

CRS Report for Congress

Dollar Crisis: Prospect and Implications

January 8, 2008

Craig K. Elwell
Specialist in Macroeconomic Policy
Government and Finance Division



Prepared for Members and
Committees of Congress

Dollar Crisis: Prospect and Implications

Summary

The dollar's value in international exchange has been falling since early 2002. Over this five year span, the currency, on a real trade weighted basis, is down about 29%. For most of this time the dollar's fall was moderately paced at about 3.0% to 4.0% annually. Recently, however, the slide has accelerated, falling nearly 10% between January and December of 2007. An acceleration of the depreciation brings the periodic concern of an impending dollar crisis to the fore. There is no precise demarcation of when a falling dollar moves from being an orderly decline to being a crisis. Most likely it would be a situation where the dollar falls, perhaps 15% to 20% annually for several years, and sends a significant negative shock to the U.S. and the global economies. This crisis may not be an inevitable outcome, but one that likely presents considerable risk to the economy.

The large U.S. current account deficits are sustained by an inflow of foreign capital. That inflow also exerts upward pressure on the value of the dollar as investors demand dollars to enable the purchase of dollar denominated assets. There is a limit to how much external debt even the U.S. economy can incur. Erasing the U.S. trade gap would stop the accumulation of debt. This would occur through a rebalancing of global spending, composed of a decrease of domestic spending in the United States and an increase of domestic spending in the surplus economies. Such shifts in domestic spending patterns must be induced by a depreciation of the dollar, causing the price of foreign goods to rise for U.S. buyers and the price of U.S. goods to fall for foreign buyers.

The critical factor governing whether orderly and disorderly adjustment of international imbalances occurs is foreign investor expectations about future dollar depreciation. Rational expectations will have a smoothing effect on the size of international capital flows. In contrast, a sharp plunge of the dollar is likely to occur if investors do not form rational expectations. If the dollar then depreciates at a rate faster than foreign investors now expect, a dollar crisis becomes likely. Currently foreign investors do not appear to have a realistic expectation of future dollar depreciation. A dollar crisis could start when they realize their error and try to move quickly out of dollar assets — the likely stampede would cause a “dollar crisis.” Three prominent counter-arguments to the dollar crisis prediction (the *global savings glut* argument, the *Bretton Woods II* argument, and the *economic dark matter* argument) do not offer credible alternatives to the dollar crisis outcome.

The transition to a new equilibrium of trade balances may not be smooth, likely involving a slowdown in economic activity or a recession. The ongoing U.S. housing price crisis raises the risk of a dollar crisis causing a recession. With fiscal policy most likely out of consideration in the near term, the task of attempting to counter the short-term contractionary effects of a dollar crisis would fall upon the Federal Reserve. A stimulative monetary policy can be implemented quickly but its eventual effectiveness is uncertain. The most useful policy response by foreign economies would be complementary expansionary policies to offset the negative impact of their appreciating currencies on their net exports. Attempts to defend a currency against this crisis driven appreciation would be costly and likely fail.

Contents

Introduction	1
Anatomy of Dollar Crisis	1
Possible Reasons Why A Dollar Crisis Won't Occur	5
Global Savings Glut	6
Bretton Woods II	6
Dark Matter	8
Liquidity Services	9
Insurance Services	9
Knowledge Services	9
The Macroeconomic Effects of a Dollar Crisis	10
The Response of Economic Policy	11
Response of U.S. Economic Policy	11
Response of Foreign Economic Policy	12
Conclusion	13

Dollar Crisis: Prospect and Implications

Introduction

The dollar's value in international exchange has been falling since early 2002. Over this five-year span, the currency, on a real trade-weighted basis, is down about 29%.¹ This depreciation has been orderly so far. For most of this, time the dollar's fall was moderately paced at about 3.0% to 4.0% annually. Recently, however, the slide has accelerated, falling nearly 10% between January and November of 2007, but falling faster over the last four months than during the previous seven months.

An acceleration of the depreciation brings the periodic concern of an impending dollar crisis to the fore. There is no precise demarcation of when a falling dollar moves from being an orderly decline to being a crisis. Most likely it would be a situation where the dollar falls, perhaps 15% to 20% annually for several years, and sends a significant negative shock to the U.S. and the global economies. This crisis may not be an inevitable outcome, but one that likely presents considerable risk.

That negative shock will likely lead to some degree of slowing of economic activity. For the U.S. economy, already weakened by the ongoing housing price crisis, a further dampening effect caused by a plummeting dollar would significantly raise the risk of recession. For the rest of the world, the impact would also depend on what else was going on in their economies at the time of the dollar's fall. It is likely that the negative impact would be substantial for foreign economies that are highly dependent on export sales to the United States.²

This concern about the dollar's near-term path raises three questions: (1) will a dollar crisis occur? (2) what macroeconomic impact might a dollar crisis have on U.S. economy, and the world economy? and (3) are there policy responses that can counter adverse impacts?

Anatomy of Dollar Crisis

The large U.S. current account deficits are sustained by an inflow of foreign capital. The necessary counterpart for this inflow to occur is economies in the rest of the world that generate capital outflows and run trade surpluses. The country with a

¹ The trade-weighted exchange rate index used is the *real broad index* reported monthly by the Board of Governors of the Federal Reserve System.

² For an early treatment of the dollar crisis scenario, see Stephen Marris, *Deficits and The Dollar: World Economy at Risk*, Institute for International Economics, Washington DC, 1985.

trade deficit is an international borrower and is accumulating external liabilities. The economies with trade surpluses are international lenders and accumulate external assets.

The capital inflow to the United States also exerts upward pressure on the value of the dollar as investors demand dollars to purchase dollar denominated assets. The upward demand pressure on the value of the dollar is pulling against the downward pressure on the dollar exerted by the large supply of dollars pumped into the foreign exchange markets by the U.S. trade deficit. From the mid-1990s until early 2002, the strength of foreign demand for dollar assets was sufficient to keep the dollar appreciating despite the rapid expansion of the trade deficit in this time period. Since 2002, however, although the United States continued to receive a rising inflow of capital, the strength of the associated demand for dollars has not been sufficient to prevent the dollar from depreciating moderately under the weight of large current account deficits in this time period.³

This external financing of the U.S. current account deficit has occurred with relative ease so far. But large scale borrowing can not go on indefinitely. There is a limit to how much external debt even the U.S. economy can incur. Currently, the U.S. debt/GNP ratio is at a historical high of about 22%. It is uncertain how much higher this ratio can go, but most economists would argue that there is an upper bound and at some point the US. trade deficit will need to be closed to stabilize the level of external debt at a feasible level.

Erasing the U.S. trade gap will require a rebalancing of global spending. A trade deficit is a symptom of an economy that spends more than it produces; therefore, rebalancing requires a decrease of domestic spending in the United States. In contrast, a trade surplus is a symptom of an economy that spends less than it produces; therefore, rebalancing requires an increase of domestic spending in surplus economies. These shifts in domestic spending patterns can be induced by a decrease in the price of U.S. goods and services relative to the price of foreign goods and services. For the change in relative prices to happen the dollar must fall, causing the price of foreign goods to rise for U.S. buyers and the price of U.S. goods to fall for foreign buyers. In addition to the downward pressure on the dollar of the large trade deficit, an important animating force in this adjustment would likely be a reduction in the demand for dollar denominated assets by foreign investors and a shrinking of the associated capital inflow.

This rebalancing of global spending does not have to be disorderly and disruptive. The major depreciation of the dollar that followed the breakup of the Bretton Woods international monetary system in the early 1970s was largely orderly. More recently, the protracted fall of the dollar and reduction of the U.S. trade deficit in the late 1980s and early 1990s was also an orderly adjustment of international economic imbalances.

³ For a more extensive discussion of international asset flows and the trade deficit, see CRS Report RL31032, *The U.S. Trade Deficit : Causes, Consequences, and Cures*, by Craig K. Elwell.

Why might a disorderly adjustment and dollar crisis occur? The critical factor is foreign investor expectations about future dollar depreciation. Economic theory indicates that a rational foreign investor in deciding whether to hold more or continue to hold his current dollar assets will build into that decision some estimate of future dollar depreciation. For example, a dollar asset and a euro asset each of similar risk and each offering a 2% real return would present very different *expected* returns if the dollar is expected to depreciate 4% annually and the euro to remain steady over the holding period. With these expectations, the rational investor would need the dollar asset to offer a real yield in excess of 6% to make it more attractive than the euro asset at 2%.

A moderation of market behavior and crisis free adjustment occurs when foreign investors develop rational expectations about the currency's future path. Rational expectations about the dollar's future path will have a smoothing effect on the size of international capital flows. In a time of capital inflows, some expectation of possible future depreciation tends to moderate those inflows. Conversely, in a time of capital outflows, some expectation of possible future appreciation will tend to moderate those outflows.

In contrast, a sharp plunge of the dollar is likely to occur if investors do not form rational expectations about the dollar's future path. If the dollar then depreciates at a rate faster than foreign investors now expect, a dollar crisis becomes likely. The rate of depreciation of the dollar that is rational to expect is the rate which is consistent with avoiding the accumulation of an unsustainable level of U.S. external debt. It is, however, difficult to say what that debt level is. Nevertheless, there is a debt/GDP ratio that prudent economic agents will judge to be an upper bound. Given that, the question becomes: what rate of dollar depreciation will give a rate of closure of the trade deficit that contains the debt/GDP ratio below that upper bound?

The economist Paul Krugman has calculated a range of estimates of U.S. external debt accumulation under alternative rates of convergence of the trade deficit to balance.⁴ He assumes, based on the general consensus of experts, that a further real depreciation of the dollar of about 35% would, at a minimum, be necessary to close the U.S. trade gap.⁵ He then considers two rates of convergence to this goal: one occurring over 20 years with a 1.75% annual rate of depreciation of the dollar. It leads to an external debt/GDP ratio of 118%. At that size it is possible that a third or more of the U.S. capital stock would be foreign owned. The second scenario has convergence occurring over 10 years with an annual rate of depreciation of the dollar of about 3.75%. It leads to an external debt/GDP ratio of 58%, which is more than twice the size of the current historically high level of U.S. debt/GDP ratio. That seems high for a large, relatively closed economy like the United States, but, perhaps, plausible given the current trends in financial globalization.

⁴ Paul Krugman, "Will There Be a Dollar Crisis," *Economic Policy*, July 2007.

⁵ See, for example, Micheal Obstfeld and Kenneth Rogoff, "Global Current Account Imbalances and Exchange Rate Adjustment," *Brookings Papers on Economic Activity*, no. 1, 2005.

Guarding against an overly pessimistic outcome, these computations incorporate significant constraints on the growth of the external debt/GDP ratio. For instance, each estimate of the eventual debt to GDP ratio assumes that nominal GDP will grow at an annual rate of 5.5%, with a combination of 3.0% real GDP growth and 2.5% inflation rate. This could be a slightly optimistic assumption for the pace of real GDP growth, which has averaged only 2.7% in the current economic expansion. Slower growth of GDP would make the Debt/GDP ratio climb faster.

Also, Krugman's external debt estimates take into account the tendency of a depreciating dollar to improve the U.S. net debt position. This improvement is caused by favorable valuation effects on U.S. foreign assets. These occur because U.S. foreign liabilities are largely denominated in dollars, but U.S. foreign assets are largely denominated in foreign currencies. Therefore, a real depreciation of the dollar increases the value of U.S. external assets and largely does not increase the value of U.S. external liabilities. This asymmetry in the currency composition of U.S. external assets and liabilities results in a dollar depreciation reducing U.S. net external debt.⁶

Exchange rate induced valuation effects are substantial because they apply to the entire stock of U.S. foreign assets, valued at near \$14 trillion in 2006. The large scale of U.S. foreign assets means that valuation changes can offset a sizable portion of the current account's deficits annual addition to the existing stock of external debt. For example, in 2006, the current account deficit made a \$811.4 billion contribution to U.S. external debt. But the total value of net external debt in 2006 increased only about \$300 billion due to an offset of over \$500 billion (over 60%); nearly half of this offset was attributable to positive valuation effects on U.S. foreign assets caused by the dollars depreciation that year.⁷ If rapid dollar depreciation causes significant numbers of future lenders to be only willing to hold non dollar denominated U.S. debt the scale of the positive valuation effects would shrink and make the debt/GDP ratio climb faster.

In addition, one could argue that the 35% real depreciation target understates what is needed to close the current account deficit. For the United States, the equilibrium exchange rate is probably a moving target, and one whose path has been uneven but on balance has fallen over the past 30 years. This secular decline is thought to be rooted in rising technology in emerging economies that has allowed them to generate a steady rise in exports that compete with U.S. tradable goods. It is difficult to predict the pace of this secular decline, but during the 10- to 20-year convergence period used in this analysis, it is possible that reaching the equilibrium exchange rate will require more than the exercise's assumed 35% real depreciation of the dollar.

⁶ Most countries are not able to borrow in their own currency so a fall of their exchange rate will tend to increase their net external debt. This was the problem that plagued the economies caught in the Asian financial crisis in 1997, when their crashing currencies ballooned their external debt to such a degree that they became insolvent.

⁷ For further details on net external debt and valuation effects see U.S. Department of Commerce, Bureau of Economic Analysis, *U.S. Net International Investment Position*, July 2007.

Taken together, these considerations probably give Krugman's computations of the implied rise of the debt/GNP ratios a bias toward understatement. Nevertheless, the scale of the U.S. trade imbalance that needs to be eliminated causes the estimated ratio to soar in either alternative. If these estimates are understated, then even more rapid real depreciation would be needed to erase the trade deficit and keep the debt to GNP ratio below a realistic upper bound.

Based on these computations, Krugman argues that a rational foreign investor would have to expect the dollar to depreciate by, at least, about 2% per year and very likely depreciate by 4% per year or more. Do holders of U.S. assets appear to have taken this probable depreciation into account? It appears they have not. Using estimates of real long-term interest rates in the United States, the euro area, and Japan, Krugman finds no difference in real yield between the U.S. and euro area assets, and about a 1 percentage point advantage for U.S. assets over Japan's assets.

This lack of a real interest rate spread between dollar assets and similar foreign assets indicates that investors are expecting virtually no depreciation of the dollar over the holding period. Therefore, in the face of a seemingly inevitable depreciation of the dollar at 2% or faster, these investors are holding U.S. assets that offer, in terms of their own currency, a zero or negative real return.

When foreign investors come to realize their error and try to avoid large capital losses by moving quickly and substantially out of dollar assets, the dollar will fall precipitously and the dollar crisis begins. As the dollar's fall gains momentum there are likely to be negative interactions with domestic financial markets and domestic economic activity that will add to this downward momentum, overcoming, for awhile, the usual corrective mechanisms.

In a dollar crisis, it is unlikely that the current account deficit could decrease as rapidly as foreign investors would desire to curtail the inflow of capital to the United States. But the current account deficit will have to be financed. This economic necessity will generate strong economic forces to assure that the needed economic adjustments, at home and abroad, occur. The necessary macroeconomic adjustments will be discussed in a subsequent section of the report. At this point it will be useful to consider possible counter arguments to a dollar crisis happening.

Possible Reasons Why A Dollar Crisis Won't Occur

Over the last few years, several arguments that offer reasons why the U.S. trade deficit is more sustainable and a dollar crisis less likely than presented in Krugman's analysis have received serious consideration in policy discussions about the U.S. trade deficit and the associated rise of U.S. external debt. This section evaluates three prominent counterarguments to the dollar crisis prediction: the *global savings glut* argument, the *Bretton Woods II* argument, and the *economic dark matter* argument.⁸

⁸ Paul Krugman, "Will There Be a Dollar Crisis," *Economic Policy*, July 2007, also examines these arguments.

Global Savings Glut

Ben Bernanke, now chairman of the Federal Reserve Board, has argued that there exists outside of the United States a large excess of global saving relative to global investment opportunities.⁹ These large and growing flows of foreign saving are the result of the rapid economic growth of many emerging economies and large oil earnings by petroleum exporting countries. A large share of these funds are not going to be used in the home economy and are attracted to U.S. asset markets because they offer excellent wealth storage services. This service encompasses the ability of U.S. asset markets to offer a combination of reasonable rates of return, safety, and high liquidity. The result has been unusually large capital inflows to the United States.

These inflows of capital have kept U.S. interest rates low and have exerted strong upward pressure on the value of dollar. It is argued that this saving glut could continue to grow for many years into the future. Therefore, it will continue to enhance the sustainability of the U.S. trade deficit and, in turn, provides sustained and substantial upward pressure on the value of the dollar. This persisting inflow does not preclude depreciation of the dollar but would moderate the depreciation and greatly reduce the risk of a dollar crisis.

While the existence of a global savings glut can help explain why the large U.S. trade deficit has been sustained with relative ease well beyond what many experts had expected, it does not avoid the looming reality of there being an upper-bound on U.S. net external debt. And, that this debt ceiling creates the inevitable need for a large real depreciation of the U.S. dollar. A saving glut can explain why global real interest rates are low. But it does not avoid the problem posed by those rates being as low as rates in both the United States, a deficit country, and the surplus economies.

This anomaly occurs because foreign investors in dollar assets are not taking into account the impending need for a sustained and substantial real depreciation of the dollar. When this risk becomes apparent to those investors, they will hurry to find other destinations for their savings. If that happens, the dollar would plummet.

Bretton Woods II

Some economists have characterized the current global monetary arrangement as Bretton Woods II (BWII).¹⁰ The first Bretton Woods (BWI) was the global monetary arrangement in place from the end of World War II through 1973. BWI was a formal system of fixed exchange rates centered on the dollar. Other countries were obliged to maintain their currencies value relative to the dollar. When needed, this adjustment was accomplished by foreign central banks buying or selling foreign exchange to keep their currencies' value at the fixed parity with the dollar. The

⁹ See Ben Bernanke, "The Global Savings Glut and the U.S. Current Account Deficit," the Sandbridge Lecture, Virginia Association of Economics, March 10, 2005; and CRS Report RL33140, *Is the U.S. Trade Deficit Caused by a Global Saving Glut*, by Marc Labonte.

¹⁰ Michael P. Dooley, David Folkerts-Landau, and Peter Garber, *An Essay on the Revived Bretton Woods System*, NBER Working Paper 9971, 2003.

speculative crises caused by relatively free flowing international capital that plagued the inter-war years were to be prevented by strict controls on the flow of capital between economies. This system worked reasonably well in the early post-war period. But accumulating pressure for a major dollar devaluation and increasingly porous capital controls led to its breakdown in the early 1970s. Since 1973, most major economies have allowed their currencies to, more or less, float freely on the global foreign exchange markets, allowing its exchange value to be driven by the international supply and demand for its goods and assets. Capital controls were also largely abandoned by these nations.

BWII is not a formal arrangement or organization. It is a de facto arrangement whereby central banks, particularly in Asia, amass dollar reserves so as to stabilize their currencies value relative to the dollar. This stabilization is achieved by the central banks buying dollar assets sufficient to keep their currencies from rising relative to the dollar. It is also supported by the BWII economies imposing significant controls on capital flows to and from their economies. Not letting their currencies rise relative to the dollar enables them to maintain the competitiveness of their exports in the U.S. market and perpetuate a successful development strategy driven by export-led growth. China has been an important participant in this arrangement, with its central bank in recent years amassing well over \$1 trillion in foreign exchange reserves, a large proportion being various dollar assets.

With China at its center, it could be argued that because BWII has been a very successful development strategy for China, and because that country still has over 300 million non industrial workers to absorb into its industrial and service sectors, this de facto monetary arrangement will endure for many more years, and continue to exert strong upward pressure on the value of the dollar, countering any tendency towards a dollar crisis.

However, serious questions can be raised about the stability of BWII.¹¹ One potential problem is that such large scale accumulations of foreign exchange reserves can have disruptive macroeconomic and financial effects on the accumulating economy. To prevent the foreign exchange reserves from causing an unwanted increase the country's money supply, its central bank must *sterilize* the accumulation of foreign currency assets. It does this by purchasing compensating amounts of domestic assets which pulls money out of the economy.

Sterilization of dollar inflows on such a large and growing scale, however, will be an increasingly difficult task for China and other emerging economies. They have small and immature asset markets that are unlikely to be able to continue to effectively sterilize further large scale reserve growth. It is likely that this foreign liquidity will begin to leak into their domestic economy and push up the money supply. This would, in turn, lead to increased inflation and a domestic lending boom

¹¹ Neil Roubini and Brad Sester, "Will the Bretton Woods II Regime Unravel Soon? The Risk of a Hard-Landing in 2005-2006," presented at Symposium sponsored by the Federal Reserve Bank of San Francisco and the University of California, Berkeley, San Francisco, 2005.

that generates asset price bubbles. This could cause significant disruptions in their weak financial markets and adversely affect their economic activity.

In addition, the balance sheets of the foreign central banks that hold large amounts of dollar assets are exposed to large losses if the dollar crashes. Collectively, the BWII central banks have an incentive to hold on to their dollar assets to preserve the value of these holdings. Individually, however, the BWII central banks have an incentive to sell their dollar assets if they suspect the dollar will soon plunge. Therefore, the stability of BWII is highly dependent on how much cooperation there is among these central banks.

Further, a large share of the capital inflow to the United States comes from private investors whose economic incentives are different than those of the BWII central banks. Perhaps foreign private investors remain heavily in dollar assets because they think that BWII can prevent a dollar crash. But there is no strong basis for such a belief. The efficacy of BWII would be evident if at some point it had demonstrated an ability to sustain the dollar's value despite an outflow from the United States of private capital motivated by realistic expectations about the dollar's future falling path. But, what has been occurring are large official inflows along with large private inflows that are accepting a real return that is insufficient to compensate for the expected rate of fall of the dollar which realistically must occur.

If BWII is to offset the outflow of private capital based on realistic expectations of the dollar's future path, the BWII central banks would need to increase their already huge dollar reserves by an amount that is probably not feasible. And the problem posed by there being an upper bound to the U.S. debt/GNP ratio would still remain. BWII seems unlikely to be seen as a reliable barrier to a plummeting dollar once foreign investors see the need to adjust to more realistic expectations of the dollar's future path.

Dark Matter

Another perspective on the U.S. international balances has been presented by the economists Ricardo Hausmann and Federico Struzenegger.¹² It is their contention that there are large measurement errors in the U.S. trade data that cause a big understatement of U.S. exports and, in turn, a big overstatement of the size of U.S. net external debt. In their opinion this error is of a magnitude that the current account balance has actually been in surplus in recent years and that the United States is an external net creditor, not a debtor. The principal evidence of this is that despite a seeming huge net external debt the United States has consistently run a sizable surplus in the investment income portion of the current account.

The unmeasured exports are not picked up in the export data because they are services hidden within U.S. capital outflows. Once abroad, these assets generate

¹² Ricardo Hausmann and Federico Sturzenegger, "U.S. and Global Imbalances: Can Dark Matter Prevent the Big Bang?," (Kennedy School of Government, Harvard University, Unpublished Working Paper: Cambridge, 2005) and CRS Report RL33570, *U.S. External Debt: How Has the United States Borrowed Without Cost*, by Craig K. Elwell

an income stream that is measured as investment income in the current account data. These invisible assets have been named *dark matter* because they, like the astronomical phenomenon, have a visible effect — generating investment income — that is caused by unseen service exports. It is contended that the dark matter effect is large. With proper accounting, it transforms a net debt position of about \$2.5 trillion to a net surplus position of about \$600 billion.

Three classes of invisible exports are said to exist: global liquidity services, global insurance services, and knowledge services. The three exports, in turn, are attached respectively, to three types of capital outflows: U.S. currency, U.S. sovereign debt, and U.S. foreign direct investment.

Liquidity Services. This service is derived from the U.S. currency's special status as a global source of liquidity. A large portion of the \$700 billion Federal Reserve Notes in circulation are held abroad. Estimates of the share vary from a low of 30% to a high of 70%. The holding of this currency by foreigners is equivalent to an interest free and irredeemable loan to the United States with an implicit value of as much as \$25 billion.

Insurance Services. It is argued that the world economy uses low-risk U.S. Treasury Securities to fill out the low-risk end of their investment portfolios. Much like a global bank, the United States can then use these proceeds to invest in higher yielding bonds from emerging economies. This amounts to the world exchanging a risky asset for a safe asset and the yield difference is the equivalent of an insurance premium the world pays the U.S. for lowering its risk.

Knowledge Services. This service is said to occur because U.S. foreign direct investment embodies a host of unmeasured assets. These services are in the form of know-how, brand recognition, expertise, and research and development. This is the form of dark matter that proponents see as the most important.

The major implication of the dark matter argument for the dollar is that because the true state of the U.S. trade position is not precarious and because the United States is not a net external debtor, there is no need for a dollar depreciation to keep the debt to GNP ratio within bounds. Foreign investors could be quite willing to hold more dollar assets despite their having little apparent yield advantage over foreign assets. The risk of a dollar crisis in this circumstance would be small.

While there is probably some merit to the dark matter argument, most economists would argue that the scale of the effect is vastly smaller than claimed by its proponents. For that reason, economic dark matter probably does little to forestall the need for a substantial correction of the U.S. trade deficit. And that correction must be set in motion by a substantial real depreciation of the dollar, beyond the depreciation that has already occurred, and that will persist for several years.

The Macroeconomic Effects of a Dollar Crisis

In the standard macroeconomic model, a reduction of foreign capital inflows would have no long-term effect on aggregate spending and output. A real depreciation of the dollar would encourage U.S. export sales and discourage domestic spending on imports, *increasing net exports* and shrinking the trade deficit. At the same time foreigner's reduced willingness to hold dollar assets will reduce the inflow of foreign capital, pushing down the price of U.S. securities, and pushing up U.S. interest rates. Higher interest rates would then induce a *decrease in interest sensitive spending* such as residential investment, consumer durables, and business investment. In the end, the trade deficit would be gone, the composition of U.S. spending and output would change, but there would not be any change in the total level of spending and output.

The transition to this new equilibrium of trade balances, however, may not be smooth. Some argue that there could be a very rough transition involving a sharp slowdown in economic activity or a recession. Substantial near-term slowing of economic activity would occur if the decrease of U.S. domestic spending occurs more quickly than the increase of U.S. net-exports. Interest sensitive purchases tend to be more postponable than other domestic spending and would likely fall relatively quickly as interest rates spiked. Net exports' response could be significantly slower. The peak effect on net exports in response to a currency depreciation is usually about two years later. However, in this situation the scale of adjustment needed to eliminate the trade deficit is unusually large and will involve large shifts of resources into the production of tradable goods which take time. This could slow the response of net exports further.

What aggravates this situation and significantly adds to the risk of a dollar crisis triggering a recession is the U.S. economy's ongoing burden of adjusting to the housing price crisis. Falling home prices reduce household wealth, discouraging household spending, and dampen aggregate spending. As with most markets, there is a self correcting mechanism that facilitates beneficial adjustment in the housing market. This occurs as weaker aggregate demand also weakens the demand for credit and causes interest rates to decrease. By stimulating interest sensitive spending, falling interest rates, other things equal, arrest some of the downward impulse on aggregate demand of falling housing prices.

However, if the economy must also endure the disruptive effects of a plummeting dollar, other things would not be equal. In a dollar crisis, great numbers of foreign investors are attempting to sell large amounts of dollar assets at the same time causing dollar asset prices to fall sharply and interest rates to rise sharply. Interest rates will continue to rise until a sufficient number of dollar-averse investors can be enticed to offer enough capital to finance the slowly shrinking current account deficit. An interest rate spike like this is likely to forestall any ameliorating effect of otherwise falling interest rates on the housing crisis, slowing aggregate demand more than would otherwise occur.

In this environment, where two crises exert downward pressure on aggregate spending, the risk rises that the short-term adjustment of the U.S. trade balance could involve a much quicker and much larger slowing of domestic spending with so little

near-term boost from rising net exports. This magnified near-term negative impact could be sufficient to cause a recession.

The Response of Economic Policy

The ability of conventional fiscal and monetary policy, here and abroad, to counter the near-term contractionary effects of a dollar crisis is problematic.

Response of U.S. Economic Policy

When the government budget is in deficit, it reduces domestic saving and when in surplus it increases domestic saving. Therefore, conceptually an infusion of government saving caused by policy actions that reduce the federal budget deficit could compensate for the dwindling flow of foreign savings stemming from foreign investors move out of dollar assets. Governments adding to the domestic flow of saving would tend to decrease interest rates and stimulate aggregate spending. This would also mean that the trade balance adjustment could occur with out a reduction of domestic investment. An outcome, that bodes better for productivity and the long-term growth of the U.S. living standard.

However, to get to this point there would first be an initial dampening effect flowing from the government's budget deficit reducing actions of spending less, taxing more, or doing both. In the short run, a negative fiscal impulse in conjunction with the already occurring short-run negative effects of the housing crisis and dollar crisis would amplify the recession risk. Also, the impulse toward lower interest rates would mute the self-correcting effect of a rising interest differential between dollar assets and foreign assets that would otherwise help to slow the dollar's fall.

Again, conceptually the short-term negative effects of fiscal tightening on aggregate spending could be countered by a complementary short-term monetary stimulus which spurs spending through exerting downward pressure on interest rates. In practice, however, whether alone or in tandem with monetary policy, the use of budget deficit reduction as a policy response to the near-term problems of a dollar crisis is improbable. The necessary tax and spending changes are unlikely to be implemented quickly enough. Over a longer time horizon, where fiscal action may be more likely, increased government saving from budget deficit reduction would prevent the dwindling inflows of foreign saving from causing an undesired compression of U.S. domestic investment.

With fiscal policy most likely out of consideration in the near-term, the task of attempting to counter the short-term contractionary effects of a dollar crisis would fall upon the Federal Reserve. It would most likely do this by pumping liquidity into the economy and exerting downward pressure on interest rates. Monetary policy can be implemented quickly and its favorable effect felt with a modest time lag. Nevertheless, there are some potential constraints on the Fed's ability to follow a stimulative monetary policy during a dollar crisis.

One potential constraint is a consequence of the dollar depreciation inducing a increase in U.S. inflation by causing the price of U.S. imports' to rise sharply. This inflation effect will be muted by import's relatively small share of final demand. Also many foreign producers will, to preserve market share, prevent a full pass-through of the exchange rate change to the price of their products exported to the United States. Nevertheless it is still possible that the scale of dollar depreciation in a crisis could lead to a 1 to 2 percentage point jump in the inflation rate. This inflation effect would stop once the dollar stabilized. But to prevent this inflation spurt from generating an increase in inflation expectations and causing a more enduring run-up of inflation, the Fed might be reluctant to validate those expectations by continuing to provide monetary stimulus.

Another possible constraint on fully pursuing policy of monetary stimulus is that if the fall of the dollar is seen by the Fed to be too extreme, policy action may be needed to gain some control over the falling currency. Most likely this would involve changing direction and increasing interest rates to entice foreign investors back to dollar assets.

Even if the Fed does not relent in applying monetary stimulus, the traditional channel for doing this is by targeting short-term interest rates, usually the nominal federal funds rate. However, that rate can only be decreased to zero. With the nominal federal funds rate already down to about 4.25%, there is a question of whether sufficient monetary stimulus could be applied before this rate reaches the so-called zero bound.

At this point, there are non traditional ways that might be used to implement monetary policy. These include targeting longer-termed federal securities, making direct loans to banks, or altering inflation expectations (i.e., lowering real rates via a credible commitment to higher future inflation) that could be used. It is still uncertain, however, if these untried alternative monetary policy levers are effective and, if effective, whether that effect can be delivered to the economy quickly enough to counter the sharp short-term negative impulse to domestic spending of a fast falling dollar.

Response of Foreign Economic Policy

The economic policy response of other economies, particularly those with trade surpluses, could help or hinder the macroeconomic adjustment forced by a dollar crisis. As discussed earlier, a falling dollar (and rising foreign currencies) is the instrument that will lead to a rebalancing of world spending. For economies with trade surpluses the rebalancing would manifest as a increase of domestic spending and decrease of net exports.

As was true for the United States, after the rebalancing has been completed, affected foreign economies total spending and level of output would be unchanged. The negative effects from the decrease in net-exports caused by their currencies appreciation will be counter-balanced by the positive effect from lower interest rates, pushed down by increased capital inflows, boosting domestic spending. Like the United States, however, the rest of the world's near-term transition to this new equilibrium might not be smooth, and also carry an elevated risk of recession.

Many U.S. trading partners have relied on export sales to the American market as their principal, or at least their major, engine of economic growth. This practice is most overt in those economies that tie their currency to the dollar so that dollar depreciation does not reduce the price competitiveness of their exports. In a dollar crisis, there could be a temptation to try to continue to prevent their currencies from appreciating against the dollar. Defending their currencies would slow the global adjustment. But it is unlikely to be successful policy, however, in the face of a global attempt to move out of dollar assets and a plummeting dollar. The likely aftermath of such an attempt would be that these economies would be left holding an even larger stock of dollar assets whose value is a fraction of what it was when purchased.

The deflationary impact of a rising currency would help economies, such as China, that are facing an inflation problem. On the other hand, it could cause problems for a country like Japan that still teeters on the edge of deflation.

In general, a more useful policy response by foreign economies would likely be expansionary economic policies sufficient to boost domestic spending and offset the near-term negative impact of an appreciating currency on their net exports. Because this stimulus must be applied quickly for it to be effective, the task would most likely be undertaken by the monetary authorities.

As was true for the United States, it is problematic whether the application of a stimulative monetary policy by the central banks of the surplus economies would have sufficient positive effect on aggregate spending in the near-term to avoid a strong downward push on global economic activity. In economies that are already facing a significant inflation problem, such as China, there could be a reluctance to fan the inflationary flames any further by undertaking added monetary expansion. In any event, a cooperative policy response by the United States and its major trading partners would certainly help to smooth the global adjustment to a dollar crisis.

Conclusion

Predicting the path of exchange rates is always an endeavor with an above normal level of uncertainty. Nevertheless, it seems undeniable that a further sizable depreciation of the dollar is necessary in the long run to keep the United States' large and growing external debt within realistic bounds. It is difficult, however, to predict how global investors who hold the U.S. external debt will respond to the seemingly large erosion of the value of those dollar assets caused by this inevitable depreciation of the dollar.

A rational response to holding a currency unable to perform its role as a store of value would be to move quickly into assets denominated in other more stable currencies. Yet, despite the sizable depreciation of the dollar that has already occurred, foreign investors continue to hold dollar assets. There are reasons, in addition to the store of value function, to hold those assets. Safety and liquidity are two other important reasons, both functions that the wide and deep dollar asset markets perform very well. Also, many investors pursue very long term goals and could be willing to ignore short run risk. It seems unlikely, however, that these other reasons for holding dollar assets, would continue to trump the dollar's rapidly

dwindling ability to provide the store of value function. If so, then a sharp dollar fall could be just ahead.

A plummeting dollar would have positive and negative effects on the world economy as well. Eventually the positive and negative impacts on the level of economic activity should be offsetting, but it would leave the world economy with more stable external balances. But, there is reason to be concerned that in the short-run the negative effects may be dominant, raising the risk of recession.

The triggering of a recession by a plummeting dollar will depend on what else is going on in the economy when the currency crashes. If already weakened by other forces, the risk of recession would grow much larger. If generally good economic conditions prevail, then economic activity is likely to slow in the near-term but avoid a recession.

It is important to take into consideration that the U.S. economy is large and resilient, and able to absorb substantial shocks without necessarily transmitting a significant adverse effect on overall economic activity. In contrast, a dollar crisis is likely to send a more devastating economic blow to economies that are highly dependent on exporting to the U.S. market to sustain their economic growth.