



Is the U.S. Current Account Deficit Sustainable?

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Summary

America's current account (CA) deficit (the trade deficit plus net income payments and net unilateral transfers) rose as a share of gross domestic product (GDP) from 1991 to a record high of 6.1% of GDP in 2006. In 2007, it fell to 5.3% of GDP, and is projected to continue to fall in 2008. The CA deficit is financed by foreign capital inflows. Many observers have questioned whether such large inflows are sustainable and expressed concern about the economic impact should foreign capital inflows decline rapidly. Further, a large share of the capital inflows have come from foreign central banks in recent years, and some are concerned about the economic and political implications of this reliance. Some fear that a rapid decline in capital inflows would trigger a sharp drop in the value of the dollar and an increase in interest rates that could lower asset values and disrupt economic activity. However, economic theory and empirical evidence suggest that the most plausible scenario is a slow decline in the CA deficit, which would not greatly disrupt economic activity because production in the traded goods sector would be stimulated.

While comprehensive data will not be available for some time, it appears that gross capital inflows have recently fallen as a result of financial market turmoil. While financial market turmoil has led to an economic slowdown, it has not been via a sudden decline in the dollar or a sudden broad spike in U.S. interest rates. On the contrary, the dollar has appreciated in value and demand for U.S. Treasury bonds has risen since the turmoil worsened in September 2008.

One long-term consequence of a large CA deficit has been the growing foreign ownership of U.S. capital stock. A large CA deficit is not sustainable in the long run because it increases U.S. net debt owed to foreigners, which cannot rise without limit. A larger debt can be serviced only through more borrowing or higher net exports. For net exports to rise, all else equal, the value of the dollar must fall. This explains why many economists believe that both the dollar and the CA deficit will fall at some point in the future. To date, debt service has not been burdensome. Because U.S. holdings of foreign assets have earned a higher rate of return than U.S. debt owed to foreigners, U.S. net investment income has remained positive, even though the United States is a net debtor nation.

Since 1980, most episodes of a declining CA deficit in industrialized countries have been associated with slow economic growth. Only two episodes were associated with a severe disruption in economic activity. Because most of the episodes involved small countries, these cases may differ in important ways from any corresponding episode in the United States. Historically, a few other countries have had a higher net foreign debt-to-GDP ratio than the United States has at present; however, if CA deficits continue at current levels, the U.S. net foreign debt could eventually be the highest ever recorded.

This report also reviews studies on the CA deficit's sustainability. Some of the studies suggest that a large dollar depreciation could eventually be required to restore sustainability. After an inflation-adjusted 21% depreciation of the dollar from 2002-2007, the CA deficit was still higher in 2007 than in 2002.

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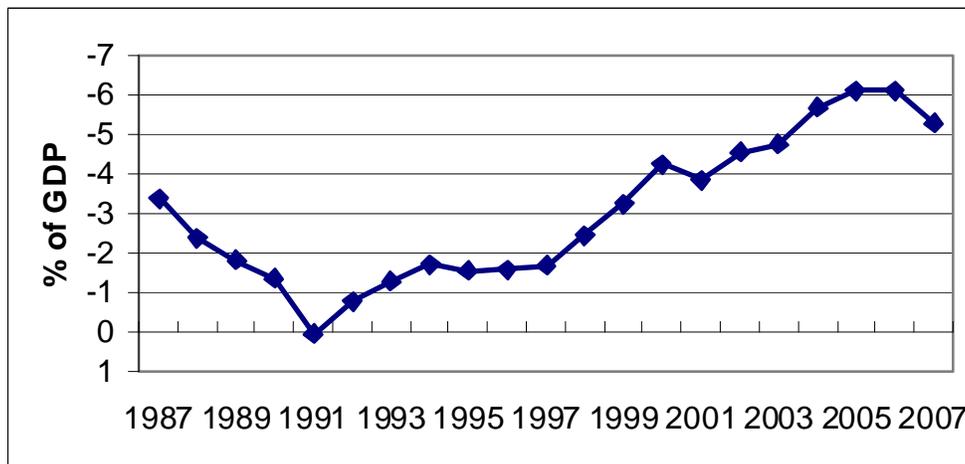
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Introduction

America's current account (CA) deficit (the trade deficit plus net income payments and net unilateral transfers) rose as a share of gross domestic product (GDP) from 1991 to a record high of 6.1% of GDP in 2005 and 2006. In 2007, it fell to 5.3% of GDP, but remained well above the historical average (see **Figure 1**). It is projected to continue to fall modestly in 2008. It is too early to tell if the decline in the past two years is caused by temporary cyclical factors or is part of a longer-term trend. The CA has been in deficit every year but one since 1982. By accounting identity, the CA deficit is equal to net inflows of foreign capital to the United States and reflects the imbalance between domestic saving and investment.

Figure 1. Current Account Deficit as a Share of GDP, 1987-2007



Source: Bureau of Economic Analysis.

Some observers have questioned whether the CA deficit is sustainable. It has not prevented the economy from generally attaining full employment—the United States has run large CA deficits for several years, yet unemployment has remained low in most of those years. The CA deficit has both positive and negative effects on the economy. Production of exports and import-competing goods is arguably lower than it would be in the absence of a CA deficit, but interest rates are also lower than they would be in the absence of foreign capital inflows. As a result, interest-sensitive spending on capital investment, residential investment, and consumer durables (e.g., automobiles and appliances) is higher.¹

Those expressing concern about the CA deficit typically define unsustainability to mean that the United States would have difficulty financing the CA deficit at some point in the near future, and the resulting adjustment process would harm the U.S. economy. Basically, the CA deficit is sustainable as long as foreigners are willing to continue buying American assets. It is not enough for foreigners to reduce their demand for U.S. assets, since this would cause yields on U.S. assets to automatically rise until the market once again cleared. But if the desirability of U.S. assets were to change rapidly (due to a loss in confidence in the U.S. economy, for example), foreign

¹ For an overview, see RL31032, *The U.S. Trade Deficit: Causes, Consequences, and Cures*, by Craig K. Elwell.

capital inflows and the value of the dollar could decline quickly; at a minimum, foreigners would require significantly higher interest rates than they do at present for inflows to continue. For the U.S. to literally be unable to continue financing its current account deficit, foreign demand would have to fall so much that asset yields could not rise enough for foreigners to be willing to hold U.S. assets again.²

But what would make foreign investors change their minds about U.S. assets? Federal Reserve Chairman Ben Bernanke has argued that foreigners will continue to increase their holdings of U.S. assets in the near term because of a global savings glut that leaves them with few other desirable investment alternatives.³ If both lender and borrower are rational, many economists believe that the CA deficit can be mutually beneficial—it allows the lender to enjoy a higher rate of return than could be enjoyed at home and allows the borrower to operate with a larger capital stock than could be financed from domestic saving. As long as those investments yield a high enough rate of return to service the debt, borrowing should not reduce future domestic income in absolute terms.

Some economists, however, doubt this interpretation and are concerned that the large CA deficit⁴ is symptomatic of wider economic imbalance.⁵ They argue that a country cannot persistently rely on foreign borrowing to finance its investment needs, so the United States must eventually raise its low saving rate. They maintain that by financing a large budget deficit and housing boom (until 2006), much of the foreign borrowing is being used in ways that do not expand the economy's productive capacity, and therefore such borrowing does not enhance our ability to service foreign debt. Because foreign borrowing is not sustainable, they argue, Americans will eventually be forced to significantly increase their saving (equivalently, to reduce their consumption) and reduce their investment rates, and the U.S. economy will slow. As a long-term solution, these economists prescribe policy measures to raise saving and reduce overall spending as the appropriate response to an excessively large CA deficit. This could be done through microeconomic policies, such as policies to encourage higher private saving, and macroeconomic policies, such as a tightening of monetary and fiscal policy, although this response would risk inducing the same recession that they fear the CA deficit may eventually cause (particularly if the economy were weak already).

The steady financing of the CA deficit has depended heavily on official capital inflows—purchases of U.S. assets by foreign central banks—since 2002.⁶ Official capital inflows have averaged more than \$300 billion per year from 2002 to 2007. Had these central banks decided not to increase their dollar-denominated foreign reserves, the CA deficit and the value of the dollar might have fallen precipitously. Although the dollar did not experience a sizable overall decline during this period, it did fall significantly against certain currencies without disruption to the U.S.

² It is widely assumed that a rapid change in the current account would be caused by changes in financial markets, not goods markets. Although theoretically a rapid decline in imports could also cause the CA deficit to shrink, little empirical evidence exists that broad trade patterns change that quickly.

³ Ben Bernanke, "The Global Saving Glut and the U.S. Current Account Deficit," the Sandridge Lecture, Virginia Association of Economics, March 10, 2005, available on the Federal Reserve Board of Governors website. For an analysis, see CRS Report RL33140, *Is the U.S. Trade Deficit Caused by a Global Saving Glut?*, by Marc Labonte.

⁴ For the purposes of this report, a CA deficit is considered large if it exceeds the trend growth rate of the economy.

⁵ See, for example, Edwin Truman, "Postponing Global Adjustment," Institute of International Economics, Working Paper no. 05-6, July 2005.

⁶ For more information, see CRS Report RS21951, *Financing the U.S. Trade Deficit: Role of Foreign Governments*, by Marc Labonte and Gail E. Makenen.

economy. Going forward, some analysts fear that official capital inflows could prove unreliable or provide foreign governments with leverage that would undermine U.S. policy aims. Because official inflows are likely financed by considerations other than rate of return, it is difficult to predict how they will evolve in the future. But given the importance of the United States as a foreign export market, deliberately taking a step that could potentially precipitate a U.S. economic crisis could be against a foreign country's economic self-interest.

As a consequence of large CA deficits, a growing share of the U.S. capital stock is owned by foreigners and a rising fraction of U.S. income will need to be diverted overseas in the form of interest and dividends to foreigners. The process cannot continue indefinitely, or else foreigners would eventually hold a larger share of American assets in their portfolios than they desire. But though economists may feel confident that the CA deficit will decline in the long run, long run predictions do not offer much help in predicting short-term trends. Foreigners may wish to increase their holdings of American assets (in which case the CA deficit would persist) in the near term. One common assumption is that the CA deficit would, at most, continue until the share of American assets held in foreign portfolios equaled America's share of world output; by this measure, foreigners still hold too few American assets. For example, citizens of the Euro Area hold an estimated 53% of their wealth in euro-denominated assets and 19% in U.S. dollar-denominated assets, whereas the Japanese hold an estimated 63% of their wealth in yen-denominated assets and 4% in dollar-denominated assets.⁷ This is referred to as a "home bias" in saving because all countries hold more of their own assets, and fewer foreign assets, than optimal portfolio diversification would suggest. This bias is considered unlikely to disappear entirely, in which case CA deficits will ease before this benchmark is met. In any case, the reason why home bias would decline for foreigners but not Americans, as continuing CA deficits would imply, remains unclear. On the other hand, if the U.S. economy grows faster than the rest of the world in the future, then (small) CA deficits would be needed for foreigners to maintain U.S. asset holdings equal to the U.S. share of world GDP.⁸

One reason that U.S. imports cannot exceed exports indefinitely (and the dollar could eventually fall) is that today's CA deficits have a consequence for future trade balances. The accumulation of net debt that Americans owe to foreigners will need to be serviced in the future, and debt service will take the form of a capital outflow from the United States. To offset the outflow, the United States must export more or borrow more. But, all else equal, foreigners will only be induced to buy more exports if the dollar depreciates.⁹ Net investment income payments make up a small fraction of the CA deficit today, but economist Edwin Truman estimates that if CA deficits continued to equal 6% of GDP, net income payments would eventually reach 4.5% of GDP, leaving a trade deficit of only 1.5% of GDP.¹⁰ In other words, a constant trade deficit would imply a growing CA deficit because of growing net investment income payments.

⁷ Olivier Blanchard, Francesco Giavazzi, Filipa Sa, "The U.S. Current Account and the Dollar," Massachusetts Institute of Technology, Working Paper no. 05-02, May 2005.

⁸ Engel and Rogers argue that the CA deficit can be fully explained by investors' anticipation that the U.S. share of industrialized countries' output will rise in the future. Their model omits developing countries, however, which have played a large role in world CA deficits and growth recently. Charles Engel and John Rogers, "The U.S. Current Account Deficit and the Expected Share of World Output," National Bureau of Economic Research, Working Paper no. 11921, January 2006.

⁹ Another possibility for how the CA deficit could improve would be if the U.S. terms of trade improved in the future. There is no consensus on any policy tools that can directly improve the terms of trade.

¹⁰ Edwin Truman, "Postponing Global Adjustment," Institute for International Economics, Working Paper no. 05-6, July 2005.

In 2007, the United States had a net foreign debt of \$2.4 trillion, but received net investment income of \$89 billion from the rest of the world. What is surprising about these data is that the United States still consistently has positive net investment income despite its large net debt, and shows no long-term downward trend as the foreign debt grows. That is because U.S. holdings of foreign assets have earned a higher rate of return than U.S. debt owed to foreigners. Between 2002 and 2004, the United States earned an estimated rate of return of 9.6% on its foreign assets and paid a rate of return of 0.9% on its foreign liabilities.¹¹ These estimated rates of return have prevented foreign borrowing from becoming burdensome and suggest that the U.S. net foreign debt could become significantly larger before debt payments would become burdensome. Kouparitsas estimates that if these rate-of-return differentials were to continue, the United States could maintain a current account deficit of 0.9-1.3% of GDP indefinitely without any increase in its net foreign debt.¹² However, this favorable rate-of-return differential may not continue in the future if foreigners believe that the dollar will depreciate and demand a higher rate of return on U.S. borrowing as compensation. If U.S. interest rates rose, the debt could become burdensome quickly.

Economic Impact of a Declining Current Account Deficit

Although some reduction in the CA deficit is inevitable (although not necessarily in the near future), it need not be sudden. It should be emphasized that economic theory suggests that a *slow decline* in the CA deficit and dollar would not be troublesome for the overall economy. In fact, a slow decline could have an expansionary effect on the economy, because the increase in net exports could have a more stimulative effect on aggregate demand in the short run than the decrease in investment and other interest-sensitive spending caused by lower capital inflows. More realistically, the trade deficit would not decline exogenously, but in response to a slowing of overall domestic demand. Therefore, a falling trade deficit may tend to coincide with slower economic growth in practice, but that does not indicate that a falling trade deficit has *caused* growth to slow.

Historical experience seems to support the idea that a slow decline in the trade deficit need not be harmful to the economy—the dollar declined by about 40% in real terms and the CA deficit declined continually in the late 1980s, from 2.8% of GDP in 1986 to nearly zero during the early 1990s. Yet economic growth was strong throughout the late 1980s. Of course, the adjustment required to balance the current account today is about twice as large, so historical experience may not be a good guide. Beginning in 2007, the CA deficit began a gradual and modest decline, after a long and gradual decline in the dollar.

A potentially serious short-term problem would emerge if foreigners *suddenly* decided to reduce the fraction of their saving that goes to the United States in the form of a capital inflow, or if they

¹¹ Philip Lane and Gian Milesi-Feretti, “A Global Perspective on External Positions,” National Bureau of Economic Research, Working Paper no. 11589, August 2005. This also suggests that the attractiveness of U.S. assets may be more perceived than actual.

¹² Michael Kouparitsas, “Is the U.S. Current Account Sustainable?,” Federal Reserve Bank of Chicago, *Chicago Fed Letter*, no. 215, June 2005. Curcuru et al cast doubt on whether the favorable rate of return differential can be expected to continue in the future. Stephanie Curcuru et al, “The Stability of Large External Imbalances,” National Bureau of Economic Research, working paper 13074, May 2007.

suddenly decided to repatriate part of their liquid financial assets. The initial effect could be a sudden and large depreciation in the value of the dollar, as the supply of dollars on the foreign exchange market increased, and a sudden and large increase in U.S. interest rates, as an important funding source for investment and the budget deficit was withdrawn from the financial markets. Most likely, the *direct* trade effects of these shifts in lending patterns by foreigners would not cause a recession because the dollar depreciation would lead to a trade surplus (or smaller deficit), which expands aggregate demand.¹³ (Empirical evidence suggests that the full effects of a change in the exchange rate on traded goods takes time, so the dollar may have to “overshoot” its eventual depreciation level in order to achieve a significant adjustment in trade flows in the short run.) However, the *indirect* interest rate effects, which typically only partially offset the direct effects, could cause a recession if the change is sudden. Large increases in interest rates could cause problems for the U.S. economy, as these increases reduce the market value of debt securities, cause prices on the stock market to fall, and jeopardize the solvency of various debtors and creditors. Resources may not be able to shift quickly enough from interest-sensitive sectors to export sectors to make this transition fluid.¹⁴ The Federal Reserve could mitigate the interest rate spike by reducing short-term interest rates, although this reduction would influence long-term rates only indirectly and could increase inflation.

Is a scenario where the dollar crashes a likely one? Economic theory typically assumes that financial market participants act rationally. If the rationality assumption is a good one, then the potential for a sudden decline is slim. After all, foreigners would be demanding high rates of return to buy U.S. assets today if they could foresee that the foreign currency value of these assets is likely to fall sharply in the near future. However, a sudden decline in capital inflows would be unlikely to occur in a purely rational context, in which case theory would have little predictive power. Given the traditional role the United States has played as an investment safe haven, sudden capital outflows seem unlikely. Investment might be attracted to U.S. assets in a liquidity crisis because the U.S. offers more liquid financial markets (e.g., U.S. Treasury bond markets) than do most foreign counterparts.

U.S. financial markets experienced exceptional turmoil beginning in August 2007. Over the following year, the dollar declined by almost 8% in inflation-adjusted terms—a decline that was not, in itself, disruptive. But as the turmoil deepened and spread to the rest of the world, the value of the dollar began rising. Interest rates on U.S. Treasuries fell close to zero, implying excessive investor demand. Other interest rates also remained low, although access to credit was limited for some. Although comprehensive data will not be available for some time, a “sudden stop” in capital inflows does not appear to have been a feature of the downturn. Problems recently experienced in U.S. financial markets have been widely viewed as “once in a lifetime” events. If these events failed to cause a sudden flight from U.S. assets and an unwinding of the CA deficit, it is hard to imagine what would.

¹³ A sharp decline in the value of the dollar would also reduce living standards, all else equal, because it would raise the price of imports to households. This effect, which is referred to as a decline in the terms of trade, would not be recorded directly in GDP, however.

¹⁴ For a more formal explanation, see J. Bradford DeLong, “Some Simple Analytics for a ‘Hard Landing’,” working paper, University of California at Berkeley, April 2005. Interestingly, one study found that countries with larger declines in the CA deficit experienced, on average, higher GDP growth. See Hilary Croke, Steven Kamin, and Sylvain Leduc, “Financial Market Developments and Economic Activity During Current Account Adjustments,” *International Finance Discussion Papers*, Federal Reserve, no. 827, February 2005.

Historical Parallels

Most comparisons to historical experience abroad are limited by the fact that the United States economy is so much larger than those of other countries. As a result, an economic occurrence in the United States has ramifications for the world economy that could have feedback effects for the U.S. economy, whereas changes in the CA balance of most small countries will most likely not affect the world economy. It also means that the amount of borrowing required to finance the U.S. CA deficit is a much larger share of world saving. Another difference is the role that the dollar plays as the world's "reserve currency." Because the dollar is the world's preferred currency for a store of value, medium of exchange, and unit of account, holders may be less willing to abandon it than they would any other currency. If so, the United States may be able to run higher sustainable CA deficits than other countries.

In the developing world, a large CA deficit has often been a leading indicator of financial and currency crisis. This was the case in many recent crises, including Mexico, East Asia, Turkey, Brazil, and Argentina. The applicability of these experiences to the United States may be limited, however, because of three key differences between the United States and these countries. First, the United States has a flexible exchange rate regime. Countries with fixed exchange rates can be forced into crisis when their foreign exchange reserves are exhausted by "speculators" betting against the currency; similar bets are harder to make against flexible exchange rates. Second, the United States has traditionally been seen as a "safe haven" for investment. Third, unlike developing countries, the United States is able to borrow in its own currency, so that depreciation reduces rather than increases the burden of servicing its debt.¹⁵ Therefore, historical comparisons have tended to focus on the experience of other industrialized countries.

Economist Sebastian Edwards found that since 1970, only two other industrialized countries, Ireland and New Zealand, had high CA deficits that were long-lasting (seven and five years, respectively). He found that large countries that experienced sharp declines in their CA also saw per capita GDP growth decline by 3.6% to 5.0%.¹⁶

Economists at Goldman Sachs, a financial firm, analyzed all episodes in industrialized countries since 1980 where the CA improved by more than 2% of GDP. It found 31 cases where the adjustment occurred under circumstances of economic disruption and 13 where there was no comparable disruption. In the disruption episodes, the economy typically started from a position of overheating and the output gap (the difference between actual and potential output) worsened by an average of 3.6% of GDP, whereas in the benign episodes, the economy started from a position of excess capacity and the output gap improved by 1.9%. The fact that the economy was initially overheating in the disruption episodes suggests that causality may run in the opposite direction—the CA shift may be a symptom rather than a cause of economic slowdown. In the disruption cases, there was little real exchange rate depreciation; in the benign cases, it averaged 5.1%. In most cases, the adjustment took several years. In all cases, consumption growth was negative on average and (surprisingly) interest rates on average fell. In only two cases (Portugal in the early 1980s and Finland in the early 1990s) was the CA decline associated with a severe

¹⁵ In dollar terms, depreciation would not affect the value of dollar-denominated liabilities. However, in foreign currency terms or in terms of the purchasing power that it conveys to foreign lenders, depreciation reduces the value of U.S. liabilities.

¹⁶ Sebastian Edwards, "Is the Current Account Deficit Sustainable?" National Bureau of Economic Research, Working Paper no. 11541, August 2005. Since his study, both Ireland and New Zealand have again run large CA deficits.

recession. (The recession and CA decline in Finland were widely attributed to the collapse of the Soviet Union, among other factors.) Some of these cases may not be applicable to the U.S. experience, however, because the sample includes countries that had a small CA deficit or CA surplus. Only eight of these episodes involved a larger CA deficit as a share of GDP than the U.S. deficit today, and all eight episodes involved small countries.¹⁷

The International Monetary Fund conducted a similar study.¹⁸ It found 42 cases where an advanced economy had an initial CA deficit of at least 2.5% of GDP, and the CA deficit subsequently declined by at least 50%. It found, on average, that the real exchange rate declined by a cumulative 12.2%, causing a shift in the CA of 5.7% of GDP over the next 4.6 years, moving the CA from deficit to surplus (on average). GDP growth fell by an annual average of 1.4% during the reversal, causing the output gap to deteriorate by an average of 3% of GDP, from peak to trough of the business cycle. In 11 of these cases, the slowdown in economic growth was large, but, unlike the United States, 9 of these 11 did not have a floating exchange rate. In 10 other cases, there was no slowdown in growth following the CA reversal.

However, not all cases of large CA deficits end in a reversal. Besides the United States, the IMF identified five other advanced economies that have had large CA deficits that have persisted to date: Australia (which has run a CA deficit of more than 2% since 1980), Greece (since 1996), New Zealand (1989), Portugal (1996), and Spain (1999). All except Australia have had CA deficits that were considerably larger than the U.S. in recent years.

In a similar study, economists Debelle and Galati found little evidence that CA adjustments historically lead to significant disruption in financial markets. They found little change in the composition of capital flows before adjustment, which they argue is evidence that current account adjustment is caused by, rather than the cause of, broader macroeconomic imbalances.¹⁹

Economists Hung and Kim use statistical regressions to estimate the probability of an exchange rate crash based on several macroeconomic variables across many industrialized countries over time, and estimate that the United States had a 9% probability of a dollar crash in 2006. They find that the current account balance (and the regression overall) has relatively little predictive power for a currency crash.²⁰

The size of the CA deficit in any given year may be less important in determining sustainability than how persistent CA deficits increase a country's net foreign debt over time. Economists Maurice Obstfeld and Kenneth Rogoff found that in 2003 the net debt owed to foreigners was about 23% of GDP for the United States, near an all-time high. Were CA deficits to continue at more than 5% of GDP per year, U.S. net debt to foreigners would reach 70% of GDP within 30

¹⁷ Dominic Wilson and Roopa Purushothaman, "Do Current Account Adjustments Have to Be Painful?" *Global Economics Weekly*, Goldman Sachs, no. 05/04, February 2005. Similar results are found in Hilary Croke, Steven Kamin, and Sylvain Leduc, "Financial Market Developments and Economic Activity During Current Account Adjustments," *International Finance Discussion Papers*, Federal Reserve, no. 827, February 2005.

¹⁸ International Monetary Fund, "Exchange Rates and the Adjustment of External Imbalances," *World Economic Outlook*, April 2007, ch. 3.

¹⁹ Guy Debelle and Gabriele Galati, "Current Account Adjustments and Capital Flows," Bank of International Settlements, Working Paper no. 169, February 2005.

²⁰ Juann Hung and Young Kim, "Implications of Past Currency Crises for the U.S. Current Account Adjustment," Congressional Budget Office, Working Paper no. 2006-7, June 2006. The authors define a currency crash as a decline in value of at least 25% in one year that is accelerating.

years. Although this implies a relatively small yearly debt burden, many countries that have experienced CA reversals in the postwar period had smaller net foreign debt-to-GDP ratios, between 20% and 80% of GDP. Obstfeld and Rogoff identify only one country (Ireland) with a net foreign debt-to-GDP ratio that has exceeded 80%. Thus, the authors conclude that large U.S. CA deficits cannot be sustained indefinitely.²¹

A Review of Five Estimates

Five recent academic papers address the sustainability issue. In the papers, the models used to estimate changes in the dollar and CA are not empirically derived; they are simulations based on theoretical assumptions meant to be consistent with reality.²²

Obstfeld and Rogoff have estimated how much the dollar would need to depreciate in order to make the CA deficit disappear.²³ In their model, shocks to aggregate demand or shifts in the demand or supply of tradeable goods could cause the CA deficit to decline; their model does not allow for exogenous changes in the demand for U.S. assets to affect the CA deficit. They estimate that the real exchange rate would depreciate between 14.7% and 33.6% if a CA deficit equal to 5% of GDP were eliminated by a change in aggregate demand, and between 9.8% and 25.5% if eliminated by a change in the supply of tradeable goods. They estimate that depreciation would be accompanied by a 3.9% to 7.1% decline in the terms of trade. The predicted dollar depreciation is so large because about three-quarters of U.S. output is nontradeable, production cannot be quickly shifted into tradeable goods to take advantage of the depreciation, and import and export prices change much more slowly than the exchange rate. This model does not predict how much larger the CA deficit could get or how quickly it will eventually fall.²⁴

Economists Blanchard, Giavazzi, and Sa explicitly allow asset demand to influence the exchange rate, and they assume that assets from different countries are not perfect substitutes. In their model, a CA deficit would eventually decline because demand for U.S. assets is finite. Although an increase in the demand for U.S. assets would initially cause the dollar to appreciate, they argue, it would later depreciate to finance debt service (though it would remain above its pre-appreciation value). They estimate that a 15% decline in the dollar would be associated with a

²¹ Maurice Obstfeld and Kenneth Rogoff, "The Unsustainable U.S. Current Account Position Revisited," National Bureau of Economic Research, Working Paper no. 10869, October 2004.

²² In addition to the papers reviewed, similar research includes, Hamid Faruqee, et al., "Smooth Landing or Crash? Model Based Scenarios of Global Current Account Rebalancing," National Bureau of Economic Research, Working Paper no. 11583, August 2005; Richard Clarida, *G-7 Current Account Imbalances: Sustainability and Adjustment* (Chicago, IL: University of Chicago Press, 2006); Robert Dekle et al, "Global Rebalancing With Gravity," National Bureau of Economic Research, Working Paper no. 13846, March 2008.

²³ Maurice Obstfeld and Kenneth Rogoff, "The Unsustainable U.S. Current Account Position Revisited," National Bureau of Economic Research, Working Paper no. 10869, October 2004.

²⁴ Using a similar model and parameters, Cavallo and Tille suggest that the reduction in the current account balance and depreciation of the dollar could be smoother and more gradual (although ultimately by a similar magnitude) if one assumes that the net foreign debt is held constant and changes in asset valuations due to exchange rate effects are used to temporarily finance current account deficits. They estimate that the dollar would ultimately depreciate by 31%. Michele Cavallo and Cedric Tille, "Current Account Adjustment With High Financial Integration," Federal Reserve Bank of San Francisco, *Economic Review*, 2006, p. 31. Using a similar model and parameters, Engel and Rogers argue that if the U.S. grows faster than other industrialized countries in the future, then little dollar depreciation would be required to reduce the CA deficit. Charles Engel and John Rogers, "The U.S. Current Account Deficit and the Expected Share of World Output," National Bureau of Economic Research, Working Paper no. 11921, January 2006.

decline in the CA deficit equal to 1.4% of GDP. About one-third of the decline in the CA deficit results from U.S. debt being denominated in U.S. dollars, because a depreciation reduces its value. Blanchard et al. estimate that stabilizing the net-debt-to-GDP ratio at 2003 levels would require the dollar to immediately depreciate by 56% and the CA deficit to decline to 0.75% of GDP. However, assuming foreigners desire to maintain holdings of U.S. assets at their current share, their model predicts that the depreciation would be stretched over a few decades, depreciating by 2.7% a year, at most. If foreigners decided to reduce their holding of U.S. assets, the model predicts a larger, but still gradual, depreciation.²⁵

Edwards uses a similar model to simulate how much the dollar would depreciate from its 2004 level depending on different assumptions about the foreign demand for U.S. assets. Unlike Blanchard et al., he projects fairly rapid declines in the CA deficit and dollar in the future. Under his optimistic scenario, in which he assumes that the U.S. net debt will rise to 60% of GDP by 2010 and then remain constant, the CA deficit would peak at 7.3% of GDP in four years, before eventually declining to 3.2% of GDP (with most of the decline occurring in the first four years after the peak). The real value of the dollar would appreciate while the deficit was increasing, but it would decline 21% in the first three years after the deficit began falling. If net debt were to decline to 50% of GDP after 2010 instead of remaining at 60% of GDP, which would still be about double its current level, the decline in the CA deficit and dollar would be greater. Edwards calculates that the deficit would fall by 5.3% of GDP and the dollar would depreciate by 28% after three years, which would bring both measures close to their long-term projected levels.²⁶

Economists Roubini and Setser simulate what would happen to the net foreign debt over the next 10 years under three scenarios.²⁷ In the first scenario, imports and exports continue to grow at historical rates. The CA deficit would exceed 12.8% of GDP and the net foreign debt would exceed 80% of GDP by 2012. In this scenario, the authors do not believe it is plausible to assume that foreigners would be willing to finance borrowing of this magnitude, and use this scenario to argue that the current path is unsustainable. In the second scenario, the trade deficit stabilizes at 5% of GDP. The CA deficit would still increase to 8.8% of GDP in 2012 (because of higher net investment income payments), at which point the net foreign debt would exceed 70% of GDP. Servicing a debt of this size, they estimate, would cost 3% of GDP in 2012. To reduce the trade deficit to 5% of GDP, they estimate that the dollar would need to depreciate by about 10% from its 2004 level. This scenario (and the first scenario) is not sustainable in the long run because the net foreign debt would grow continuously. In the third scenario, the trade deficit declines by the end of the projection to the point where the net foreign debt stabilizes as a share of GDP. They estimate that the net foreign debt would stabilize with a trade deficit of 0.8% and a CA deficit of 1.3% of GDP. If the CA deficit gradually declined to this level in 2012, the net foreign debt would stabilize at nearly 60% of GDP, which would cost an estimated 1.75% of GDP to service in 2012. To achieve a reduction in the CA deficit of this magnitude, they estimate that the dollar would need to depreciate substantially and the federal budget would need to be balanced. All of these scenarios assume that relative interest rates remain similar to past values as the net foreign debt

²⁵ Olivier Blanchard, Francesco Giavazzi, Filipa Sa, "The U.S. Current Account and the Dollar," Massachusetts Institute of Technology, Working Paper no. 05-02, May 2005.

²⁶ Sebastian Edwards, "Is the CA Deficit Sustainable?" National Bureau of Economic Research, Working Paper no. 11541, August 2005.

²⁷ Nouriel Roubini and Brad Setser, "The U.S. as a Net Debtor: The Sustainability of the U.S. External Imbalances," working paper, August 2004, <http://pages.stern.nyu.edu/~nroubini/papers/Roubini-Setser-US-External-Imbalances.pdf>.

rises; if foreigners demanded higher interest rates, then this would feed through to a much larger CA deficit and debt path than simulated.

Economist Paul Krugman estimates that the dollar would need to depreciate by at least 35% from its 2005 value in real terms in the long run for the trade deficit to be reduced to zero.²⁸ He looks for evidence of whether this depreciation will happen gradually or abruptly. For the depreciation to be smooth, Krugman argues that it must be anticipated by rational investors, in which case they would currently require a rate of return premium to hold U.S. assets (to offset the loss suffered from the future dollar depreciation). To determine how large the premium would have to be, he considers two hypothetical paths for the dollar. In one path, the dollar declines by 1.75% annually, and net foreign debt peaks at 118% of GDP, or at least one-third of the total U.S. capital stock. If foreigners are unwilling to hold that much U.S. debt, the dollar would have to depreciate more rapidly. In the other path, the dollar declines by 3.5% annually, and net foreign debt peaks at 58% of GDP. Yet he finds no evidence of a rate of return premium anywhere near the magnitude of either 1.75% or 3.5%—after adjusting for inflation, U.S. interest rates are very close to foreign rates. This implies that foreigners do not foresee any significant dollar depreciation in the future. Therefore, he argues that when investors eventually realize how much the dollar will depreciate, they will likely sharply reduce their demand for U.S. assets, causing the dollar to plummet.

Recent experience suggests that the dollar depreciation required to put the CA deficit on a sustainable path may indeed be large. From 2002 to 2006, the dollar depreciated by 16% in inflation-adjusted terms. Despite the depreciation, the CA deficit continued to rise, both in dollar terms and as a share of GDP, from 4.5% of GDP in 2002 to 6.1% of GDP in 2006. In response to the weaker dollar, exports rose rapidly from 2004 onward, but this did not lead to a lower current account deficit because imports also continued to rise rapidly. This experience points to the fact that external factors, which can be held constant in the models discussed in this section, also influence the CA and the dollar in reality. In 2007, the dollar continued to depreciate, and the CA deficit fell to 5.3%.

The wide dispersion of estimates on the dollar depreciation associated with a decline in the CA deficit points to the complex and imperfectly understood factors that determine the dollar's value, the lack of a consensus exchange rate model that performs well empirically, and the sensitivity of theoretical models to changes in uncertain empirical parameters. Further complicating model-based projections, the path of CA adjustment is also subject to non-market forces, such as the accumulation of foreign reserves by central banks. So far, the dollar and CA deficit has not closely matched many of the models' predictions since the predictions were made. Furthermore, no model reliably answers the underlying question of how much and how quickly the CA deficit will potentially decline.

Conclusion

In the long run, running a CA deficit at current trend levels (i.e., growing faster than GDP) would result in net foreign debt continually growing relative to GDP. This is unsustainable if foreigners have a limited appetite for U.S. assets. Thus, in the long run, the CA deficit will most likely decline, although it need not decline to zero to stabilize the net foreign debt relative to GDP. Relative to GDP, the CA deficit declined in 2007 and is projected to continue to decline in 2008.

²⁸ Paul Krugman, "Will There Be a Dollar Crisis?", *Economic Policy*, July 2007, p. 436.

It is too soon to say whether this decline is being caused by temporary cyclical factors or represents the beginning of a long-term adjustment process. To date, the net foreign debt has placed no burden on the U.S. economy because U.S.-owned foreign assets have earned more than foreign-owned U.S. assets.

Whether policymakers should be concerned about a future decline in the CA deficit depends on whether the decline were to happen in an orderly or disruptive way. There is little reason to think that a gradual decline would have a deleterious effect on the overall economy. But a sudden decline, brought on by a sudden reduction in foreign capital inflows, could be disruptive to U.S. financial markets, causing negative spillover effects for the broader economy. While a sudden reduction in foreign capital inflows cannot be ruled out—it has happened to foreign countries—it seems highly unlikely. The United States is different in a number of ways from the countries that have experienced CA crises—it is much larger, its financial markets and economy are highly developed, it has a floating exchange rate, and it is seen as a safe haven in times of financial turmoil. Nonetheless, even if the risk of a sudden CA reversal is small, it is arguably worth policy consideration since it could be highly costly to the U.S. economy.

The recent financial crisis in the United States bears resemblance to the sort of scenario envisioned by economists concerned about a sudden, destabilizing outflow of capital. Yet when the crisis worsened in September 2008, the dollar began appreciating and heightened demand for certain U.S. assets, such as U.S. Treasuries, drove their prices up to unusually high levels.

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