.5
Foreign securities	-102.4	-155.2	-52.8
US claims on unaffiliated foreigners reported by US non-banking concerns	-149.0	-118.5	30.5
US claims reported by US banks (not included elsewhere)	-356.1	-218.2	137.9
Foreign owned assets in the US (increase/financial inflow[+])	*1,440.1*	*1,292.7*	*-147.4*
Foreign Official assets in the US, net	394.7	220.7	-174.0
US Treasury securities	311.1	177.2	-133.9
Other US assets	83.6	43.5	-41.1
Other foreign assets in the US, net	1,045.4	1,072.0	26.6
Direct investment	106.8	128.6	21.8
US Treasury securities	106.9	196.8	89.8
US securities other than US Treasury securities	369.8	489.2	119.4
US liabilities to unaffiliated foreigners reported by US non-banking concerns	124.3	62.2	-62.1
US liabilities reported by US banks (not included elsewhere)	322.6	175.7	-146.9
US currency	14.8	19.4	4.6
Net financial outflow (-)/inflow (+)	*584.5*	*801.0*	*216.5*
Capital account transactions, net	*-1.6*	*-5.6*	*-4.0*
Statistical Discrepancy (sum of above items with sign reversed)	*85.1*	*9.6*	*-75.5*
Memo item:			
Balance on Current Account	*-668.1*	*-804.9*	*-136.8*

Source: US Department of Commerce, Bureau of Economic Analysis, www.bea.org

yield continued to push up equity markets in emerging economies and lowered their sovereign bond spreads. In the third quarter of 2005, foreign portfolio investment in emerging economies hit near-record levels and rebounded in November after a short sell-off in October (BIS, 2005c).

The build-up in liquidity in the US, Japan and many emerging economies intensified in 2005 and appears to have perpetuated the round-robin, pro-cyclical pattern of international capital flows. For example, the BIS noted that Japan's bull market in equities had become the favourite destination for foreign investors (BIS, 2005c). But the currency appreciation that might have been associated with foreign investment in equities was offset by lending in yen for carry trade investments in dollar assets. Thus with flows into one or more segments of a national market spilling out and into other national markets – even returning, in some cases, to the markets from which flows had originated – excess liquidity was distributed throughout the global economy, exerting ongoing, downward pressure on interest rates.

Foreign Exchange Reserves and Liquidity Creation

Clearly, the private sector has been and remains the driving force in international capital flows and a major source of funding for US credit expansion. As the 2005 BIS *Annual Report* noted, dollar holdings of foreign official institutions in the US and in offshore deposits accounted for only about a third of the long-dollar position of non-US residents. Nevertheless, these institutions and their reserve holdings play a critical role in the expansion – and potential contraction – of global liquidity.

A key element of the currency-based international monetary system that superseded Bretton Woods is that, unlike gold, foreign exchange reserves are interest-bearing assets denominated in a strong currency.[10] Dollar reserves held in the US are invested in US Treasury securities and are liabilities of the Treasury. They are not included in stocks and flows of the US central banks' liabilities, are outside its direct influence and, thus, constitute a system for parallel open market operations with the same liquidity-creating powers as those of the Fed. Moreover, changes in reserve holdings respond pro-cyclically to Federal Reserve

[10] Central banks also held foreign exchange assets as international reserves in the late 19th and early 20th centuries and their use expanded after 1922 as a means of augmenting limited gold supplies. The fact that returns on these assets increase reserve holdings was seen then (as now) as an attractive feature.

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initiatives, amplifying the impact of a given policy objective.

For example, when the dollar depreciates because the Federal Reserve has taken policy actions to lower US interest rates by buying Treasuries in the open market, foreign official institutions buy dollars with their own currencies in their own or in external markets to prevent their currencies' appreciation and to push up the value of the dollar.[11] The dollars are then invested – usually in US Treasuries – and increase foreign holdings of dollar reserves. The repatriation of dollars amplifies the direction and impact of the Fed's policy initiative by increasing downward pressure on interest rates and supplying additional liquidity. Conversely, when the Fed tightens by selling government securities, foreign central banks may be motivated to sell from their holdings and use the proceeds to buy their own currencies to moderate dollar appreciation and downward pressure on their own exchange rates – again, amplifying the impact of the Fed's actions.[12]

If the objective is to counter the impact of Fed policy on exchange rates, the outcome in both cases is likely to be the opposite of that intended. Foreign central banks' attempts to change exchange rates by buying and selling their own and other currencies usually fail because the resources available for intervention are dwarfed by the size of global market flows. But in the context of the US market, foreign official purchases and sales of US Treasuries are comparable to or larger than those of the Fed and can significantly change conditions in US domestic credit markets. Since the 1970s, foreign official purchases have exceeded Federal Reserve purchases in many quarters and years and, in time, their holdings grew larger than the Fed's. Thus the fact that intervention culminates in investment decisions that reinforce (rather than counter) Fed policy initiatives is an equally potent factor in undercutting the effectiveness of intervention in exchange markets.

Recent reserve accumulations by emerging economies differ from earlier intervention initiatives by advanced economies in that dollars are acquired in payment for goods, services and financial assets and are exchanged for the home currency in domestic rather than external markets. Their reinvestment in US financial assets adds liquidity to US

[11] Because the Federal Reserve discourages holdings of foreign currency assets in the US, the exchange of foreign currencies for dollars must take place offshore. Thus, intervention involves a repatriation of dollars held outside the US.

[12] Foreign official sales of US Treasuries in the early 1980s contributed significantly to the overshooting of dollar interest and exchange rates.

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credit markets and may even counter Fed initiatives to raise interest rates and constrain credit growth. Given that one objective of reserve accumulation is to raise the value of the dollar, the reinvestment of dollars in US assets can be counterproductive since it amplifies the easier market conditions that foster depreciation while impeding the shift to tighter conditions that would attract additional private foreign investment and raise the dollar's value. However, by bolstering the availability of credit and thus contributing to conditions that support import purchases, these investments help maintain access to the US market – a major objective of countries that favour export-led growth.

Monetary analysts and the Fed itself have tended to ignore the implications of these developments, but the size of the additions to dollar reserves in the years 2002 through 2004 make clear the need for concern about the central bank's ability to offset their impact on US interest rates and credit expansion. And, given their size, pressures and incentives to re-export that liquidity are inevitable. Thus, intervention and reserve accumulation have played a substantial role in reinforcing the round-robin pattern of international capital flows in recent years. Moreover, it is likely that foreign currency reserves' highly pro-cyclical role in amplifying the expansion and contraction of liquidity in the market for the reserve currency would persist even if the euro, yen or other currencies replaced the dollar.

"Under" and "Over" Saving in the Context of a Currency-Based International Monetary System

As we have argued, using national currencies as an international store of value generates debt in key currency countries. The investment of external savings in the credit instruments of that country tends to lower the cost and expand the availability of credit as residents sell assets from their portfolios to foreign investors and seek to replace those assets with comparable investments. If flows are not large, they can be sterilised by issuing central bank liabilities to resident investors to mop up excess liquidity. The US, however, has never used that tool and, in any event, flows had grown too large by the end of the 1970s to be effectively sterilised by using traditional bank-centred quantity controls such as increases in reserve requirements.[13] In addition, the rapid pace of financial

[13] Moreover, foreign inflows were increasingly used to purchase financial assets in secondary markets rather then invested in bank deposits, further weakening the

liberalisation and restructuring in the 1980s – and the ongoing relaxation of prudential lending standards – exacerbated conditions for the build-up in debt.

The US household sector incurred the largest increase in debt in the decade 1995-2005 and this increase was associated with a fall in the saving rate and a rise in consumption as a share of total aggregate demand.[14] Given its availability and favourable terms, many consumers viewed the cushion provided by access to credit as a substitute for savings – particularly after 2002 when borrowing was used both to purchase appreciating residential property and extract equity from property for spending. But businesses, too, took advantage of low rates in bond markets to borrow for stock buy-backs that tended to strengthen the bottom lines of managers rather than those of the firms they managed.

US monetary policy was complicit in these developments: maintaining interest rate differentials favourable to the dollar to attract capital inflows in the latter half of the 1990s, allowing foreign savings to pump up credit growth and create asset booms[15] and failing to moderate imbalances in credit flows with existing quantitative tools (where possible) or insistence on prudential norms. Nowhere in the public pronouncements of the central bank was there mention of concern about credit expansion or the effectiveness of the existing means to control it. Suggestions that financial institutions follow prudential norms were offered only after credit-fueled bubbles had already reached unsustainable levels.

Emerging economies, too, have experienced high levels of credit growth and spending since the 2002 recovery. In some of these countries, the build-up in global liquidity has resulted in rising consumption. In others – China, for example – credit expansion has bolstered spending on fixed investment.[16] For many emerging economies, high saving rates and lagging consumption were re-enforced by the inability to pay or receive their own currencies in external transactions. Given this constraint, they

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Fed's ability to sterilise them with existing, bank-centred monetary tools.

[14] Debt of the US household sector rose from 65.7 percent of GDP in 1995 to 92.1 percent at year-end 2005. The debt of the federal government fell over the same period from 49.2 percent of GDP to 37.7 percent, while that of non-financial businesses rose from 55.6 percent to 66.8 percent (Federal Reserve System, 2005).

[15] For a discussion of the link between credit growth and asset booms, see Borio and Lowe (2002).

[16] Spending for fixed investment in China accounts for 50 percent of total aggregate demand (White, 2006).

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adopted policies that channelled savings into the production of exports. Moreover, faced with the need to maintain low prices and prevent exchange rate appreciation to remain competitive in the global economy, they encouraged households to save as an alternative to higher wages and government-provided safety nets. Imbalances arose as smaller shares of households' income and of the pools of credit they generated were channelled to these savers.

Equally important, frequent crises encouraged developing countries to accumulate reserves. The extraordinary build-up in reserves by emerging economies over the past decade is partly indicative of the pressures to use surplus earnings from trade to construct a cushion against those shocks. But to do so, this implies lending their savings to strong currency countries rather than invest them in their own economies. This imperative is a constraint on demand in these "high saving" countries as they amass idle resources to cover needed imports and debt service in the event of future financial crises.[17]

The profit-seeking strategies of the large private financial institutions that dominate the international payments system intensified emerging economies' vulnerability to financial crises. As more developed and developing countries adopted capital account liberalisation in the 1990s, the valuation of currencies increasingly came to depend on the arbitrage transactions of these institutions between different financial instruments and markets rather than on trade (Cornford, 2005). Changes in interest rate differentials on assets denominated in different currencies now play a disproportionate role in driving shifts in capital flows and currency values, exacerbating the problems of monetary control on a global scale. Exposed to this dynamic, emerging economies lost the ability to influence the build-up of external debt in their own economies and, again, were forced to respond by amassing offsetting assets in the form of foreign exchange reserves to cover their exposure. The growth in their foreign exchange reserves since the Asian crisis forged a link between "oversaving" at the international level and widening global imbalances. On the positive side, higher reserves have significantly decreased developing countries' vulnerability to crises.

[17] While foreign exchange reserves held on the books of central banks provide support for expansions of money and credit in the domestic economy, monetary authorities in these countries must sterilise some or all of the build-up in reserves by selling holdings of domestic assets or issuing central bank liabilities to prevent overexpansion.

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2 Risks in Failing to Address the US Foreign Debt Problem

While many agree that US deficits are unsustainable, there is no consensus view on what set of circumstances or particular scenario might trigger a shift in the build-up of US indebtedness. In the following sections, we look at some of the factors in both the US and emerging economies that might trigger a shift and the risks we see in failing to address the problem.

The US Economy: Risks and Potential Consequences

As former Chairman Greenspan (2003) noted, the sustainability of US trade deficits depends on whether and for how long foreigners will be willing to increase their holdings of dollars. In the case of the foreign private sector, some part of the answer will depend on interest rate differentials favourable to the dollar and opportunities for leveraged investment strategies such as carry trades that will continue to make investments in short-term dollar assets attractive. For official investors with a longer-term outlook, the issue is more complicated. First, there is the build-up of huge imbalances in reserve ownership with Japan and Emerging Asia holding $2,651 billion or 64 percent of the global total at the end of 2005 (Table 4). The size of their holdings has prompted worries that one or more of these countries might decide to change the currency composition of their portfolios of reserves and that this could precipitate a sell-off by other official and private investors (IMF, 2004).

It is always possible that political developments could prompt sales of dollar reserves, but depreciation is thought to be the most likely trigger for diversification. Yields apparently do influence portfolio choices of official investors. In fact, after strong growth in the 1990s, the dollar share of global reserves fell after 2000 and slipped below 65 percent at the end of 2004, down from 69.2 percent at year-end 2003 (Table 5). While depreciation of existing holdings was certainly a factor in lowering the dollar's share, the increase in euro deposits of OPEC countries suggests that depreciation had also begun to influence decisions about new reserve investments (BIS, 2004a, 2004b).

Sales of foreign exchange assets denominated in one of the major currencies have tended to be reinvested in assets denominated in another. But it is possible that – like some Asian private investors who have withdrawn foreign currency deposits in international banks for reinvestment in their own currencies at higher interest rates – foreign central banks might

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Table 4 Annual Changes in Official Foreign Exchange Reserves of Selected Countries
(in billions of dollars at current exchange rates)

	1998	1999	2000	2001	2002	2003	2004	2005	Out-standing end-2005	% of Total
Total	27	140	159	111	356	620	720	422	4,171	100
Industrial countries	*-33*	*55*	*60*	*3*	*112*	*219*	*196*	*-22*	*1,292*	*31.0*
US	5	-4	-1	-2	5	6	3	-5	38	0.9
Euro area	-33	-39	-9	-11	8	-28	-7	-13	167	4.0
Japan	-5	75	70	41	64	201	172	5	829	19.9
Emerging Asia[1]	*63*	*79*	*53*	*76*	*174*	*264*	*363*	*250*	*1,822*	*43.7*
China	5	10	11	47	74	117	207	209	819	19.6
Hong Kong SAR	-3	7	11	4	1	7	5	1	124	3.0
India	3	5	5	8	22	31	28	6	131	3.1
Korea	32	22	22	7	18	34	44	12	210	5.0
Singapore	4	2	3	-5	7	14	17	4	115	2.8
Taiwan, China	7	16	1	16	39	45	35	12	253	6.1
Latin America[2]	*-10*	*-9*	*2*	*0*	*4*	*31*	*21*	*25*	*217*	*5.2*
Argentina	2	2	-2	-10	-4	3	5	5	23	0.5
Brazil	-8	-8	-2	3	2	12	4	1	54	1.3
Chile	-2	-1	1	-1	1	0	0	1	17	0.4
Mexico	3	-1	4	9	6	8	5	10	73	1.8
Middle East[3]	*n.a.*[5]	*n.a.*	*11*	*3*	*2*	*7*	*14*	*12*	*80*	*1.9*
Central and Eastern Europe[4]	*7*	*1*	*19*	*13*	*37*	*51*	*69*	*70*	*335*	*8.0*

Notes:
[1] Asia: countries shown plus Indonesia, Malaysia, Philippines and Thailand.
[2] Latin America: countries shown plus Colombia, Peru and Venezuela.
[3] Middle East: excluding Iran and Iraq. For Saudi Arabia, excluding investment in foreign securities.
[4] Central and Eastern Europe: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia and Slovenia.
[5] Not available.

Source: BIS, *Annual Report*, Bank for International Settlements, Basel, various issues.

Table 5 Outstanding Official Foreign Exchange Reserves
(year-end; billions of current dollars and percentages)

	1990		1996		1998		2000		2003		2005	
	amount	%	amount	%	amount	%	amount	%	amount	%	amount	%
Total reserves	790	100	1,518	100	1,636	100	1,909	100	3,010	100	4,171	100
Industrial countries	482	61	707	47	690	42	775	41	1,104	37	1,292	31
Developing countries	308	39	811	53	946	58	1,134	59	1,906	63	2,879	69
Dollar reserves	432	55	1,042	69	1,145	70	1,451	76	2,082	69	n.a.[1]	n.a.
Non-dollar reserves	357	45	476	31	492	30	458	24	929	31	n.a.	n.a.

Note:
[1] Not all allocated. Dollar reserves were 64.7 percent of the total allocated.
Source: BIS, *Annual Report,* Bank for International Settlements, Basel, various issues.

simply liquidate some portion of their reserve holdings for such holdings for such purposes as reducing domestic and external government debt or financing development projects. As discussed above, a possibly greater risk is that private investors – or private and official investors at the same time – could shift their investments from dollars into other currencies.

Meanwhile, some of the risks that could cause a shift in the build-up of US debt could originate in the home economy rather than externally. In the aftermath of the recent run-up in domestic debt and the probability that home prices will level-off or fall, US households could reach the limits of their capacity to borrow – the more so since increases in disposable income continue to lag both GDP growth and net borrowing in the aftermath of the recent recovery. If borrowing slows, spending is likely to slow as well and that, in turn, will trigger a slowdown in imports – an outcome that some might view as a soft landing in terms of reducing the current account deficit.

But slower import growth would also shrink the inflow of foreign capital. Losing inflows of funding from foreign current account surpluses would contract the supply of new credit to US consumers and businesses and that, in turn, would tend to raise interest rates to levels needed to attract an offsetting supply of domestic savings. The shift in the availability and terms of credit would provide incentives to save but at the cost of an additional constraint on spending and an even

sharper drop in imports.[18]

Should these or other developments trigger a shift in the build-up of US indebtedness, one of several unwelcome scenarios might follow. For example, a scenario in which declining housing prices halt or shrink credit growth and imports suggests a period of stagnation in both the US and global economies like the long slowdown in growth that Japan experienced in the 1990s.[19] A slowdown in overall foreign investment would contribute to that ongoing stagnation but could also result in significant deflationary pressures.

Given the extraordinary level of support foreign savings have provided for the build-up in debt by the US government and private sectors since the 1980s, any significant withdrawal of that support would not only constrict US credit availability but lower prices of US financial assets as well. The enormous share of dollar assets held by both private and official foreign investors would ensure that losses would be shared by both borrowers and lenders, rapidly spilling over into markets for goods, services, and financial assets in virtually every other country in the world. Of particular concern would be the deflationary impact of a contraction of global reserves as dollar reserves held by central banks as backing for domestic credit fell in value.

The worst-case scenario would be an actual drawdown of the stock of foreign investment in US financial assets. Asset sales by foreigners could drive down prices to levels that would shrink the net worth of households in the US and other countries, erode the capital of financial institutions, and precipitate a more rapid slide into deflation. Should such a scenario develop, the extent of damage to economies and financial systems would depend on the size and rapidity of the rush to exit and/or the nature and effectiveness of counter-cyclical responses. Again, the size of foreign private and official dollar holdings suggests that an effective counter-cyclical response would require the coordinated participation of many countries and, in particular, that of Japan and China.

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[18] Rising US interest rates might attract speculative private foreign inflows but their effect on asset prices would quickly deflate in the context of waning aggregate demand.

[19] The potential for a drop in US housing prices to precipitate a significant slowdown in spending is exacerbated by the fact that residential mortgages account for over 30 percent of credit market debt of all US non-financial sectors and almost all types of financial institutions hold mortgage loans (Federal Reserve System, 2005). Falling prices for homes will lower households' net worth directly and through the feedback effect of downward pressure on prices of mortgage paper held by the institutions in which households' savings are invested.

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Emerging Economies: Risks and Potential Consequences

As mentioned above, a sharp slowdown in US growth (especially of consumption), or worse its contraction, could significantly lower world aggregate demand unless sufficient compensatory expansion of aggregate demand took place in the rest of the world, both developed and developing. Clearly, the need for such expansionary policies now – and even more in the case of a rapid slowdown in US growth – is essential. This should include more expansionary macroeconomic policies especially in Europe but also in Asia and, where feasible, in Latin America and Africa. Greater reliance on a domestic demand-based growth strategy, especially in Asia but also in Latin America, would reduce excessive current account surpluses, and reduce vulnerability to a slowdown in US growth. As discussed below, space should be opened – both internationally and domestically – for developing countries to be able to adopt counter-cyclical policies, both at the macroeconomic and financial level. Rules like the Chilean one, where there is a structural level of fiscal surplus – that is fiscal results are explicitly allowed to vary counter-cyclically – and thus fiscal deficits are permitted if the economy slows down, could perhaps be usefully applied in other developing countries. Naturally, relatively low levels of debt are desirable to allow such fiscal expansion in times of slow growth. Similarly, monetary policy should operate counter-cyclically and symmetrically, tightening in times of excessive credit and economic growth and radically easing in times of slower credit and economic growth. In this sense, it is for example surprising that Brazil has maintained such a restrictive monetary policy in times of rather weak growth. Institutions like the IMF and the World Bank should encourage countries to adopt such counter-cyclical fiscal frameworks, as well as provide low-conditionality compensatory financing where this is required to make such policies feasible.

Even though such measures are taken, unfortunately a sharp slowdown in the US economy may well not be compensated by the rest of the world. There would be two transition channels to the developing world via trade and finance as well as their interactions. To an important extent, this would be transmitted via lower demand for developing country exports, initially especially to the US. Both volumes and prices (especially of commodities) would be affected. The existence of high levels of foreign exchange reserves in many developing countries would provide a valuable initial buffer, as they would allow countries to avoid import contraction, and could facilitate more domestic demand-led growth.

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Developing countries, reliant on commodity exports – whose prices have risen significantly – would do well to maintain such high levels of reserves and create, as well as possibly expand, domestic Commodity Stabilisation Funds, such as have been successfully implemented in Colombia and Chile.

Any significant fall in the value of the dollar would reduce the value of foreign exchange reserves, if these are largely kept in dollars or dollar dominated securities. The case for a gradual diversification of such official reserves may therefore be desirable, possibly within an international reserve diversification standard to remove some of the uncertainty about the management of foreign exchange reserves, as suggested by Truman (2005). A fall in the dollar would also, however, have a positive effect on lowering the value of external debt of developing countries, much of which is dollar denominated.

If the US were forced to increase US interest rates significantly and if long-term interest rates also rose, there could be a negative effect on highly indebted developing economies. Furthermore, there is empirical evidence (World Bank, 2005) that there is a non-linear effect of US rates on developing country spreads. A higher US interest rates affect the creditworthiness of emerging economies (for example through trade channels), emerging market spreads rise more quickly. The fact that many developing countries have lower debt service ratios than in the past (and higher reserves) may provide some protection, even though a simultaneous reduction in private flows to developing countries and an increase in US interest rates could still be damaging. Continued prudence to contract foreign debt seems highly desirable. Furthermore, as discussed below, this is a good time for developing countries to borrow via instruments that are less vulnerable to exchange rate fluctuations (local currency bonds) and particularly less vulnerable to fluctuations of GDP (GDP-linked bonds).

Other, relatively newer, channels of transmission could emerge. As discussed above, widespread use of derivatives – which can provide valuable hedging protection for companies – may have problematic and unexpected macroeconomic effects, in particular on exchange rates. As is widely recognised, very large open derivative positions were a major factor in the Mexican and East Asian crises. The explosive growth of derivatives since then, especially via offshore or non-deliverable forward markets, may create new and unexpected sources of vulnerability. A not frequently discussed risk, which we wish to highlight, is that in the same way as asset prices in developing countries (such as property and

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stock markets) often follow developed countries on the increase, they could also fall sharply in the developing world if these prices declined strongly in the US. Such falls in asset prices in developing economies could not only have negative wealth effects on consumption, but also problematic impacts on financial institutions there, especially banks and their lending.

3 How Should the Problem Be Addressed and By Whom?

Many advanced and emerging economies are now experiencing distortions in their domestic markets similar to those that have plagued the US economy. Associated with surges of capital inflows and reserve accumulation, growth in household debt and overheated real estate markets have become notable problems in central and eastern European countries, Russia, Korea, and Thailand. Faced with rising housing prices in the aftermath of the collapse of its credit card bubble, Korea's efforts in tackling the problem by imposing a range of fiscal and monetary restrictions have been particularly aggressive.[20] China has not been troubled by rising household debt but its central bank has begun to tackle the problem of excessive lending to state-owned enterprises (SOEs) by adopting quantitative controls such as changes in reserve requirements, increased interest rates on discounting and lending facilities and "window guidance" (BIS, 2004a).

The BIS gave guarded approval to these initiatives in 2004 and, in the 2005 *Annual Report,* it proposed a macrofinancial stabilisation framework that would use counter-cyclical techniques in implementing both regulatory and monetary policies. This new framework would reintroduce quantitative measures such as liquidity requirements and loan-to-value ratios, set prudential norms relating to the growth in credit or asset prices and "use monetary and credit data as a basis for resisting financial excesses in general, rather than inflationary pressures in particular" (BIS, 2005a, p. 148).

These are all welcome and sensible responses to the problem of widening imbalances in domestic economies and a notable retreat from

[20] These restrictions include higher capital gains taxes on sales of multiple residential properties; ceilings on loan-to-value ratios for mortgage loans; limits on or penalties for aggressive credit card marketing; credit ceilings based on the borrower's income; increased loan provisioning by credit card issuers, and requirements that borrowers repay a mandatory portion of their credit card debt (BIS, 2004a).

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prescriptions for deregulation and inflation targeting put in place in the two decades following the ascendancy of free market ideology. We support the proposed BIS framework and believe that its adoption by US monetary and regulatory authorities, as well as those in other advanced and emerging economies, is not only desirable but necessary. Below we both develop it further and suggest broader measures to address the flaws in the international reserve and payments system.

As pointed out, the possible rapid and disorderly unwinding of the US current account deficit constitutes an important risk of a significant slowdown in developing economies and some risk for financial stability in there economies.

A key issue therefore is to design policies nationally and internationally to open space for policies (such as counter-cyclical fiscal and monetary ones) that can help sustain growth – if the US economy slows down – and avoid threats to financial stability.

In this section we would like to explore two specific areas: (a) designing market-based counter-cyclical instruments – possibly with support of multilateral or regional development banks – that would smooth debt payments throughout the business cycles, such as GDP-linked bonds and local currency bonds, and (b) issuance by public institutions, such as multilateral development banks, of guarantees with explicit counter-cyclical elements. A third important area is the need for a more counter-cyclical regulatory banking framework, including provisions for future losses linked to loan expansion, and not to actual losses; this dynamic provisioning, already implemented in Spain and Portugal (Ocampo and Chiappe, 2003), allows greater expansion of credit as growth slows down. Modifying Basel II, to reduce its pro-cyclical effect both on international and domestic bank lending, would also be important. As discussed elsewhere, introducing the benefits of diversification could be a useful and correct way to reduce pro-cyclicality.

GDP-Linked Bonds: An Idea Whose Time Has Come

We will focus particularly on GDP-linked bonds, which could be especially beneficial given the risk of slowdown of world economic growth. There has been an increasing interest in creating bonds linked to the growth of a countries' gross domestic product. At the 2006 spring meetings of the IMF and the World Bank, both potential issuers and investors expressed a clear appetite for such bonds. GDP-linked bonds relate part of the annual debt servicing of the bond to the growth of the

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debtor country's GDP growth, being lower in times of below-trend growth and higher in times of above-trend growth (Griffith-Jones and Sharma, 2006).

How would such an instrument work? In the simplest terms, it would imply a bond that promised to pay an interest coupon based on the issuing country's rate of growth. For example, assume a country with a trend growth rate of 3 percent a year and an ability to borrow on plain vanilla terms at 7 percent a year. Such a country might issue bonds that pay 1 percent above or below 7 percent for every one percent that its growth rate exceeded or fell short of 3 percent. The country will also pay an additional premium, which most experts expect to be very small (as discussed in greater detail below). Given the requirement for many institutional investors to hold assets that pay a positive interest rate, there may also be a need for a floor beyond which the coupon rate cannot fall.

GDP-indexed bonds could be beneficial for all countries, but especially for developing ones. They would provide two major benefits for emerging-economy borrowers. Firstly, they stabilise government spending and limit the pro-cyclicality of fiscal pressures by necessitating smaller interest payments at times of slower growth – providing space for higher spending or lower taxes – and vice versa. This runs counter to actual experience of many emerging economies, often forced to undertake fiscal retrenchment during slow growth. In this sense, growth-indexed bonds can also be said to disproportionately benefit the poor by reducing the need to cut social spending when growth slows. They could also curb excessively expansionary policy in times of rapid growth. The issuance of such bonds would make it easier for governments to follow "Chilean style" policies of counter-cyclical fiscal policy. Secondly, by allowing debt service ratios to fall in times of slow or negative growth, they reduce the likelihood of defaults and debt crisis. Crises are extremely costly, both in terms of growth, production and in financial terms (Eichengreen, 2004; Griffith-Jones and Gottschalk, 2005).

Simulations show that the gains for emerging-economy borrowers can be substantial. Research by Borensztein and Mauro (2004) shows that if half of Mexico's total government debt consisted of GDP-indexed bonds it would have saved about 1.6 percent of GDP in interest payments during the Tequila crisis of 1995.

Those emerging market economies experiencing volatile growth and high levels of indebtedness should find the instrument particularly attractive to issue. However, these countries may find it more difficult to issue them at reasonable premiums. It may therefore be better if they

were issued first by countries with greater credibility. Two such groups of countries were identified in a recent expert group meeting (UNDP, 2005). The first comprised developed countries that may have an interest in issuing GDP-indexed bonds, for example the EMU countries. The second group may be developing countries, like Mexico or Chile, whose fundamentals are attractive to markets. The precedent of introducing collective action clauses into bonds, done first by developed countries and later followed by developing ones, shows that demonstration effects can be very effective for introducing financial innovations. Indeed, the history of financial innovations is essentially one of learning by doing. Inflation-indexed bonds are another example of an instrument that initially met some scepticism, relating to measurements of inflation. In fact, once these bonds started to be issued (with an initial clear impulse from governments), they became widely accepted across the world; in the UK, they represent around a quarter of government debt. A similar evolution can be envisaged for GDP-linked bonds (Griffith-Jones and Shiller, 2006).

GDP-indexed bonds may also provide benefits for the industrialised countries, especially in Europe. They may be particularly attractive for EMU countries, given the argument that the "Stability and Growth Pact" tends to render their fiscal policies pro-cyclical. Particularly relevant for European countries, these could include those where pensions are indexed against GDP growth, such as Italy.

Investors are likely to receive two main benefits from the introduction of this instrument. Firstly, they would provide an opportunity for investors to take a position on countries' future growth prospects, i.e. they would offer investors an equity-like exposure to a country. Though this is possible to some degree through stock markets, these are often not representative of the economy as a whole. In this respect, they should also provide a diversification opportunity. Since growth rates across emerging markets tend to be fairly uncorrelated, a portfolio including GDP-indexed bonds for several of these economies would have the benefits of diversification, thus increasing the return/risk ratio. Second, investors would benefit from a lower frequency of defaults and financial crises, which often results in costly litigations and renegotiation and sometimes in outright large losses. The fact that the risk of default would fall implies that though more variable, total payments will tend to be higher than with conventional bonds. As a result, spreads charged for these bonds should not be much more expensive than that of conventional bonds.

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On a broader level, GDP-indexed bonds can be viewed as desirable vehicles for international risk sharing, as a way of avoiding the disruptions from formal default and as a mechanism to help smooth growth. For international institutions, there would be benefits from the decreased likelihood of debt crises. Reduced risk of crisis contagion would also help benefit other countries than those issuing them. These externalities and the fact that financial innovations are hard to introduce provide a justification for some public action (e.g. by multilateral or regional banks or the United Nations) to help create such a market. Multilateral or regional development banks could have a very active role as "market makers" for GDP-linked bonds, especially initially. These institutions, for example the World Bank, could begin by developing a portfolio of loans, the repayments of which could be indexed to the growth rate of the debtor country. Once they have a portfolio of such loans to different developing countries, they could securitise them and sell them on the international capital markets. Such a portfolio of loans could be particularly attractive for private investors, as it would offer them the opportunity of taking a position on the growth prospects of a number of emerging economies simultaneously. Given the low correlation among these countries' growth rates, the return/risk ratio would be higher. As correlations tend to be lower at the global level, the World Bank may be best placed to do such securitisation. Moreover, the expertise developed by the World Bank as market-maker for the sale of carbon credits under the Kyoto protocol could provide a basis for these activities.

Given levels of still high international liquidity, and strong interest in investing in developing countries' paper, this conjuncture is very favourable for developing countries to start issuing such debt on international financial markets. Investors' experience with Argentine GDP-warrants, issued as part of their debt restructuring, has been very positive; their price has been rising significantly. Recent instability has reminded us of the important insurance value that these GDP-linked bonds can provide against economic fluctuations. The time seems ideal for one or two more creditworthy countries to start issuing GDP-linked bonds and for investors to buy them.

Local Currency Bonds

Another alternative for better managing the risks faced by developing countries throughout the business cycle consists of the introduction of local-currency denominated bonds. These bonds – which have been in-

creasingly issued in recent years by countries such as Mexico, Colombia and Brazil – offer a cure against the currency mismatches that characterise the debt structure of developing countries. At the domestic level, the development of domestic capital markets, especially bond markets, also creates a more stable source of local funding for both the public and private sectors, thereby mitigating the funding difficulties created by sudden stops in cross-border capital flows.

There have also been innovative proposals to make local currency investments more attractive to international investors. Dodd and Spiegel (2004) have suggested raising capital in international markets by forming diversified portfolios of emerging market local currency debt issued by sovereign governments. These portfolios of many local-currency government debt securities (LCD portfolios) would generate a return-to-risk that competed favourably with other major capital market security indices. Based on data starting in 1994, a portfolio of emerging market local currency debt can raise rates of return relative to risk that compete with those of major securities indices in international capital markets. A portfolio consisting of different securities whose returns are sufficiently independent can yield risk-adjusted rates of returns superior to those of the individual securities. Thus, the volatility of the whole is less than the sum of its parts.

Counter-Cyclical Guarantees

Another way of addressing problems created by the inherent tendency of private flows to be pro-cyclical, which could be problematic if there was a sharp slowdown in the US, is for public institutions to issue guarantees that have counter-cyclical elements (Griffith-Jones and Fuzzo de Lima, 2004). In this regard, multilateral development banks and export credit agencies could introduce explicit counter-cyclical elements in the risk evaluations they make for issuing guarantees for lending to developing counties. This would imply that when banks or other lenders lowered their exposure to a country, multilateral development banks or export credit agencies would increase their levels of guarantees, if they considered that the country's long-term fundamentals were sound. When private banks' willingness to lend increased, multilateral development banks or export credit agencies could reduce their exposure. This implies that the models used to assess risks should focus on long-term fundamentals and would therefore be less affected by the short-term fluctuations that tend to influence markets.

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Alternatively, there could be a special and stand-alone guarantee mechanism for long-term private credit that had a strong explicit counter-cyclical element. This could be activated in periods of sharp decline in capital flows and its aim would be to try to catalyse long-term private credit, especially for infrastructure. Multilateral development banks could also play a more active role in issuing guarantees to bonds issued in private capital markets by developing countries during periods of limited risk appetite.

4 Conclusions

A major risk for the world economy – and for developing economies – is an abrupt unwinding of global imbalances. The scale of the US deficit, its rapid growth and that of US net liabilities, make the problem an increasing source of concern. A central international policy challenge is to urgently attempt the difficult task of an orderly unwinding of major imbalances.

At the national level, developing countries need to create space for counter-cyclical policies to protect growth of their economies from any slowdown in the world economy or other adverse shocks. Both macroeconomic and financial sector policies can be valuable in this context. We have emphasised here market-based counter-cyclical instruments that developing countries could issue, possible with the help of multilateral or regional development banks. A particularly valuable instrument for developing countries would be GDP-linked bonds; this instrument also has large potential advantages for investors. Also very useful are local currency bonds which developing countries have begun to issue.

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