EXCHANGE RATE POLICY

The J-Curve, the Fire Sale, and the Hard Landing

By Paul Krugman*

The dollar peaked almost four years ago. The subsequent era of dollar decline, that has now lasted longer than the era of the strong dollar, has confounded the expectations of both optimists and pessimists. Optimists believed that a return of the dollar to historical levels would quickly bring about a restoration of U.S. external balance; yet although the dollar is now by any measure below its previous low point in the late 1970s, the United States continues to run current account deficits that would have been inconceivable a decade ago. Pessimists feared that a declining dollar would lead to capital flight, cutting off the supply of foreign savings on which the U.S. economy has become dependent; yet capital inflows have remained large, and there has so far been little sign of financial crisis due to a loss of foreign confidence.

The failure of a declining dollar to produce either good news about trade or bad news about financial markets has led to a recasting of the debate. There are still optimists, but their optimism no longer takes the form of cheerful predictions of a rapid decline in the trade deficit. There are still pessimists, but they no longer predict a “hard landing” in which a cutoff of capital creates a dramatic economic crisis.

The new optimists, instead of predicting fast improvement in trade, ask what is so bad about a trade deficit. They point to the fact of continuing capital inflow, and conclude that the United States will not have any problem with financing its investment for many years. Of course the budget deficit needs to be brought down, and the national savings rate increased, but there is no urgency: foreigners have been willing to cover the gap between savings and investment for the last seven years, and will surely be willing to do so for some while longer, while a “flexible freeze” slowly reduces the federal deficit and private savings spontaneously recover.

The new pessimists look at the same facts, and reach a different conclusion: that dollar depreciation has failed, and indeed been disastrous. The trade deficit remains huge; meanwhile foreigners have bought up large quantities of U.S. assets at bargain prices, thanks to the weak dollar. The problem, as now seen by the pessimists, is not that the United States is on the verge of sudden crisis, but that it is selling its birthright for a mess of pottage.

The purpose of this paper is to argue that both the new optimism and the new pessimism on the dollar are off the mark. The optimists, in looking at the continuation of capital inflows, have failed to notice that this continuation results from the sluggish response of trade flows, not from continued foreign confidence. The pessimists are correct in their observation of a “fire sale” in which the United States has been able to continue to attract capital inflows only by making its assets much cheaper through dollar depreciation. They are wrong, however, in decrying this fire sale as a great mistake; it is in fact an inevitable part of the adjustment process. And both optimists and pessimists have been too quick to dismiss the possibility of a hard landing for the U.S. economy: a financial squeeze due to a cutoff of foreign capital is not only a live possibility, it is arguably already in process.

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I. Capital Inflows and the Fire Sale

When the dollar was at its peak, economists who warned of trouble ahead feared that once the bubble burst there would be a cutoff of the supply of foreign capital, leading to a financial hard landing. Experience has thus far belied this fear. Even though the current account deficit actually widened in nominal terms until recently, the United States has continued to finance this deficit without any obvious strain. This absence of crisis has led to a new consensus among many economists: that the external deficit is a problem only because of its long-run implications for living standards, not because of prospective problems of financing.

The combined persistence of the current account deficit and of capital inflows—which are, of course, equal—has led to a reversal of opinions among many about the wisdom of allowing the dollar to decline. A few years ago, the orthodox view that the strong dollar was a key factor in the plunge of the United States into net debtor status was generally accepted. Now, however, a growing body of opinion holds that the strategy of weakening the dollar has actually worsened rather than improved the U.S. position as a debtor. In this view, which we may describe as the fire sale theory, the main effect of a cheap dollar is not to make U.S. goods more competitive, but to make U.S. assets cheap. Foreigners in general, and the Japanese in particular, therefore are more, not less, able to buy up U.S. assets.

The fire sale view is sometimes expressed in melodramatic terms, as something that will turn us all into paupers within a few years. This is an overdrawn picture. Yet there is clearly some truth here. Those who look only at the flow of foreign capital into the United States since 1985, and not at the decline in the dollar needed to attract that capital, are missing an important aspect of the situation.

Yet there is also something wrong with the fire sale view. Many of its advocates treat the dollar’s decline as if it were some kind of exogenous event, foisted upon the country by James Baker. They also treat the sale of U.S. assets at bargain prices as if it represented a pure windfall to foreign investors. This cannot be right. If U.S. assets are such a good buy, then why is it that their prices do not get bid up? And if it is now so attractive to invest in the United States, should not the desire to keep investing here drive up the value of the dollar? The point is that neither asset prices nor the value of the dollar (which is an asset price itself) can be regarded as given.

In order to make sense of what has been happening to the United States in recent years, it is necessary to tell a more complete story. In this story the key element is the sluggish response of trade flows to the exchange rate.

II. Confidence, the J-Curve, and the Exchange Rate

Suppose that international investors were suddenly to lose confidence in the United States. What it means to “lose confidence” is a slightly problematic issue; perhaps investors start to demand a risk premium on U.S. assets, perhaps they revise downward their views about the long-run equilibrium real exchange rate, or perhaps they start to have a “peso problem,” viewing a catastrophic fall in the dollar as a possibility though not a probability. Whatever the precise nature of the loss of confidence, the important point is that we suppose that investors become unwilling to hold claims on the United States at their current rates of return.

What happens next? Investors cannot simply pull their money out of the United States, since there would be nobody on the other side of the transaction. When everybody wants to sell, the result is not a lot of sales but a fall in the price. The immediate result of a loss of confidence in the United States, then, is not a sudden flight of capital but a sudden fall in the dollar.

The textbook view of what happens next is that the fall in the dollar leads to a reduction in the U.S. current account deficit. This deficit reduction has as its counterpart a decline in the rate of capital inflow, so this is the channel through which a decline in confidence leads to a cutoff of capital flows. The
move toward current account balance also reduces the supply of savings domestically, driving up the interest rate; equilibrium is reached when the interest rate is driven up sufficiently to make investors willing to hold U.S. assets again.

This textbook view is consistent, and correct as a description of the medium run. As a short-run story, however, it overlooks a crucial point: the sluggishness with which the trade balance responds to the exchange rate. As recent experience has confirmed, the response of trade flows to the exchange rate takes years, both because consumers are slow to change habits and, even more important, because many changes in supply and sourcing require long-term investment decisions. As a result of this sluggishness, a fall in the dollar does not lead to any immediate reduction of the U.S. trade deficit, and indeed probably leads to a temporary rise in that deficit. Since the rate of capital inflow is by definition equal to the current account deficit, we have a paradoxical result: capital markets cannot determine the rate of capital inflow. All they can do is determine the value of the dollar, which itself can influence the rate of capital flow only with a long lag.

This may at first sight appear to leave the dollar with no bottom. As the dollar drops, however, it falls relative to its expected long-run level, and thus offers foreign investors a higher expected rate of return. At some point this will be enough to induce these investors to hold on to U.S. assets. And since the current account deficit remains, foreign investors will actually continue to put funds into the United States; indeed, thanks to the J-curve they may be putting capital in at a greater rate than before.

Only over time does a textbook answer emerge, as the weak dollar gradually reduces the trade deficit. Eventually the result is a smaller external deficit on one side, and a rise in interest rates on the other. But this result takes time, and meanwhile foreigners continue to finance the deficit.

In this not entirely hypothetical story, we see some aspects of the U.S. story of the past few years emerge. The loss of confidence by foreigners is initially reflected in a decline in the currency, not in a decline in the rate of capital inflow; someone who looked only at the current account financing would conclude that foreigners were as willing to invest here as ever. What attracts the foreigners is precisely the fire sale of U.S. assets: the fall in the dollar makes the assets cheap, thus presenting foreigners with a higher expected rate of return. This fire sale is not, however, a windfall presented to foreigners by an arbitrary decline in the dollar; both the decline in the dollar and the fire sale result from the unwillingness of foreigners to keep investing in the United States, which requires that they be offered a higher expected rate of return.

Finally, notice that a hard landing—a financial squeeze brought about by the cutoff of foreign financing—does occur in this story, but not immediately. Because the loss of confidence by foreign investors cannot immediately show up in a reduced capital inflow, the hard landing takes time to develop. It would clearly be a mistake, however, to look at the absence of financial strain in the immediate aftermath of dollar decline and conclude that there will never be a financial problem.

III. A Formal Model

The story told above is a simple one, yet it is not a familiar one among economists. Thus it may be worthwhile to state it in a formal model. The model is essentially the full employment real exchange rate model suggested by William Branson (1985), with one new feature: the addition of lags in trade adjustment, borrowing a convenient formulation originally introduced by Rudiger Dornbusch (1976).

I begin with the savings-investment identity, expressing both savings and investment in terms of domestic goods:

\[ S(r) - I(r) = \chi(E_p) - M(E_p)/E_S \]

Here savings and investment are assumed to depend on the real interest rate in terms of domestic goods. Trade volumes are assumed to depend not on the current price of domestic goods relative to foreign \( E_S \), but on a "permanent" real exchange rate \( E_p \) that is a
distributed lag of past real exchange rates. Specifically,

\[ \dot{E}_p = \lambda (E_S - E_P) \]

where \(1/\lambda\) is the mean lag. Let us assume that although in (1) the exchange rate has a perverse short-run effect on the trade balance, the long-run effect via \(E_P\) is sufficient to insure that a depreciation eventually reduces the trade deficit. That is, there is a J-curve.

Finally, suppose that expectations are rational. Then except when there are surprises, the rate of return on domestic assets (including real appreciation) must equal the rate of return on foreign assets, plus any required risk premium:

\[ r(E_S, E_P) + \dot{E}_S/E_S = r^* + \rho \]

where \(\rho\) is the risk premium. Notice that I have written \(r\) as a function of \(E_S\) and \(E_P\); from (1) it is apparent that a rise in the current real rate raises the domestic real interest rate, because it reduces the trade deficit, while a rise in the permanent rate reduces \(r\); we must have \(r_1 + r_2 < 0\).

The dynamic system defined by (2) and (3) may be illustrated by Figure 1. The line \(\dot{E}_p = 0\) is simply the 45° line; the line \(E_S = 0\) represents all points where the domestic interest rate equals the foreign plus the required risk premium. It is straightforward to show that the relative slopes are as shown, and that there is a downward-sloping stable arm, shown by SS.

Suppose, now, that the economy is initially in equilibrium at point 1, and that there is a foreign loss of confidence, which I model as a rise in the risk premium \(\rho\). Then the result is a sudden drop in the real exchange rate to point 2, followed by gradual convergence to the new steady state. The initial effects of this loss of confidence are perverse: the trade deficit, and hence the rate of capital inflow, widens, while the domestic interest rate falls. What attracts continuing inflows of foreign capital is the fire sale, represented by the fact that \(E_S\) at point 1 has actually overshot its long-run level.

This is simply a formalization of the verbal story in Section II. As in that story, the fire sale is not an arbitrary windfall, but something required by the foreign loss of confidence in the face of sluggish trade response. And the eventual cutoff of foreign financing, and the corresponding rise in \(r\), is only postponed, not avoided.

### IV. Policy Implications

The analysis presented here suggests that a loss of foreign confidence in the United States is not something that might happen in the future; it is something that has already happened. Foreign investors are continuing to finance the U.S. current account deficit only because they regard U.S. assets as cheap, due to a weak dollar. If they are right, and the dollar really is cheap, then there will eventually be serious crowding out of domestic investment as the current account deficit widens. Thus raising national savings is a more urgent matter than optimists, who think the United States has no financing problem, have imagined.

It is of course possible that the markets are wrong; that only modest further narrowing of the trade gap will occur at the current value of the dollar. If that turns out to be the case, however, the markets will drive the dollar down still further: if they are not now getting assets at fire sale prices, they will insist on doing so in the future.
It is a mistake, however, to decry the fire sale as some kind of mistake of exchange rate policy. If foreigners are no longer willing to invest money here without a high expected rate of return, this is not something that could have been avoided if only the U.S. Treasury had supported the dollar. The only way to avoid a fire sale is not to need one—that is, to provide enough domestic saving so as to avoid reliance on foreign capital inflows.

So the policy moral of this analysis is one that has become boring through repetition, but is still as true as ever. The United States needs to restore its national savings rate to historical levels, as soon as it can. International investors have signaled that they are not willing to continue financing massive current account deficits, not by cutting off capital flows suddenly, but by driving the dollar down to unprecedented lows. Putting aside the alarmist or conspiratorial views of some fire sale theorists, the point remains that the growing complacency about perpetual foreign borrowing will lead us to a rude awakening, sooner than most economists think.

REFERENCES
