Postponing Global Adjustment: An Analysis of the Pending Adjustment of Global Imbalances

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Abstract

Halving the US current account deficit as a share of GDP is likely to impose a burden of \$2,350 per capita on the United States, which explains why US policymakers want to postpone adjustment. The rest of the world relies on the economic stimulus of a widening US external deficit, which explains why they are not eager to see global adjustment. The paper examines three scenarios of exchange rate adjustments, calls on the Federal Reserve to take more account of the external deficit in its words and policy actions, and familiarly notes the need for US fiscal adjustment as part of an efficient adjustment process. Complementary policies are required in the rest of the world. The paper discusses the pattern of recent international capital flows and proposes an international reserve diversification standard to remove some of the uncertainty about the management of foreign exchange reserves.

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The United States has, in essence, become the world's borrower of last resort.

—Martin Wolf, April 5, 2005

I left the staff of the Federal Reserve in 1998, the year that the US current account deficit reached \$210 billion—2.4 percent of GDP. The staff (Division of International Finance 1997) had concluded 18 months earlier that the deficit was on an unsustainable trajectory. By the fourth quarter of 2004, the deficit had more than tripled in dollar terms to \$740 billion. It was two and a half times larger as a percent of GDP—6.2 percent. What happened?

Martin Wolf's statement provides a partial answer, "The United States has, in essence, become the world's borrower of last resort." However, he only describes the current reality. More important, the US current account deficit is an endogenous variable. It is affected by policies in the United States and the rest of the world, and it is affected by private agents' economic and financial choices around the world. Consequently, one should not have much confidence in unconditional point forecasts for the US current account position several years out.

We can be confident that the deficit will persist and perhaps expand in the absence of economic and financial pressures for adjustment. However, despite hand wringing and dire warnings from representatives of institutions like the International Monetary Fund (IMF), occasional cautionary remarks by US and foreign officials, and G-7 calls for "vigorous action" to address global imbalances, the plain fact is that policymakers face few incentives to adjust their policies in directions that would be likely to influence decisively the US external deficit. Indeed, as Martin Wolf's description suggests, most policymakers are very comfortable with the status quo.

With few exceptions at the microeconomic level, the United States to date is content to go on consuming more than it is producing and borrowing from abroad to finance its consumption binge. Moreover, countries in the rest of the world are happy to continue to produce more than they consume, to sell the United States the excess goods and services, and to invest the net proceeds in international financial assets in the United States as well as the rest of the world. The principal reason is that the adjustment process, when it gets fully under way, is likely to be politically and economically painful, and possibly financially painful, in the United States as well as the rest of the world. Policymakers have low pain thresholds. This leads them to the Scarlet O'Hara approach to problems:

Tomorrow is another day! Worry about your problems tomorrow, maybe they will go away, and demonstrably they are not urgent.

In this paper, first, I review the evidence that the US current account position is unsustainable, more so than it was eight years ago when the Federal Reserve staff study was completed. I conclude that precision on what would be a sustainable position is not possible, but policymakers in the United States and the rest of the world would be well advised to design their policies on the assumption that over the next three to five years the US current account deficit will narrow to about 3 percent of GDP.

Next, I sketch out the implications of such an external adjustment for the US economy. The growth of US domestic demand will slow by at least a percentage point from its recent rate. Most consumers will feel this effect. They will also suffer a substantial terms of trade loss. I estimate the combined adjustment burden at \$2,350 per capita. If not handled properly, the actual and potential growth rate of real GDP will also slow.

I follow with a prescription for US economic policies: (1) decisive action on the US budget deficit sooner rather than later (a familiar call) and (2) decisive action by the Federal Reserve to address more squarely in words and deeds the balance between demand and supply and the need to slow the growth of domestic demand (a less often heard recommendation).

Turning to the rest of the world, I argue that the adjustment process will be diffused but not painless. I offer several alternative scenarios of exchange rate adjustments. None is particularly attractive, and none of them will be fully effective without supporting policy actions. As part of the adjustment, the global economy will lose the growth stimulus that the US economy has been supplying for more than a decade—1.7 percent of GDP for the past five years, or about 0.3 percent per year on average. More seriously, the stimulus will be replaced by a drag. This reversal is why policymakers in the rest of the world are also in denial. They are not designing their policies on the assumption that their countries will have to absorb a large US external adjustment. In the absence of parallel accommodative policies, the economic, financial and political risks and costs of the inevitable adjustment of global imbalances will be larger.

Finally, I examine the interpretation of recent international capital flows and the role of foreign exchange market intervention. I argue that analysts overstress intervention's role and the risks of reserve diversification. Nevertheless, I propose that the United States, the euro area, and Japan should actively encourage more transparent reporting on the currency composition of foreign exchange reserves. They should also act to promote the continuous diversification of substantial additions to international reserves as well as existing stocks.

U.S. CURRENT ACCOUNT SUSTAINABILITY

Almost everyone knows that the US current account position is unsustainable in the sense that it is unlikely to continue indefinitely at its current rate of near 6 percent of GDP. It is even less likely to continue to expand in the manner suggested in the extrapolations by Cline (forthcoming), Roubini and Setser (2004), and Mann (2004). With unchanged policies and exchange rates, Cline's estimates imply a US current account deficit of about 8 percent by 2010, while the estimate of Roubini and Setser is 10 percent of GDP, and Mann's is 12 percent of GDP. None of them argue that their extrapolations are forecasts of anything other than a gross international financial discontinuity. On the other hand, DeBelle and Galati (2005) demonstrate how difficult it is to predict a turnaround in current account positions.

Most observers—for example, Greenspan (2003, 2004a, 2004b, 2004c, and 2005) and Kohn (2004, 2005)—accept the proposition that the US current account deficit will eventually and inevitably shrink. Although their pronouncements are subject to varying interpretations, both Kohn and Greenspan opine that the process of adjustment need not be disruptive to financial markets, which is a view supported by recent empirical work by Croke, Kamin, and Leduc (2005). However, Greenspan, Kohn, and Croke et al. fail to comment on the economic costs of the inevitable adjustment.

Bernanke (2005), on the other hand, expresses little concern over the indefinite continuation of large US current account deficits, which he attributes primarily to an ex ante excess of global saving relative to attractive investment opportunities in the rest of the world. His analytical view is similar to Martin Wolf's, except that Wolf expresses considerably more concern about the continuation of recent trends. Both views are the financial counterpart to what Mann has described as co-dependence and Summers (2004b) describes as “international vendor finance.”

Ferguson (2005, 8) offers an elegant, model-based decomposition of the causes and consequences of the US current account deficit, but his diagnosis offers little guidance on how the deficit will be or should be reduced aside from an assertion that the implications “for US economic growth and inflation will most likely be benign.” Kohn (2005, 6) concludes, “In all likelihood, adjustments toward reduced imbalances in the United States and globally will be handled well by markets without, by themselves, disrupting the good overall performance of the US economy—provided, of course, that the Federal Reserve reacts appropriately to foster price and economic stability.” He adds, “Still, complacency would be ill-advised.”

Three factors help to explain this wide range of views about the US current account position. First, as noted, the US current account position is an endogenous variable. This

characterization holds for most countries except in the limiting case in which a country completely loses access to international capital markets; at that point its current account *surplus* is the endogenous variable. In the US case, analyses of the sustainability of the US current account position sometimes focus on the source of the imbalance and the accompanying behavior of the US economy—for example, Summers (2004a and 2004b) and Roubini and Setser (2004). These judgmental analyses are not very illuminating because of difficulty in constructing the appropriate counterfactual. Even careful analysis such as in Ferguson raises more questions than it answers. For example, because of the use of uncovered interest parity to close the model, the Ferguson analysis adds substantially to the estimated contribution of slower growth in the rest of the world to the widening of the US current account deficit; the model associates higher growth with higher interest rates and currency appreciation. However, it is well known that there is essentially no empirical support for the theoretical construct of uncovered interest parity.

Second, the US current account is not a target of US policy. Dooley, Folkerts-Landau, and Garber (2003, 2004) characterize the current performance of the global economy as a return to Bretton Woods. Their analogy is flawed because it is incomplete and therefore does not offer a useful guide to analysis or policy (Truman 2005b). However, their musings contain a kernel of insight. Under the Bretton Woods international monetary system and its successor international financial system for more than three decades, the US dollar has been the *nth* currency in the system.¹ Consequently, the United States generally has been content to be, and generally has been encouraged by other countries to be, passive about the international value of the dollar and the stock and flow consequences of the evolution of our endogenous current account positions. On the rare occasions when the United States has had a view on its trade or current account balance—such as in 1971 with the Smithsonian Agreement and in 1985 with the Plaza Agreement—the consequences for the smooth functioning of the international financial system were somewhat problematic.

Third, we lack consensus on the appropriate analytical framework to apply in thinking about a country's current account position and how it adjusts. Four major analytical strands can be identified:

- **Trade balance view:** A country's current account position reflects the balance between exports of goods and services and imports plus the cost of servicing existing net

¹ Some argue that this characterization and the related advocacy of benign neglect by certain US academics in the late 1960s principally applied only to the last 18 months of the Bretton Woods regime prior to the United States' closing of the official gold window on August 15, 1971. See, for example, Williamson (1971). Historians can and do disagree.

international debt and covering net transfer payments. This view focuses primarily on the determinants of exports and imports—economic activity, inflation rates, and exchange rates—with an emphasis generally on exchange rates.

- **Saving and investment view:** A country's current account position reflects the balance between domestic saving and investment. This view focuses on the determinants of domestic saving, in particular, fiscal positions, as well as the relative attractiveness of cross-border investment opportunities.
- **Domestic demand view:** A country's current account position reflects the balance between total domestic demand, sometimes referred to as absorption, and output or domestic supply. This view focuses on policies that affect demand and supply—fiscal and monetary policies with respect to demand and structural policies with respect to supply.
- **Portfolio balance view:** A country's current account position reflects the balance between the net external demand for and supply of a country's financial assets. This view, often referred to as the capital account view, focuses on relative ex ante rates of return, risk, and wealth allocation.

All four strands of analysis are valid, in part because they focus either on accounting identities or equilibrium conditions. Thus they are all part of the same story. Any account of the evolution and adjustment of the US current account position must take account of all of these elements. A proper analysis does not focus only on economic activity, or exchange rates, or saving, or investment, or expected rates of return, or total domestic supply and demand; it incorporates all those factors. A focus on one element to the neglect of the others risks distorting the analysis at best and misleading policy at worst.

Given the lack of consensus about what drives a country's current account position, it is not surprising that one can find a range of views about what would be a sustainable US current account position. Table 1 summarizes six such views, presented as combinations of trend US current account positions (a flow) and accompanying trend levels of the US negative net international investment position (NIIP) (a stock) as a percent of GDP.² It is useful to consider each view because doing so illuminates the potential US adjustment process.

² The translation for most entries is accomplished by using the back-of-the-envelope condition that to stabilize the negative NIIP ratio to nominal GDP, the ratio of the current account deficit to nominal GDP must equal the growth rate of nominal GDP times the NIIP ratio and by an assumption that the trend rate of growth of US nominal GDP is 6 percent. The presentation in table 1 abstracts from the fact that if an adjustment of the US current account position were accompanied by a further substantial depreciation of

First is the NIIP status quo. What would it imply for the US current account if the negative NIIP ratio were to be maintained at its value of 25 percent of GDP as of the end of 2003? The answer is that the current account deficit would have to average 1.5 percent of GDP. Since the deficit was 5.7 percent of GDP in 2004, it would have to spend a considerable period in surplus to maintain a 25 percent NIIP ratio. The trade balance would be roughly zero because net transfer payments are about 0.6 percent of GDP. In addition, the US NIIP consists disproportionately of interest-bearing, dollar-denominated liabilities. Those net liabilities were about \$3.1 trillion at the end of 2003, compared with an overall NIIP of minus \$2.7 trillion, with direct investment valued at the current stock market value of owners' equity; they are predominantly short-term.³ At the abnormally low nominal dollar interest rates of recent years, these liabilities' financial cost has been understated. At a more normal nominal short-term interest rate—say, 300 basis points higher than in late 2003 and early 2004—the interest cost of the net interest-bearing, dollar-denominated liabilities and the US current account deficit would have been about 0.9 percent of GDP larger.⁴ Thus the combination of net income payments and net transfer payments would exhaust the current account deficit of 1.5 percent of GDP.

the dollar there would be a one-time positive adjustment of the NIIP ratio, what the literature calls the valuation effect. The IMF (2004b, 16) has estimated that a 25 percent depreciation of the dollar reduces the US NIIP ratio by 7 percent of GDP. In their analysis of US current account adjustment, Blanchard, Giavazzi, and Sa (2005a and 2005b) integrate this phenomenon into their analysis along with the assumption not only of imperfect goods substitution (a common assumption in trade theory) but also of imperfect asset substitution (a common feature of portfolio balance models a generation ago, but not one that has been well supported in empirical work). See also Lane and Milesi-Ferretti (2005). As long as a major channel of current account adjustment is a substantial change in the US dollar's effective exchange rate, this phenomenon alters the path of the current account associated with achieving a given assumed steady-state NIIP ratio. Since table 1 is a comparative-static exercise intended to illustrate the range of possible combinations of trend current account deficits and negative NIIP positions without focusing on the time paths associated with their achievement, ignoring this important effect does not distort the message in the table. One can reasonably presume that it will wash out over the adjustment period as current account deficits add to US net international debt.

³ These figures are based on the preliminary estimates of the US NIIP as of the end of 2003. The revised estimates released on June 30, 2005, improved the 2003 NIIP by \$279 billion to minus \$2.4 trillion, or 21.6 percent of GDP from 24.1 percent. The preliminary estimate of the US NIIP for the end of 2004 is minus \$2.5 trillion, or a very small increase to 21.7 percent of GDP. Although net financial inflows of \$585 billion were recorded during 2004, the increase in net liabilities was offset by the effects of the dollar's depreciation and other price changes and adjustments to yield a net change in the US position of only \$170 billion.

⁴ O'Neill and Hatzius (2004) estimate that if US government bond yields rise to 6 percent, the average level of the 1990s, this would add 1.2 percentage points to the US current account deficit relative to GDP. Roubini and Setser (2004) argue that the abnormally low dollar interest rates may also have contributed to an unbalanced US recovery and expansion of the US economy in the direction of excessive housing investment.

Second is the current account status quo (I) in percentage terms. What would it imply for the negative NIIP ratio if the current account deficit were to be maintained at 6 percent of GDP—approximately the level in the second half of 2004 and the first half of 2005? The answer is that the NIIP ratio would rise to 100 percent of GDP. This would be an unprecedented level, but records are made to be broken.⁵

Note, however, that holding the current account deficit at 6 percent of GDP would imply a continuing decline in the US trade deficit as a share of GDP. A larger and larger portion of the current account deficit would be devoted to debt service; servicing an additional 75 percent of GDP in NIIP at the average return on foreign assets in the United States in 2004 (3.6 percent) plus a 0.9 percentage point interest adjustment reflecting more normal dollar interest rates (for a total of 4.5 percent) implies an additional 3.4 percent of GDP in debt service.⁶ Including the 0.9 percent of GDP interest adjustment to the existing NIIP and taking account of the fact that US net transfer payments abroad are about 0.6 percent of GDP, the trade balance associated with a steady-state current account balance of 6 percent of GDP would be a deficit of about 1.5 percent of GDP—an adjustment of at least 5½ percentage points from the fourth quarter of 2004.

Third is the current account status quo (II) in dollar terms. What would it take to maintain the US current account at its 2003 level of roughly \$500 billion, a deficit that Cooper (2004) suggests should be of little concern? This would imply that the current account deficit would initially undergo a sharp contraction from the \$753 billion at an annual rate in the fourth quarter of 2004 and then steadily decline as a percentage of GDP; the trade deficit would decline at a faster rate than the current account deficit. In addition, as shown in table 1, in Cooper's analysis the negative NIIP ratio would peak in 2118 at 46 percent of GDP along with the current account deficit at 2.2 percent of GDP, and both would subsequently decline. In 2118 there would be a small trade surplus, and the trade account would progressively move into larger surplus as net debt was paid down as a percentage of GDP.⁷ This analysis implies substantial trade and current account adjustment, but one that is stretched over more than a decade.

⁵ Obstfeld and Rogoff (2004) identify Ireland in 1983 as the record holder, with a net international financial position at 83 percent of GDP. On the other hand, the IMF reports that as of the end of 2004 New Zealand's net external liabilities were 84.5 percent of GDP.

⁶ By assuming that the interest rate on marginal US external debt (5.5 percent) is lower than the nominal growth rate of GDP (6 percent), we have a stable situation.

⁷ The calculation assumes an interest rate of 4.5 percent on the net new debt, an adjustment of 0.9 percent of GDP on the old debt, and net transfer payments of 0.6 percent of GDP.

Fourth is the productivity view. Under this view (see, for example, Rosenberg 2003), a continuation of the recent elevated growth of US productivity and the associated attractive rates of return on US physical assets, combined with the increased flexibility of financial markets emphasized by Greenspan, suggests that the US current account deficit in the near term need only narrow to about 4 percent of GDP, which would imply a negative NIIP ratio of 67 percent, close to Ireland's 1983 peak. There would be a small trade deficit.⁸ Thus an adjustment of the US current account balance is implied by this view, but it is relatively mild. However, Erceg (2002) usefully reminds us that in a general equilibrium context with intertemporal budget constraints, once the positive productivity shock has passed, a country needs to repay the external debt that it has accumulated to finance the associated investment, which means running a trade *surplus*. Thus this equilibrium, such as it is, would be temporary.⁹

Fifth is the global wealth view. This view involves stabilizing the share of net claims on the United States as a share of global wealth (Mann 2003). The trend current account and negative NIIP ratios are lower than under the productivity view, at 3.0 and 50 percent of GDP, respectively, implying a bit more adjustment and a trade deficit a bit closer to zero.¹⁰

Sixth is the zero trade deficit view. This view applies the logic of primary deficits and surpluses; net lending to the United States on average would be limited to the amount sufficient to cover the US net income payments and net transfer payments. The associated NIIP ratio could be anything. If we assume (1) it was 40 percent, (2) the marginal cost of servicing the additional net debt of 15 percent of GDP is 4.5 percent, (3) a one-time 0.9 percent of GDP adjustment to the net cost of servicing the existing NIIP, and (4) net transfers of 0.6 percent of GDP, then the resulting implied trend current account deficit would be 2.2 percent of GDP. Note, however, that under this view, the entire US deficit on trade in goods and services as of the fourth quarter of 2004 (5.6 percent of GDP) would be eliminated.

The range of views summarized in table 1 suggests a great deal of uncertainty about the size, as well as the timing, of US current account adjustment. However, the current account deficit will not expand without limit even if we do not have great confidence about what the limit is. In other words, the current-conditions-unchanged trajectories for the US current account through 2010 postulated by

⁸ See footnote 7.

⁹ A related framework with a deeper theoretical foundation involves intertemporal consumption smoothing (Sachs 1982, Razin 1994, and Obstfeld and Rogoff 1995). This framework yields somewhat more benign welfare implications but has little empirical support, and as DeBelle and Galati (2005) point out, it is not well suited for assessing issues of sustainability.

¹⁰ See footnote 7.

Cline (2005), Roubini and Setser (2004), and Mann (2004) are almost certainly not going to materialize, and these authors make no claim that they will. Some adjustment would be required even for the current account status quo to be maintained. Moreover, doing so as the negative NIIP expands, in turn, implies more adjustment down the road. In all cases the trade balance moves substantially toward surplus or is eliminated. Finally, if the implied trend negative NIIP ratio appears to be implausible, then more substantial adjustment will occur.

Under these circumstances it would be prudent if policymakers assumed that the size of the eventual adjustment in the US current account position is likely to be associated with a deficit of about 3 percentage points of US GDP. Moreover, the adjustment process, once it gets fully under way, is likely to overshoot, which is particularly relevant for near-term economic policy considerations.

I now turn to the implications of this inevitable process of adjustment for the US economy and US economic policy and for the economies of the rest of the world and economic policies outside the United States.

IMPLICATIONS OF EXTERNAL ADJUSTMENT FOR THE U.S. ECONOMY

A continuation of ultimately unsustainable US current account deficits points to potential domestic as well as global economic, financial, and political consequences. Globally, one risk is a rise in protectionism, which imposes long-run costs on both the United States and the global economy. Other geopolitical implications are also relevant. Summers (2004b) refers to the “balance of financial terror” associated with large, concentrated official holdings of short-term, dollar-denominated claims on the United States. More generally, countries that are large international debtors find it more of a challenge to exert leadership in political as well as economic spheres. This challenge is complicated, on balance, though some say ameliorated, by the fact that the dollar is an international currency. It is an international currency in the sense that residents of other countries widely use it as a unit of account, a means of payment, and a store of value in circumstances in which US residents are not involved.¹¹

Again, many of these concerns and considerations do not relate to the US current account deficit per se but to the process of correction once it is under way. Under these circumstances, the

¹¹ This aspect of the dollar’s role is more relevant and complicating to the exercise of US monetary policy than the dollar’s limited reserve role because of the high degree of inertia in official reserve holdings; see Truman (2005a) and below.

coexistence of an external and a fiscal deficit, even if the two are not “twins,” increases the risks. Gramlich (2004) introduces the concept of a “credibility range” applying to fiscal and external deficits in which neither type of deficit has large effects on asset prices—interest rates or exchange rates. Extending his concept, when either deficit is large or has been expanding, the credibility ranges narrow for both deficits. Confidence in US financial policy is undermined (Truman 2001), and the risk of crisis rises.

Rubin, Orszag, and Sinai (2004) vividly describe a number of adverse scenarios, implicitly disagreeing with Greenspan (2004a), who sees greater financial market flexibility as reducing the risk of crisis. Freund (2000) in her study of the experiences of industrial countries with large current account adjustments brings out a key point: External financial crises are much more common after the process of adjustment is under way than as a trigger to the adjustment process.¹² Croke, Kamin, and Leduc (2005), in their updating of Freund’s analysis, find more limited evidence of the “disorderly correction” of external imbalances in industrial countries. Their analysis focuses on developments in financial markets and is reassuring in that it suggests that the probability of a disorderly correction is low, but it does not preclude the possibility. Moreover, they find that a disorderly adjustment associated with substantial exchange rate depreciation is more likely in the case where GDP growth is high and rising. See also DeBelle and Galati (2005), who emphasize differences between the loose patterns of current account adjustment in other industrial countries and the pattern observed in the United States in the late 1980s: Exchange rates played a larger role, growth played a smaller role, and the ratio of net foreign liabilities to GDP did not change, in large part because compared with other countries US external liabilities are predominantly denominated in dollars. Finally, Lane and Milesi-Feretti (2005) present a detailed analysis that concludes that the United States is more dependent on capital inflows than is implied by the rosy Greenspan/Bernanke/Ferguson analysis. Lane and Milesi-Feretti (2005, 17) summarize their results: “At some point, the vision of the US as a safe haven and natural home for liquid holdings will be undercut by persistent portfolio losses induced by an depreciating currency and/or investors will begin to require more significant risk premia on US-issued liabilities.”

Turning to the domestic economic implications of a continuation of large US current account deficits, analysis is complicated by the fact that the implications in size and, occasionally, in sign depend upon the circumstances in which the deficits developed as well as economic and

¹² Of the 25 episodes Freund reviews, using a modified Frankel and Rose (1996) index approach, 17 involved external financial crises, but only 4 occurred before the current account deficit reached its widest point.

financial conditions in the US and global economy. The effects can be viewed as either positive or negative in both the short and longer runs.¹³

For example, in the short run, a widening of the US current deficit associated with slower growth abroad is associated with downward pressure on US economic activity and employment, which may or may not be welcome, depending on the condition of the domestic economy. At full employment, the external deficit allows domestic demand to exceed supply, permitting an increase in domestic consumption and/or investment. To the extent that the dollar appreciates as part of the process, the positive terms-of-trade effect also boosts welfare in terms of the real value of consumption.

In the medium or longer run, the appropriate conditioning assumption is that the economy is at full employment. In this context, US current account deficits have both positive and negative effects, depending in part on the nature of the comparison. On the positive side, domestic demand exceeds supply, the country is permitted temporarily to live beyond its means, consumption (private and public) is higher than it otherwise would be, and investment is higher as well. In addition, the dollar normally appreciates relative to where it would be without the deficit, which provides a positive terms-of-trade effect. As noted by Paul A. Volcker (2005a), “There is no sense of strain. . . . It’s all quite comfortable for us.” With little or no pain or strain, what is there to worry about?

On the negative side, the costs are all in the future. The United States is borrowing from abroad, which presumptively depresses the US standard of living in the future compared with a situation with a lower deficit in the near term. Even if the current account deficit permits a higher level of investment, the direct returns on that investment flow abroad. The level and growth rate of GNP (GDP less net income payments abroad) are lower compared with a situation in which the same rate of domestic investment occurred without the current account deficit.¹⁴

In popular and political discussions, correction of the US external deficit often is associated with a boost to US employment and output. What this view ignores is that normally the economy should be operating close to full employment.¹⁵ Thus a reduction in the external deficit, with production (GDP) or total domestic supply unchanged, means gross domestic purchases (absorption,

¹³ Ferguson (2005) offers an excellent example of this type of analysis.

¹⁴ A theoretical exception to this generalization involves the intertemporal consumption-smoothing view described in footnote 8. At the other extreme of rationality, we have myopia.

¹⁵ Of course, deficits are likely to affect the distribution of employment and capacity utilization across sectors, with possible economic and obvious political implications.

or GDP less net exports) or total domestic demand must be reduced; the United States must stop or curtail living beyond its means.

To illustrate this point, if the US trade and current account deficits have to be reduced by 3 percent of GDP (\$375 billion), then gross domestic purchases will be reduced by about \$1,350 per capita at an unchanged level of real GDP.¹⁶ On top of this adjustment, there would be a terms-of-trade loss. If we assume that an adjustment of the US current account deficit by 3 percent of GDP is accompanied by at least a 30 percent nominal effective depreciation of the dollar, we can estimate the associated terms-of-trade loss at an additional \$1,000 per capita.¹⁷

However, as noted earlier, external adjustment is not just about the effects of exchange rates on exports, imports, and trade balances. It is also about slowing the rate of growth of domestic demand (gross domestic purchases) relative to the growth of production (GDP). To achieve any adjustment of the imbalance in real terms as a share of GDP, the growth rate of the former must be less than the growth rate of the latter.

Macroeconomic Advisors (2005) has recently produced a useful scenario for adjustment on this scale in the form of a long-term forecast through 2014, by which time the US current account deficit is projected to reach 2.9 percent of GDP.¹⁸ Under this scenario, the growth rate of real GDP from 2004 to 2014 averages 3.2 percent per year, essentially the same as the 3.3 percent growth rate from 1994 to 2004. At the same time, the growth rate of real gross domestic purchases (domestic demand) averages only 2.6 percent per year from 2004 to 2014 compared with 3.7 percent from 1994 to 2004—a reduction of more than one percentage point from recent experience.

If the adjustment of the US current account deficit to 3 percent of GDP were to occur over half a decade rather than over a full decade, the slowdown in the growth rate of real domestic demand would be sharper, closer to 2 percentage points per year to 1.5 percent for five years. If the adjustment were delayed, and meanwhile the US current account deficit continued to widen, the eventual slowdown in the growth of domestic demand would be extended.

¹⁶ This calculation is based on an estimate of US gross domestic purchases of \$13.1 trillion in 2005 and a US population of 294 million.

¹⁷ This calculation is based on estimated US imports of goods and services of \$2 trillion in 2005 and the assumption that the pass-through from dollar depreciation to import prices is 50 percent, with no effect on export prices.

¹⁸ The forecast assumes a further 21 percent depreciation of the Federal Reserve Board staff's measure of the broad trade-weighted foreign exchange value of the dollar—two-thirds of which would occur before 2010. It is also based on the assumption that the US unified budget deficit on a fiscal year basis declines from 3.5 percent of GDP in 2004 to 2.2 percent in 2009 and 0.3 percent in 2014. This decline has the effect of limiting upward pressure on US interest rates—the peak for the 10-year note is 5.72 in 2007 and 2008—even as the nominal trade deficit is cut in half and the real trade balance moves into a small surplus.

Moreover, the larger and the more compressed the adjustment, the higher would be the probability of a pronounced slowdown, not only in the growth of domestic demand but also in the growth of domestic output—real GDP. In 1987, US net exports reached a low at minus 3 percent of GDP before rising over the next four years to minus 0.3 percent of GDP in 1991. Over the four years ending in 1987, US real GDP expanded at an average annual rate of 4.5 percent, while real domestic demand expanded at 4.9 percent. Over the following four years, real GDP expanded only 2.25 percent per year, while real domestic demand increased only 1.6 percent. Of course, 1991 was a recession year, and one can debate whether the external adjustment process contributed to that recession, but the point is that one cannot exclude the possibility that the process of US external adjustment will entail a slowdown in the growth of actual output to below the growth of potential output along with the essential slowdown in the growth of domestic demand.¹⁹

US external adjustment will require in addition an adjustment of US saving and investment. In the absence of a boost in US domestic saving, for example, brought about by the type of favorable fiscal adjustment posited by Macroeconomic Advisors, the effects on US interest rates of a reduced net inflow of savings from abroad are comparable to the effects of the US fiscal deficit on interest rates. Such estimates vary, but a representative recent study by Laubach (2003) found that the US long-term treasury rate is reduced by about 25 basis points for each 1 percent of GDP reduction in the fiscal deficit. Thus, all else equal and as a first approximation, a reduction in the US current account deficit by 3 percent of GDP would boost expected US long-term interest rates by 75 basis points. This, in turn, would reduce the rate of investment, lower the rate of growth of the capital stock, and slow the growth rate of potential GDP by two or three tenths compared with the average of about 3.0 percent that underlies the forecast by Macroeconomic Advisors.

Thus it is not surprising that most US politicians and policymakers are not falling all over themselves to embrace early adjustment of US external accounts. Even if the growth rate of potential output is maintained at a high rate at or above 3 percent, the external adjustment when it comes at best will imply a downward adjustment of about a full percentage point per year, and perhaps more, in the growth rate of domestic demand for an extended period. Adverse movements in the terms of trade will be an additional drag on standards of living in the United States.

¹⁹ Using three-year comparisons, US real GDP increased at an annual rate of 3.5 percent from 1985 to 1987, while real domestic demand increased at a rate of 3.6 percent. (The growth rate of real domestic demand in 1987 was 3.1 percent compared with the growth rate of real GDP of 3.4 percent, even though the trade and current account deficits widened that year.) From 1988 to 1990, real GDP increased at an average annual rate of 3.2 percent, and real domestic demand increased at 2.5 percent.

It has become popular to bemoan the slowdown in the growth rate of real wages in recent years and their absolute decline in 2004. This is not the place to examine the issue of whether the Bureau of Labor Statistics series for real wages of hourly earnings of production and nonsupervisory workers on private, nonfarm payrolls adjusted by the CPI is the best measure of real wages, but the series, shown by the thick line in figure 1, shows a steady rise from 1994 to 2003. What is interesting is that declining real wages have been associated with improvement in the trade balance—net exports of goods and services. Improvement in net exports has followed, with a lag, dollar weakness. See the pattern from the mid-1980s, and the dollar's previous peak, to the mid-1990s. This suggests that the United States, having lived well beyond its means since the late-1990s, faces an extended period of stagnation of real incomes.

IMPLICATIONS OF EXTERNAL ADJUSTMENT FOR U.S. ECONOMIC POLICIES

This section considers the implications of US external adjustment for three US economic policies: exchange rate, fiscal, and monetary policy.

Exchange Rate Policy

What about US exchange rate policy? Should the United States deliberately seek to weaken the dollar? No. The United States should have learned in the late 1970s that it could not devalue its way to prosperity, even if the United States and its major trading partners could successfully manipulate dollar exchange rates for an extended period via sterilized foreign exchange market intervention, which is not possible. See Truman (2003) for a commentary on the limited effectiveness of sterilized foreign exchange market intervention. A different question is whether the United States should discourage other countries from manipulating or pegging their bilateral dollar exchange rates when doing so impedes the global adjustment process. I return to this issue below.

Fiscal Policy

From the standpoint of sustaining US prosperity, the core economic policy issue today is the low rate of net domestic saving (figure 2A). As stated by Summers (2004a, 2), “I am reluctantly convinced that the most serious problem we have faced in the last 50 years is that of low national saving, resulting dependence on foreign capital, and fiscal sustainability, which has far-reaching implications for the US and the global economy.”

Some economists think that the answer to sustaining US growth is to attract even more saving from abroad, but that offers only a short-run fix. Other economists believe that changes in the tax code will boost net private saving (see figure 2B). Normally they propose tax reductions, but some observers also advocate removal of the tax deductibility of mortgage interest payments. My impression is that there are fewer economists with these views than there once were. Most economists agree that the most reliable, but less than foolproof, method of increasing national saving is to reduce the fiscal deficit, move it into surplus, and raise net government saving, either by expenditure reductions, tax increases, or both. The short-run impact on the economy may be to slow growth, if monetary policy is unable to compensate fully, but the long-run impact will be to raise growth and living standards.

Reducing the budget deficit should contribute to lower interest rates and may be associated with a weaker currency, which would tend to narrow the current account deficit and offset some of the short-term drag of fiscal policy. At the same time, as is recognized in the official statements of the US administration, action on the US budget deficit will help to maintain confidence in US economic policy. This confidence building should reduce the risk of a disruptive run on the dollar.

Unfortunately, we do not have much evidence of decisive action on the US fiscal deficit. The proper measure is not the actual deficit, which has been declining somewhat as a share of GDP, but the structural deficit. On this measure, the IMF *World Economic Outlook* (2005) records a deterioration of 4.2 percentage points in the US general government structural balance as a percentage of potential GDP, from a surplus of 0.5 percent in 2000 to a deficit of 3.7 percent in 2003, with no improvement projected through 2006, when the deficit is pegged at 3.9 percent of GDP in the absence of a specific US budget consolidation program. In contrast, the US administration has set a target for the actual budget deficit in fiscal 2009 at 1.5 percent of GDP (Snow 2005). These figures do not add up.

Monetary Policy

What about Federal Reserve policy? The Federal Reserve deserves high marks for pointing out, going back to the late 1990s, that the US external deficit is on an unsustainable trajectory and for its many frequent internal and publicly available analyses of the issues involved. On the other hand, too many Federal Reserve officials are interpreted as being cheerleaders for the view that the adjustment process, when it comes, will be smooth, rather than warning that the process might well be disruptive and unpleasant. Geithner (2005) and Gramlich (2004) have articulated more cautious views. Even if one has considerable confidence that adjustment is likely to be smooth, which I do, it is another matter to assert that it will be. Moreover, as demonstrated above, even smooth adjustment inevitably will be economically painful. Overconfidence can undermine the credibility of monetary policy.

Most important, the Federal Reserve's record in pointing out what should be done, aside from boosting domestic saving though less profligate fiscal policy, has been weak. The Federal Open Market Committee (FOMC 2004) concluded, "Members of the Committee noted that monetary policy was not well equipped to promote the adjustment of external imbalances but could best contribute to maintaining an environment of price stability that would foster maximum sustainable economic growth. Fiscal policy had a potentially larger role to play by promoting an increase in national saving, but the adjustment would involve shifts in demand and output both domestically and abroad, and changes in fiscal policy would not be sufficient to foster the adjustment." The second sentence identifies a role for fiscal policy and implies that exchange rate adjustments will be part of the process. What the Federal Reserve has not acknowledged is that monetary policy has a role to play in slowing the growth of total domestic demand relative to the growth of total domestic supply or domestic output. The issue of concern is not just the effects of external adjustment on financial markets, but also on the real economy. It is one thing for politicians to be reluctant to acknowledge the real economic costs of external adjustment. The Federal Reserve does not have that excuse.

The majority of the members of the FOMC apparently do not embrace the view that they should pay more attention to total domestic demand. They are mistaken. Monetary policy is not just about managing domestic output and employment; it is also about managing total domestic demand, and most importantly managing the balance between demand and output. The view that net exports are a "drag" on GDP rests on knee-jerk arithmetic analysis. Exports and imports of goods and services are jointly determined with consumption, investment, and many other macroeconomic variables. Moreover, policy should focus significant attention on total domestic demand. In particular, the Federal Reserve should ponder whether it is not unnatural to continue to stoke the furnace of domestic demand three years after the dollar has begun to weaken, the US economy has moved into an expansion phase, and the US external deficit has widened. It was wrong for Mexico to ignore the message for monetary policy from the foreign exchange markets in 1994 and for Thailand to do so in 1996. Is it wise for the Federal Reserve to do so in 2005?

A failure to anticipate the need to manage demand as well as supply could well require the Federal Reserve to slam on the breaks, slowing the growth of domestic supply as well as demand in the name of containing inflation and restoring damaged Federal Reserve credibility. Some argue that a more rapid removal of the considerable monetary accommodation that is still a prominent feature of the US economy would slow down the external adjustment process via dollar appreciation. In response, I would point out that there is no empirical evidence of which I am aware that changes in relative short-term interest rates are systematically correlated with changes in exchange rates.

A more subtle argument is that a focus on total domestic demand would be inconsistent with the Federal Reserve's mandate to seek full employment and price stability. In this view, focusing

on total domestic demand would be analogous to focusing on asset prices. Three counterarguments are relevant: (1) The effects of monetary policy on demand are well known; the effects of monetary policy on asset prices are highly uncertain. (2) The Federal Reserve has rationalized its dominant focus on price stability by arguing that doing so maximizes the potential rate of employment. The same can be said for achieving smooth adjustment of the real economy to an external imbalance. (3) The issue is one of timing. The Federal Reserve does not seek to achieve full employment at every point in time or to narrow the gap between actual and potential output as rapidly as possible. To do so would ensure overshooting by the real economy and higher inflation and lower output down the road. In the context of the inevitable external adjustment and the need to slow domestic demand relative to output, which the Federal Reserve accepts, the FOMC should examine more deeply the implications for output down the road of a delay in slowing domestic demand.

IMPLICATIONS OF U.S. EXTERNAL ADJUSTMENT FOR THE WORLD ECONOMY

The US current account deficit has been expanding for more than a decade, providing a net stimulus to the rest of the world. In the late 1990s, this phenomenon of co-dependency was healthy for both the US and the global economy. The United States was able to finance an investment boom, even though some of that investment was not as productive as had been anticipated. At the same time, the US expansion helped to cushion a global economic slowdown associated with the Asian financial crisis and the other crises that followed. To put this in context, the expansion of the US current account deficit from 1999 (after the Asian crisis was over) to 2004 contributed about 1.7 percent to GDP in the rest of the world, roughly 0.3 percent per year on average. It is therefore not surprising that policymakers in the rest of the world are ambivalent about US external adjustment. They are fearful that the adjustment process may be painful and that their economies will be affected disproportionately. The economic stimulus associated with the United States living beyond its means is welcome while it lasts.

Table 2 presents data on the current account positions of 26 major US trading partners in 1999 and 2004, along with the change between those two years and the distribution of that change as a percentage of the contemporaneous change in the US current account deficit. As you can see, 25 percent of the counterpart of the deterioration in the US deficit can be found in other industrial countries, with Japan absorbing more than half of that share. About 24 percent can be found in non-Japan Asia, with China accounting for more than half of that share. About 19 percent can be found in Latin America, and 24 percent in the rest of the world, principally Russia and Saudi Arabia, associated with the elevated oil prices compared with 1999.

The US economy is about one quarter of the world economy at current exchange rates. If we assume that the US current account deficit will be cut in half over the next three to five years by about 3 percent of US GDP, this implies an offsetting adjustment of about 1 percent of output in the rest of the world on average. The era of co-dependency not only will come to an end, but it will be reversed. The United States will have to reduce its dependence on a net inflow of saving from abroad, and the rest of the world will have to stop depending on expanding net exports to the United States to stimulate growth.

Arguably the process of US external adjustment has been under way for several years, since the dollar's peak in February 2002. Over the subsequent three years, through March 2005, the dollar depreciated by about 15 percent on average in terms of the currencies of 26 US trading partners based on the Federal Reserve Board staff's nominal, broad trade-weighted index of the foreign exchange value of the dollar.²⁰ However, as can be seen from table 3, the resulting 18 percent appreciation of other currencies on average against the dollar has been concentrated in the industrial countries, with the prominent exception of the Korean won. The currencies in most of the rest of Asia and other parts of the developing world have appreciated only modestly or depreciated, with the consequence that those countries' real effective exchange rates have generally depreciated.²¹

Notwithstanding the dollar's depreciation over the past three years, the US external deficit has continued to widen. This is not because exchange rate changes have suddenly become ineffective in influencing trade patterns, because of so-called J-curves and delayed adjustment, or because of reduced pass-through of changes in exchange rates into import and other prices. I am skeptical that the empirical finding of reduced pass-through to import prices (see Marazzi, Sheets, Vigfusson et al. 2005) tells the full story. We are observing ex post combinations of prices and quantities, and it is well known from international trade theory that quantities can change without price changes.

The principal explanation for the lack of US external adjustment is that US domestic demand has continued to expand at a rapid rate, which has more than offset the influence of exchange rate changes. For example, although euro area policymakers periodically speak out against the brutal 50 percent appreciation of the euro against the dollar, the simple fact is that the impact on their economy so far has been limited. Over the past three years, euro area exports to the United

²⁰ The real depreciation was less than a percentage point smaller.

²¹ The only exceptions are Indonesia and Russia, with their higher-than-average inflation rates, which have contributed to real appreciation, and Chile. It is also noteworthy that Japan has experienced very little real effective appreciation of its currency, in part because of its deflation. In addition, the United Kingdom had a slight real depreciation; sterling's strength against the dollar has been more than offset by its weakness against the euro.

States as well as to the world have continued to expand at double-digit rates, even though the US share of overall exports has declined by about three-quarters of a percentage point; the US share of overall imports has risen by about 2 percentage points. Europe as a whole has yet to feel substantial pain from US external adjustment because there hasn't been much pain. No doubt there have been some distributional effects associated with the euro's appreciation against the dollar and other currencies linked to the dollar. The effects of appreciation have not been spread evenly over the euro area, which in effect has been hit by an asymmetric supply shock.

To blunt the exchange rate appreciation and the adverse effects on their trade balances, some countries have in recent years engaged in large foreign exchange market interventions, which may, on average, have slowed the dollar's decline somewhat over the past three years and certainly have distorted that decline. By the end of 2001, few countries, outside of those in Latin America, could credibly argue that their intervention operations were defensive, in the sense that they were motivated by a perceived need to build up a war chest of foreign exchange reserves. Nevertheless, in Japan and the rest of Asia, foreign exchange reserves have increased by more than 100 percent on average over the past three years.

Table 4 presents data on the accumulation of foreign exchange reserves by selected countries and groups of countries from the end of 2001 until the end of 2004 as reported in the IMF's *International Financial Statistics*. Out of a total reserve accumulation over three years of \$1.4 trillion, Japan alone accounted for about 31 percent and was the only industrial country with any significant reserve increase.²² Non-Japan Asia accounts for about 57 percent, but only half of that percentage was China's.²³ The rest of the world accounted for about 11 percent. Nine of the 26 countries listed in table 4 experienced increases in their foreign exchange reserves of greater than or close to 100 percent over the past three years. Special factors explain some of the increases, such as the rise in petroleum prices in the cases of Venezuela and Russia and the fact that Australia's increase was from a quite low level and in the context of the largest bilateral appreciation against the dollar and real effective appreciation shown in table 3. I return below to the issue of foreign exchange market intervention and its role in the adjustment process.

²² Other industrial countries continued to accumulate interest on their reserves, and a few (Switzerland and the United Kingdom) added to their foreign exchange reserves via gold sales.

²³ Table 4 slightly understates China's foreign exchange accumulation because the data from *International Financial Statistics* exclude the \$45 billion in increased reserves transferred in late 2003 to support China's banks.

IMPLICATIONS FOR ECONOMIC POLICIES IN THE REST OF THE WORLD

This section considers three issues. First, the implications of global adjustment for exchange rates are examined. Second, implications for financial markets of large-scale official intervention and reserve diversification are considered. Finally, I touch briefly on other economic policies in the rest of the world and their role in promoting global adjustment.

Exchange Rates

If the US external deficit has to contract by about 3 percentage points of GDP, about \$375 billion as of 2005, and if we accept the rule of thumb that a real depreciation of 1 percent on the Federal Reserve Board staff's broad index of the foreign exchange value of the dollar will be associated with \$10 billion in current account adjustment, then the dollar's eventual cumulative adjustment will have to be at least 30 percent.²⁴ However, exchange rate adjustments will be only part of the story.

To bring about a substantial adjustment of the US external deficit on the order of 3 percentage points of GDP will require not only market forces operating on exchange rates but other policy adjustments as well, not only in the United States, but also in the rest of the world. Nevertheless, it is useful to start with exchange rates because they are likely to be a central element of the process, ultimately forcing other policy adjustments.

As part of global adjustment, the US dollar will almost certainly depreciate by another 20 percent on average in nominal terms, in addition to the depreciation that has already occurred. This would produce somewhat more than the 30 percent real depreciation hypothesized above, but the illustrative figure allows for some degree of nominal depreciation in excess of real depreciation as

²⁴ This rule of thumb is sometimes presented in the form that a 10 percent real effective depreciation of the dollar produces a correction of the US current account deficit of 1 percent of GDP. These rules of thumb assume the dollar's adjustment is exogenous, which does not fully capture exchange market developments since early 2002. Moreover, different models yield different rules, and the results depend on assumptions about accompanying policies and objectives. Baily (2003) reports simulations of the effects of exogenous dollar depreciation in the Macroeconomic Advisors model; the results can be interpreted as implying a rule of thumb of about \$20 billion per percentage point of dollar adjustment; US real GDP also declines relative to baseline. On the other hand, in FRB/Global (Levin, Rogers, and Tryon 1997), exogenous dollar depreciation produces about \$6 billion per percentage point when monetary policies in the United States and abroad follow Taylor rules; in the United States, real GDP rises relative to baseline. If US and foreign real GDP were unchanged, the FRB/Global result would be closer to \$10 billion per percentage point. On the other hand, Blanchard, Giavazzi, and Sa (2005a and 2005b) develop a rule of thumb that an adjustment of 1 percent of GDP requires an effective depreciation of the dollar of 15 percent.

well as for some overshooting.²⁵ Table 5 presents three scenarios that might be associated with a further 20 percent depreciation of the dollar, which translates into a 25 percent average appreciation of the relevant foreign currencies. The scenarios are constructed using the trade weights in the Federal Reserve Board staff's broad index for the foreign exchange value of the US dollar shown in the table.

Scenario 1 involves more of the same, with 25 percent nominal appreciations of the currencies of the other industrial countries with the exception of the euro; for example, the yen would appreciate to 84 per dollar. The scenario assumes that the euro will appreciate by enough to compensate for the nonparticipation by the currencies of developing countries, which make up 44 percent of the index. As a result, the euro would appreciate by an additional 84 percent against the dollar—to about \$2.40 per euro.

Scenario 2 involves some participation by the developing countries but smaller appreciations on average than for the industrial countries. Consequently, the residual appreciation of the euro is reduced to 42 percent against the dollar—to about \$1.85 per euro.

Scenario 3 involves less than proportionate appreciations against the dollar by the currencies of the industrial countries—the yen only appreciates to 88 per dollar—the same sized appreciations of the currencies in Latin America and developing countries outside of Asia (Israel, Saudi Arabia, and Russia) as in scenario 2, with the residual amount being absorbed by Asian currencies on average, yielding a 41 percent appreciation against the dollar—to about RMB 5.91 per dollar compared with today's 8.28. The fact that an appreciation of the Chinese yuan by this amount appears to be implausible is counterbalanced by the fact that the assumed 20 percent further appreciation of the euro would take that rate to \$1.56 per euro.

These three scenarios underscore two points: First, if the dollar depreciates a further 20 percent on average, the depreciation will have to be broadly based. Second, few of the currencies included in the Federal Reserve Board staff's index will have much basis for avoiding an appreciation of at least 15 percent.

On the other hand, the effective appreciations need not be so large. Table 6 presents the results of the scenarios in table 5 translated into percentage changes in effective exchange rates, based on the weights and methodology used by Citigroup. Those weights and methods are close to those used at the Federal Reserve.²⁶ Under the extreme assumptions of scenario 1, the 84 percent

²⁵ Twenty percent is also comparable with Macroeconomic Advisor's scenario, described above.

²⁶ In constructing these effective exchange rates, we considered only the 26 currencies included in the Federal Reserve Board staff's index. On average these 26 countries and the United States accounted for 93 percent

appreciation of the euro against the US dollar translates into an effective appreciation of the euro of 68 percent, in addition to the 24 percent real appreciation seen since February 2002 (table 3). In scenario 2, the euro's effective appreciation is reduced to 21 percent, a bit less than has already occurred. In scenario 3, the euro only appreciates slightly, while the effective appreciation of the Chinese yuan is 17 percent, compared with a bilateral appreciation of 41 percent against the US dollar.

Additional dollar exchange rate adjustment will be part of the global adjustment process. The question is, how will it unfold, in particular for those countries whose currencies are pegged or tightly managed against the dollar, such as the Chinese yuan? Two non-answers should be rejected. First, a small widening of the band of fluctuation of the yuan—for example, by plus or minus 2 percent, with or without a move to a basket peg—will be insufficient and counterproductive. Such an approach is insufficient because a much larger adjustment is needed. It is counterproductive because a small adjustment is likely to accentuate pressures for the yuan and other currencies to appreciate further, increasing the risk of economic and financial disruption. Second, a free float of the yuan, at this point, with the People's Bank of China pulling out of the foreign exchange market, is unrealistic and would likewise probably lead to violent financial market gyrations not only in China but also elsewhere.

The preferred approach is the “two-stage currency reform” proposed by Goldstein and Lardy (2003a and 2003b): (1) an immediate substantial appreciation of the yuan by at least 10 and preferably 15 to 25 percent, accompanied by a move to a regime focused on a currency basket with a band of plus or minus 5 percent and (2) a later move to greater exchange rate flexibility and more open capital markets after the banking system has been further strengthened.

However, China's is not the only currency with a de facto or de jure tight peg to the US dollar or a heavily managed exchange rate, judging by the extent of foreign exchange reserve accumulation over the past three years (table 4). There are Malaysia, Hong Kong, Taiwan, and India—to name four other currencies. Recall from table 4 that China accounts for only about half the reserve accumulation by Asian countries, excluding Japan, over the period. Moreover, it would be unreasonable to expect the Korean won to appreciate as much as the Chinese yuan because although Korea resisted the appreciation of the won via very heavy intervention through late 2004, it has

of the total weights in the Citigroup indexes for the 26 countries. The coverage was only 76 to 81 percent for the euro area, Russia, and Sweden because the Federal Reserve staff's index does not include any Eastern European countries, which would presumably follow the euro rather closely. For half of the countries, the coverage was 95 percent or more.

subsequently allowed the won to appreciate significantly (table 3). What is called for is a coordinated and differentiated adjustment of Asian currencies. Some people call for an Asian Plaza Agreement, which was about floating exchange rates. What is needed is an Asian Smithsonian Agreement involving pegged or highly managed exchange rates.

Implications of Intervention and Reserve Diversification

What would be the financial consequences if those countries with currencies pegged to the dollar or with heavily managed exchange rate regimes were to scale back substantially their intervention or begin to diversify their excess dollar holdings? It is difficult to prove anything in connection with this highly charged topic, but several cautionary observations are in order.

First, foreign official assets as of the end of 2003 accounted for only 14 percent of all foreign assets in the United States—18 percent, excluding foreign direct investment (FDI). Moreover, US dollar financial liabilities—official and private—are highly substitutable in most portfolios. By way of illustration, note that over the 12 months through March 2005 gross foreign transactions in US long-term securities (notes, bonds, and equities) were \$30.6 trillion and gross US transactions in foreign securities were \$6.3 trillion, but those gross magnitudes produced a net inflow of only \$800 billion.

Second, international reserve assets represented 5.5 percent of cross-border liabilities in 2002, 6.8 percent excluding FDI.²⁷ In today's global financial system, international reserve holdings are just not that important.²⁸ According to Bank for International Settlements (BIS) data from the fourth quarter of 2001 to the fourth quarter of 2004, while total foreign exchange reserves increased by \$1,683 billion, international financial assets (international bonds and notes, international money market instruments, and cross-border liabilities to nonbanks) increased by \$8.2 trillion—almost five times the increase in foreign exchange reserves.

²⁷ The latest date for which comprehensive data on international investment positions are available in *International Financial Statistics* is 2002, but there is no reason to believe that, out of a total of \$43.5 trillion, the data have changed a great deal over two years. The 2002 data covered almost 90 percent of official reserve holdings. China is the principal country whose holdings are excluded. Excluding US cross-border liabilities and US reserve assets, the reserve share increases to 6.5 percent of total liabilities and about 8 percent of total liabilities other than FDI.

²⁸ The *International Financial Statistics* data almost certainly exaggerate the importance of reserve holdings because reserves are more likely to be fully reported and all other assets and liabilities are likely to be underreported.

Third, it is misleading to identify intervention and changes in reserve liabilities or holdings with the financing of current account positions. In the case of the United States, it is true that in the first quarter of 2004, the recorded increase in official assets in the United States in effect covered the US current account balance.²⁹ However, private capital inflows were 2.5 times official inflows.

In the case of Korea, in 2004 the increase in reserve assets in the fourth quarter of 2004 was 2.6 times Korea's current account surplus, but in the second quarter they covered only 60 percent of the surplus. Korean intervention in late 2004 accommodated very large private capital inflows. One might even argue that the official purchases encouraged private inflows by providing a willing buyer. Whichever way the story is told, the purchases had little or nothing to do with the Korean current account surplus and even less to do with the US current account deficit; in the fourth quarter of 2004 speculative capital inflows were betting accurately on an appreciation of the won.

The case of Japan in 2004 is even more dramatic. In the first quarter, the increase in reserves was three times Japan's current account surplus. Again, the Japanese authorities were accommodating very large private capital inflows. However, increases in reserves (associated with interest accumulation) in the remaining quarters of 2004 were less than 15 percent of the contemporaneous current account surpluses.

Even for China, which recorded reserve increases of more than 10 percent of GDP in 2003 and 2004, the quarterly pattern of those increases had little to do with the pattern of trade surpluses.³⁰ In the first quarter of 2004, China recorded a trade deficit, but its reserves increased \$37 billion. In the third quarter, the increase in reserves rose to \$44 billion, but China had a trade surplus of \$24 billion.

Finally, it is important to remember that the United States is not the only country in which the government or other residents issue international liabilities denominated in dollars. Total external sovereign debt of emerging market economies was more than \$1 trillion as of the end of 2004; not all of that debt was denominated in US dollars, but that is precisely the point. Governments and the private sectors issue a great deal of external debt, and the amount of that debt denominated in dollars

²⁹ The recorded increase in official assets in the United States probably does underestimate the actual increase because of indirect holdings of US liabilities, as described by Higgins and Klitgaard (2004) in the appendix to their paper. However, it is wrong to attribute the entire difference between the increase in foreign exchange reserves or in official dollar holdings by foreign monetary authorities and the recorded increase in official assets in the United States as a "discrepancy" in the US statistics on international transactions. Both figures are based on the concept of resident; in one case it is residents of the United States issuing claims, and in the other case it is residents of the rest of the world accumulating claims, which need not be dollar claims or claims on the United States.

³⁰ China does not publish quarterly data on its current account balance.

can and does fluctuate. Thus, according to BIS data, at the end of 2004 total international financial assets were \$18.6 trillion, of which 39 percent are estimated to have been denominated in dollars.³¹

Similarly, US investors are not the only holders of dollar-denominated assets, and the portfolio preferences of investors around the world can affect exchange rates and interest rates. The size of the US current account deficit is only one factor affecting the preferences and appetites of central banks and treasuries to accumulate foreign exchange reserves.

Turning from official intervention to the issue of reserve diversification, the reserve management policies of monetary authorities are an area of substantial inertia in the international financial system. The marginal country with small foreign exchange holdings, for example, less than SDR 25 billion (\$39 billion as of the end of 2004) may step up the pace of its diversification, but the financial market implications are psychologically, rather than substantively, important because the amounts are likely to be small. At the end of 2004, only 18 economies held more than SDR25 billion in foreign exchange reserves.³²

More broadly, analysts focus too much on the actions of the monetary authorities with respect to diversification of their foreign exchange reserves. Most of the finance ministries and central banks are no different, aside from their inertia, from other managers of small international portfolios. They are just additional actors in the arena of international finance. Moreover, private cross-border holdings of financial assets are at least ten times the foreign exchange holdings of the monetary authorities.

Although analysts generally make too much of the scale of foreign exchange market intervention and overinterpret hints that monetary authorities may be diversifying their portfolios away from dollar-denominated assets, this judgment is subject to two important qualifications with respect to large holders.³³ First, in the absence of substantial foreign exchange purchases of dollar-denominated assets—intervention—the dollar would be somewhat weaker, the US current account deficit would be smaller, and US interest rates would be higher. It is difficult to attach magnitudes to these effects, and my judgment is that they are small, but we can have some confidence in their signs.

³¹ These data do not include cross-border holdings of bonds, notes, and money market instruments issued in domestic markets in domestic currencies.

³² Six were traditional industrial countries: Germany, Japan, Norway, Switzerland, the United Kingdom, and the United States.

³³ In addition to the six industrial countries listed in the previous footnote as large holders, a dozen developing economies are in this category: Algeria, Brazil, China, Hong Kong, India, Korea, Malaysia, Mexico, Russia, Singapore, Taiwan, and Thailand.

Second, if the monetary authorities with large reserve holdings are constrained away from portfolio balance because of transactions costs or misguided economic and financial choices, then relaxing that constraint so that the monetary authorities can achieve their desired equilibrium might cause sharp adjustments in asset prices. One could argue that the recent large accumulations of dollar-denominated assets by certain monetary authorities puts them out of equilibrium even as the accumulation contributes to other economic objectives of the countries and, as a by-product, facilitates the achievement of short-term equilibrium by the private sector. If the monetary authorities decide that they want to move toward better portfolio balance, the question is, how much of a price adjustment would be involved both vis-à-vis their own currencies and vis-à-vis third currencies? Answer: We don't know.

One interpretation of comments out of Korea and Japan in recent months to the effect that those countries' authorities are exploring the currency diversification of their reserve holdings is that these authorities now realize that they hold too many reserves and, in particular, too many dollar-denominated assets. They have decided belatedly that the time has come to compensate for the mistakes of the past. As is emphasized by Hauner (2005), the opportunity cost of international reserves is an elusive concept and may be viewed from many perspectives—for example, fiscal cost, investment return, and capital value. In terms of capital value, a country holding dollar reserves suffers a capital loss if its currency appreciates relative to the dollar and an opportunity cost compared with an investment in, say, euro or yen if the dollar depreciates against those currencies. Such losses are more likely to be politically than financially embarrassing. One reason is that the dollar's depreciation does not affect the purchasing power of the dollar reserves over US goods and services.

It is not just the official sector that may be out of equilibrium; from a longer-term perspective so may be the private sector in the presence of home bias. Thus, if the adjustment process is smooth, it might well be that a rebalancing by the official sector will be accommodated by an increased demand by the non-US private sector to accumulate dollar claims, which may or may not be claims on the United States.

In the face of such risks, it would be preferable if monetary authorities, including those with pegged exchange rates or tightly managed exchange rate regimes, adopted a longer-term view of the management of their portfolios. Even if they use the dollar as their intervention currency, they could continuously diversify the currency denomination of their portfolios of reserve assets. This might affect some cross rates—for example, the euro-dollar rate or the yen-dollar rate, on the margin, but such effects would be preferable to market disruption associated with abrupt changes in positions or rumors of such changes. If the United States, euro area, and Japan were to encourage such behavior, the international system as a whole might be more stable.

A sensible proposal in this area would include the following elements:

First, as a supplement to the “Data Template on International Reserves and Financial Liabilities” (reserve template) of the IMF’s Special Dissemination Standard (SDDS), the major industrial countries should commit to providing regular information—for example, at least quarterly with a one month lag—on the currency composition of their foreign exchange reserves (off balance sheet as well as on balance sheet). At least 17 of the 48 countries that subscribe to the reserve template of the SDDS and have committed to supplying historical data now provide periodically specific information on the currency composition of their foreign exchange reserves, including 10 industrial countries (Australia, Canada, Germany, Iceland, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States) and 7 emerging market economies (Bulgaria, Hong Kong, Latvia, Lithuania, the Philippines, Romania, and the Slovak Republic).³⁴ Together their foreign exchange reserves were \$489 billion as of the end of 2004, or 13 percent of the global total of \$3.7 trillion.³⁵ This is an excellent start on increased transparency.

Second, a standard for reserve diversification should be established. A good starting point would be one-third US dollar, one-third euro, and one-third yen for countries other than the United States, Japan, and those in the euro area. The standard for the euro area, Japan, and the United States should be fifty-fifty. In both cases, countries could be permitted discretion of up to, say, plus or minus 10 percentage points. Alternatively they could declare a different standard as long as they disclosed it and their compliance with it, and they committed in advance to a smooth adjustment to any new benchmark. Special provisions could be made for holdings of non-G3 currencies.

Third, Japan and the euro area should agree to an off-market transaction to swap dollars for euro and yen assets, respectively, to achieve the fifty-fifty standard. The United States is close to fifty-fifty (table 7).

Fourth, Japan and the euro area should agree to feed the swapped dollars into the market on a daily basis over a period of five years. Assuming that each holds only dollars today, which is an extreme and unlikely estimate, the total dollar holdings to be disposed of would be \$500 billion, or

³⁴ Full compliance with the reserve template requires the periodic disclosure of international reserves broken down by currencies in the SDR basket as a group (the euro, Japanese yen, UK pound, and US dollar) and those not in the SDR basket. Additional disclosure of the currency composition of foreign exchange reserves is optional. The 48 countries comply by providing historical data; an additional 13 countries subscribe to the SDDS and must comply with the reserve template but do not supply historical data.

³⁵ The 15 countries include 6 of the 18 with significant holdings of foreign exchange reserves (more than SDR 25 billion at the end of 2004): Germany, Hong Kong, Norway, Switzerland, the United Kingdom, and the United States. The 10 industrial countries hold 24 percent of the total foreign exchange reserves of

\$100 billion a year, or about \$400 million a day. The resulting effects on foreign exchange rates of the regular daily sales of \$400 million are likely to be trivial in a market for which daily turnover was \$1.9 trillion, per data in April 2004.³⁶

Fifth, other countries should be encouraged immediately to diversify their current purchases according to the standard. They also should be encouraged to adjust their portfolios smoothly over a five-year period, following the example of Japan and the euro area.

This program would increase transparency and remove considerable uncertainty overhanging international financial markets without causing large effects on exchange rates.

Table 7 provides some context on the diversification of foreign exchange reserves over the past four years. At the end of 2004, the US dollar's share in the reserves of the 17 countries was 50 percent. This is substantially less than the share estimated by the IMF for 2003 (IMF 2004a, 103), which was 63.5 percent. This difference reflects the underrepresentation of Asian and Latin American countries in the data in table 7.

Over the past four years, the euro's share in the foreign exchange reserves of the 15 countries for which we have data has risen by 12 percentage points. However, the decline in the US dollar's share accounts for only half increase. The yen and other currencies contribute 4 and 2 percentage points, respectively.

Three countries have increased the dollar's share in their foreign exchange reserves. Canada, Latvia, Lithuania, and Romania have substantially reduced the dollar's share. The declines for the other countries principally reflect valuation effects, as these data are value shares and the presumption is that most countries mark their foreign exchange holdings to market.

Three countries have reduced the yen's share substantially. Presumably this is a response in part to the low yield on yen-denominated assets. However, it also reflects relative value effects. In the case of the United States, the euro's share rose by 10 percentage points since 2000, and the yen's share declined by the same amount. Over the period since 2000, the United States made no

industrial countries; Japan, with 63 percent of industrial countries' foreign exchange reserves, is the only major holdout.

³⁶ Hildebrand (2005) describes a similarly transparent program of gold sales by the Swiss National Bank, which appears to have had essentially no market impact. On the other hand, Blanchard, Giavazzi, and Sa (2005b) estimate that if China and Japan were to shift half of their foreign exchange reserves, which they assume are now all in US dollars, into other currencies, the dollar's share in global portfolios would decline from 30 to 28 percent, which is a "substantial shift" within their framework, leading to a decline in the dollar possibly as large as 8.7 percent if the full adjustment was anticipated to occur over one year. Recall that their model is built on the assumption of imperfect asset substitution; the closer the parameterization is to perfect substitutability, the smaller the initial exchange rate adjustment and the more prolonged the adjustment process. In the limit, the model degenerates, and the speed of adjustment goes to zero.

purchases of euros or yen, but it earned a higher yield on euro-denominated assets than on yen-denominated assets, and the euro has appreciated more against the dollar than has the yen.

Other Economic Policies

Returning to US external adjustment, aside from official exchange rate policies and policies on reserve diversification, the central issue for the world economy is whether other economic and financial policies adjust appropriately to bring about a smooth global adjustment. As the counterpart to policies in the United States, policies in the rest of the world have to focus on adjusting the saving-investment balance in the direction of increasing investment at home or reducing saving by increasing consumption. In addition, the growth of domestic demand has to increase relative to the growth of output. Starting from an assumption of an adjustment of the US external balance of a given size—3 percent of GDP—in the absence of compensating macroeconomic and structural policies to facilitate that adjustment, exchange rates will have to adjust further.³⁷ This is the inevitable consequence of dealing effectively with co-dependency.

As has been detailed frequently by organizations such as the IMF (2005), as well as by informed observers such as Mussa (2005), the appropriate policy choices will differ depending on the circumstances of the countries. Some developing countries—at least those with less total sovereign debt than many industrial countries and more room to maneuver monetary policy than is the case in Japan, for example—may find it easier to take compensating actions that boost domestic consumption and/or investment. The logic implicit in table 2 is that developing countries will have to move toward deficit if the US current account surplus is to be adjusted by \$375 billion over the next three to five years. Seventeen of the 19 developing countries listed in table 2 had surpluses in 2004. Yes, this implies a return to more frequent international financial crises.

Japan and some European countries are more constrained with respect to their macroeconomic policies, but they can use structural policies even if they operate indirectly and more slowly. Other industrial countries—for example, Canada and Australia—are better positioned.

Outside the United States, two myths are prominent. The first myth is that the United States should reduce its budget deficit and this will boost national saving and narrow the US current

³⁷ See footnote 24.

account deficit without the need for exchange rate adjustment.³⁸ In effect, reducing the US budget deficit is seen as a substitute for an exchange rate adjustment rather than as a complement. This prescription omits an important part of the story: the need to boost exports and slow the growth rate of imports, shifting demand in the United States from traded to nontraded goods and demand in the rest of the world in the other direction (Obstfeld and Rogoff 2004). Exchange rates are the preeminent device for facilitating such expenditure switching. Of course, as argued earlier, the United States should reduce its fiscal deficit, but that is only part of the story.

The second myth is that the United States should slow the growth rate of the US economy to curb US demand for imports.³⁹ A back of the envelope calculation suggests how unrealistic such a prescription is as an overall solution. The level of US real GDP would have to be lowered 9 percent in order to reduce imports of goods and services by, say, 2 percent of GDP.⁴⁰ Moreover, even if such an adjustment would avoid the need for exchange rate changes, the macroeconomic effects on the rest of the world's economies would be similar to the case where exchange rates adjusted except that those economies would not benefit from the favorable terms-of-trade effects associated with exchange rate appreciation. As noted earlier, the United States will have to slow the growth of domestic demand, but it should not put the economy into permanent recession.

A comparable myth is prevalent in the United States, where officials focus on the so-called growth gap. They call for countries in the rest of the world to boost their growth rates. Again, this would not be unwelcome, but one can easily exaggerate the likely effects on the US trade balance. If other countries grew faster, US exports would expand, and the current account deficit would narrow. The sign is right, but a back-of-the-envelope calculation suggests that the magnitude would be small. A permanent boost of 3 percent in the level of foreign GDP relative to its current trend (a very optimistic additional growth of half a percentage point a year for six years) would raise US exports of goods and services by about 0.3 percent of US GDP.⁴¹

³⁸ See Belgian Minister of Finance Reynders (2005) for an expression of this view: "A [US] fiscal tightening would also contribute to reducing the US current account deficit." There is no mention of exchange rate adjustments.

³⁹ Issing (2003, 8) is an advocate of this view: "A considerably larger correction will be necessary for the public saving-investment balance, with the current [US] fiscal certainly not sustainable in the long run. Such a correction will in all likelihood imply lower growth for a long time." Again, there is also no mention of exchange rates.

⁴⁰ This calculation, which ignores price effects, is based upon US 2004 nominal GDP of \$11,725 billion, imports of goods and services of \$1,750 billion, and an income elasticity of 1.7.

⁴¹ This calculation is based on 2004 exports of goods and services of \$1,150 billion and an income elasticity of 1.0, again ignoring price effects.

These myths are not new to discussions of US external adjustment. James Tobin (1987), speaking just as the last US external adjustment was finally getting under way, identified eight such myths, including the two identified above. His final myth was that changes in exchange rates alone would not bring about the necessary adjustment. He argued that policy coordination should not focus exclusively on G-7 exchange rates. He concluded, “Meaningful policy coordination is a good idea. But it is tougher to achieve than stabilizing exchange rates for a while [referring to the lapsed Louvre Accord]. The major countries need to agree on fiscal and monetary policies that promote prosperity and growth of the world economy, less developed as well as developed, while gradually correcting the imbalances that have arisen among themselves and with the third world.”

James Tobin was sometimes critical of Paul Volcker’s policies and policy prescriptions, but Tobin’s conclusion in 1987 fits with Volcker’s (2005b) about the situation today: “The clear lesson I draw is that there is a high premium on doing what we can to minimize the risks and to ensure that there is time for orderly adjustment. I well know we can’t do it all alone. But I also know we are the major actor—the necessary solid fulcrum for the world economy. . . . What I am talking about really boils down to the oldest lesson of economic policy: a strong sense of monetary and fiscal discipline.” Note the explicit mention of monetary as well as fiscal policy.

CONCLUSION

The evidence is scant that policymakers either in the United States or in the rest of the world are preparing for a substantial adjustment in the US current account deficit. Instead, one finds in the United States something between complacency and denial, and in the rest of the world finger pointing and hand wringing.

Policymakers in the United States and the rest of the world would be well advised to design their policies on the assumption that over the next three to five years the US current account deficit will narrow to about 3 percent of GDP.

As part of this adjustment, the growth of US domestic demand will slow by at least a percentage point from its recent rate and probably much more. Most US consumers will feel this effect. They will also suffer a substantial terms-of-trade loss.

If not handled properly, the actual and potential growth of US output (real GDP) will also slow. Decisive action on the US budget deficit is required sooner rather than later. The Federal Reserve should act through word and deed to slow the growth of domestic demand.

The adjustment process will be more diffused in the rest of the world but will not be painless. The global economy will not only lose the growth stimulus that the US economy has been supplying for more than a decade, but that stimulus will be reversed. Consequently, policymakers in

the rest of the world are also in denial. In the absence of symmetrical accommodative policies in the rest of the world, the economic, financial, and political costs of global adjustment will be larger.

Looking to the future, the monetary authorities in the United States, the euro area, and Japan should jointly act to minimize the risks of a lack of reserve diversification. They should further increase the transparency about their own reserve holdings and set and implement an international standard for reserve diversification.

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Figure 1 Real wages, net exports, and the dollar, 1981–2003

a. Real, broad, trade-weighted foreign exchange value of the US dollar, indexed to 1981

b. Net exports of goods and services, percent of GDP.

c. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls (SA), expressed in deviation from mean for the entire period (1981–2004), scaled by the standard deviation for the period.

Sources: dollar: Federal Reserve Board; net exports: Bureau of Economic Analysis; earnings: Bureau of Labor Statistics.

Figure 2 US net saving and investment, 1980–2004 (percent of GDP)

* Net private saving minus the statistical discrepancy.

Source: Bureau of Economic Analysis, *National Income and Product Accounts*.

Table 1 Alternative views of US current account sustainability ^a

View	Current account deficit	Negative NIIP ^b	Trade deficit	Comment
	(percent of GDP)			
NIIP status quo	1.5	25	0.0	Transitional surpluses
Current account status quo (I) ^c	6.0	100	1.5	Narrowing trade deficits
Current account status quo (II) ^d	2.2	46	−0.2	Initial sharp adjustment
Productivity	4.0	67	0.6	Temporary equilibrium
Global wealth	3.0	50	0.4	—
Zero trade deficit ^e	2.2	40	0.0	—

a. Except as noted, based on the condition that to stabilize the ratio of the negative NIIP to nominal GDP, the ratio of the current account deficit (the net addition to the NIIP) to GDP must equal the growth rate of nominal GDP times the NIIP ratio and an assumption that the trend rate of growth of US nominal GDP is 5 percent.

b. Net international investment position.

c. As a percent of GDP.

d. At \$500 billion. The figures show the peak negative NIIP ratio in 2118 and the corresponding current account and trade deficits ratios.

e. See text.

Table 2 Current account developments (billions of US dollars, except where noted)

Country/region	Current account		Change	
	1999	2004	Billions of dollars	Percent of US deficit
<i>United States</i>	-297	-666	-369	—
<i>Rest of the world</i>	207	544	337	91
Industrial	125	218	93	25
Euro area	31	36	5	1
Canada	2	26	24	7
Japan	115	172	57	16
United Kingdom	-40	-47	-8	-2
Australia	-22	-39	-17	-5
Sweden	11	28	17	5
Switzerland	29	43	13	4
Asia	109	196	87	24
China	16	70	54	15
Taiwan	8	19	11	3
Korea	25	27	2	1
Singapore	15	28	13	4
Hong Kong	10	16	6	2
India	-3	2	5	1
Malaysia	13	16	3	1
Thailand	12	7	-5	-1
Philippines	7	4	-3	-1
Indonesia	6	7	2	0
Latin America	-48	21	69	19
Mexico	-14	-9	5	1
Brazil	-25	12	37	10
Argentina	-12	3	15	4
Venezuela	2	15	12	3
Chile	0	1	1	0
Colombia	1	-1	-2	0
All others	21	109	88	24
Israel	-2	0	2	0
Saudi Arabia	0	49	49	13
Russia	22	60	37	10

Source: International Monetary Fund, *World Economic Outlook*.

Table 3 Foreign exchange rates (percent change since February 2002^a)

Country/region	Nominal bilateral^{b, c}	Real effective^{d, e}	Trade weight^f
Total	18	5	100
Industrial	39	17	55
Euro area	51	24	19
Canada	31	26	16
Japan	27	2	11
United Kingdom	34	-1	5
Australia	53	33	1
Switzerland	44	2	1
Sweden	53	12	1
Asia	7	-8	29
China	0	-16	11
Taiwan	13	-7	3
Korea	31	18	4
Singapore	12	-7	2
Hong Kong	0	-16	2
India	12	-2	1
Malaysia	0	-16	2
Thailand	10	-2	1
Philippines	-6	-14	1
Indonesia	11	6	1
Latin America	-17	-14	13
Mexico	-18	-16	10
Brazil	-10	-5	2
Argentina	-33	-20	neg. ^g
Venezuela	-58	-18	neg. ^g
Chile	18	3	neg. ^g
Colombia	-2	-3	neg. ^g
All others	6	-9	2
Israel	7	-15	1
Saudi Arabia	0	-22	1
Russia	10	9	1

neg. = negligible

a. Percent changes are from February 2002 to March 2005, unless otherwise noted.

b. Monthly average bilateral exchange rates.

c. Exchange rates for Philippines, Indonesia, Argentina, Chile, Colombia, Israel, and Saudi Arabia figures are from *International Financial Statistics* for February 2005.

d. Citigroup's monthly Competitive Trade-weighted Exchange Rate Indices (CTERI).

e. For Indonesia, Saudi Arabia, and Russia, January 2005.

f. Weights used for the Federal Reserve Board staff's trade-weighted foreign exchange value of the US dollar, updated as of February 3, 2005.

g. Argentina 0.4, Venezuela 0.3, Chile 0.5, and Colombia 0.4.

Table 4 Foreign exchange reserves (billions of US dollars)

Country/region	End of year		Dollar change		Percent change
	2001	2004	2001–04	Share of total	
Total	1,685	3,105	1,417	100	84
Industrial	718	1,182	464	33	65
Euro area	208	179	–29	–2	–14
Canada	30	30	0	0	0
Japan	388	824	437	31	112
United Kingdom	32	39	8	1	22
Australia	16	34	17	1	113
Sweden	13	21	8	1	62
Switzerland	30	54	23	2	80
Asia	770	1,572	801	57	104
China	212	610	398	28	188
Taiwan	122	242	120	8	98
Korea	102	198	96	7	94
Singapore	75	112	37	3	49
Hong Kong	111	124	12	1	12
India	45	125	80	6	178
Malaysia	30	65	36	3	117
Thailand	32	49	16	1	53
Philippines	13	13	–1	0	0
Indonesia	27	35	8	1	30
Latin America	128	180	51	4	41
Mexico	44	63	18	1	43
Brazil	36	53	17	1	47
Argentina	15	18	3	0	20
Venezuela	9	18	9	1	100
Chile	14	16	1	0	14
Colombia	10	13	3	0	30
All others	70	171	101	7	144
Israel	23	27	3	0	17
Saudi Arabia	15	23	8	1	53
Russia	33	121	88	6	267

Source: International Monetary Fund, *International Financial Statistics*.

Table 5 Scenarios for a 20 percent dollar depreciation^a

Appreciation by	Euro alone	Some Asia	Max Asia	Trade weight^b
Euro area	84	42	20	19
Canada	25	25	20	16
Japan	25	25	20	11
United Kingdom	25	25	20	5
Australia	25	25	20	1
Other industrial	25	25	20	3
Asia	0	20	41	29
Latin America	0	15	15	13
Others	0	15	15	2
Total	25	25	25	100

- a. A 20 percent depreciation in the dollar corresponds to a 25 percent appreciation of other currencies against the dollar.
- b. Weights used for the Federal Reserve Board staff's trade-weighted foreign exchange value of the US dollar, updated as of February 3, 2005.

Table 6 Impact of a 20 percent dollar depreciation on nominal effective exchange rates ^a(percent)

	Scenarios ^b			
	Euro alone	Some Asia	Max Asia	Trade weight ^c
Industrial	31	13	4	55
Euro area	68	21	1	19
Canada	19	18	13	16
Japan	15	6	-2	11
United Kingdom	-11	-3	1	5
Australia	9	4	-3	1
Switzerland	-14	-4	1	1
Sweden	-12	-4	1	1
Asia	-11	1	15	29
China	-12	1	17	11
Taiwan	-10	1	14	3
Korea	-10	1	16	4
Singapore	-10	0	13	2
Hong Kong	-7	0	8	2
India	-15	-1	17	1
Malaysia	-10	1	15	2
Thailand	-12	0	15	1
Philippines	-10	2	15	1
Indonesia	-12	0	14	1
Latin America	-7	6	7	13
Mexico	-5	9	9	10
Brazil	-15	-3	0	2
Argentina	-12	-3	-2	0
Venezuela	-7	7	8	0
Chile	-13	-3	-3	0
Colombia	-11	2	4	0
All others	-20	-6	-3	2
Israel	-18	-3	0	1
Saudi Arabia	-15	-4	-5	1
Russia	-28	-11	-5	1
Total	25	25	25	100

a. Calculations based on the 26 currencies in the Federal Reserve Board staff's broad trade-weighted index of the foreign exchange value of the US dollar, using normalized weights from Citigroup's CTERI. Subtotals use Federal Reserve trade weights.

b. See table 5.

c. Weights used for the Federal Reserve Board staff's trade-weighted foreign exchange value of the US dollar, updated as of February 3, 2005.

Table 7 Evidence on foreign exchange reserves diversification

Country	US dollar		Euro		Yen		Other currencies	
	Share, 2004	Change, 2000–04	Share, 2004	Change, 2000–04	Share, 2004	Change, 2000–04	Share, 2004	Change, 2000–04
Australia	45	5	45	15	10	–20	0	0
New Zealand	57	4	43	26	0	–31	1	1
Hong Kong ^a	79	11	11	–1	2	–3	9	–8
Philippines	83	–9	10	9	4	–1	4	2
Canada ^b	48	–27	49	27	4	0	0	0
Norway	35	14	43	–3	6	–6	16	1
Switzerland	34	–7	48	3	0	–3	19	7
United Kingdom	30	–6	55	17	15	–12	0	0
Latvia	38	–16	59	27	3	–2	0	–9
Lithuania ^c	4	–78	96	80	0	–1	0	–1
Slovak Republic	22	0	78	3	0	–3	0	0
Romania ^c	36	–37	59	35	0	0	5	2
Bulgaria ^c	7	0	92	–2	0	0	2	1
Germany	98	–1	0	0	2	1	0	0
United States	0	0	57	10	43	–10	0	0
<i>Subtotal</i>	51	–6	35	12	7	–4	6	–2
Sweden ^d	37	n.a.	37	n.a.	8	n.a.	18	n.a.
Iceland ^d	40	n.a.	40	n.a.	5	n.a.	15	n.a.
						n.a.		n.a.
Total	50	n.a.	36	n.a.	7	n.a.	7	n.a.

n.a. = not available

- Since 2003, the Hong Kong Monetary Authority has grouped yen, euro, and other European currencies together into one category as “non-US dollar bloc.” The 2003–04 yen and euro shares in this table are derived by assuming that they remain the same as in 2002 in the “non-US dollar bloc,” which has decreased as a share of the total since that time.
- Canada holds only three currencies as foreign exchange reserves: US dollar, yen, and euro. Prior to 2003, data published by Canada's ministry of finance only differentiate between US dollar and non-US dollar foreign exchange reserves. Hence, to derive the yen and euro shares for 2000–02, we assume that the yen share during the period was the same as it was in 2003, and the rising euro share was derived as a residual.
- Assumes 2004 shares are the same as in 2003.
- Data available for only 2004.