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U.S. International Capital Flows and the Dollar

THIS PAPER ADDRESSES four topics: the recent composition of U.S. international capital flows; capital flows and alternative hypotheses about the dollar's appreciation; concerns about U.S. net international indebtedness; and the plausibility that the depreciation of the dollar will be gradual.

The Recent Composition of U.S. Capital Flows

Table 1 summarizes the broad categories of financial flows for the period 1976–84. Twice during that period the U.S. current account moved into substantial deficit. In contrast to the 1977–78 experience, the widening of that deficit in 1983 and 1984 was associated with large net inflows of private rather than official capital, along with an extraordinary appreciation of the dollar. The shift in private capital flows was concentrated initially in bank-reported transactions, which swung from a large net outflow in 1982 to a sizable net inflow in 1983. This sharp shift was not surprising, since banks are positioned to intermediate between investors and borrowers in response to small changes in rates of return. Over time, however, other channels for private capital inflows have also developed and expanded.

This paper reflects the views of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or other members of its staff. The authors are grateful to Edwin M. Truman for constructive suggestions and reactions.

Table 1. U.S. International Transactions, 1976–84[a]

Billions of dollars

Item	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Current account	4.2	−14.5	−15.5	−1.0	1.9	6.3	−9.2	−41.6	−101.6
Official capital, net	10.9	32.8	29.8	−18.5	2.2	−5.3	−7.8	−0.9	−5.6
Private capital, net	−25.7	−16.2	−26.8	−7.0	−30.2	−24.4	−15.9	33.1	77.2
Bank-reported	−10.4	−4.7	−17.5	6.4	−36.1	−42.1	−45.2	23.7	20.2
Other	−15.3	−11.5	−9.3	−13.4	5.9	17.7	29.2	9.4	57.0
Allocation of special drawing rights	0.0	0.0	0.0	1.1	1.2	1.1	0.0	0.0	0.0
Statistical discrepancy	10.5	−2.0	12.5	25.4	25.0	22.3	32.9	9.3	30.0
Memorandum items:									
U.S. private assets abroad	−44.5	−30.7	−57.2	−59.5	−72.8	−100.7	−107.8	−43.3	−12.6
Foreign private assets in the United States	18.8	14.5	30.4	52.4	42.6	76.3	91.9	76.4	89.8

Source: *Survey of Current Business*, vol. 65 (March 1985), "U.S. International Transactions," table 1–2, and previous issues.

a. A positive entry indicates net capital inflows or current account receipts.

Recently, attention has been drawn to gross private capital flows (the memorandum items in the table), which indicate a sharp slowdown in acquisitions by U.S. residents of assets abroad, rather than an increase in flows of U.S. liabilities to foreign private residents. These data have been used to suggest—inappropriately, we think—that the strength of the dollar is the consequence not of an increase in foreign demand for dollars, but rather of a decrease in U.S. demand for foreign currencies, and that domestic and not foreign investors financed the surge in U.S. investment during 1983–84.

Table 2 is designed to demonstrate that, in addition to the fundamental difficulty of drawing inferences about ex ante behavior from ex post data, impressions derived from the published data on gross capital flows can be misleading for a number of reasons, including the consolidation of outflows and inflows within certain lines of the accounts, the establishment of International Banking Facilities (IBFs), and ambiguities in the interpretation of interbank transactions.[1]

The U.S. balance of payments accounts consolidate outflows and inflows between U.S. firms and their foreign affiliates. In particular, borrowing abroad by U.S. companies through Eurobonds issued by their Netherlands Antilles finance affiliates is recorded in the balance of payments data as a reduction in U.S. direct investment claims on foreigners, rather than as an increase in claims of foreigners on the United States. The adjusted flows in lines 6 and 19 of table 2 remove inflows from Netherlands Antilles finance affiliates (line 2) from the

1. Misleading interpretations of the U.S. balance of payments data are almost impossible to avoid until one understands how transactors are grouped for reporting purposes and how the data are collected. The monthly statistics on merchandise trade and securities transactions are based on actual records of the flows, while data on most capital account transactions (other than securities transactions) are constructed from reports of end-of-month or end-of-quarter claims and liabilities vis-à-vis foreigners. Most assets and liabilities are reported at book value. Reports are filed by U.S. residents, and the published data typically consolidate across nationalities; for example, assets and liabilities reported by U.S. banks generally consolidate the positions of the U.S. offices of U.S. chartered banks with those of the U.S. agencies and branches of foreign chartered banks. The direct investment data consolidate equity and all other intercompany account transactions between affiliated U.S. and foreign firms; the definitional criterion is whether one party owns 10 percent or more of the other, not whether the flows represent equity transactions. Current account data on private investment income receipts and payments (except for direct investment income) are constructed by the U.S. Department of Commerce from data on stocks of claims and liabilities along with estimates of yields. Additional information can be found in *Survey of Current Business,* vol. 58 (June 1978), part II.

Table 2. Changes in U.S. Private Assets Abroad and Foreign Private Assets in the United States, 1981–84

Billions of dollars

Item	*1981*	*1982*	*1983*	*1984*
1. U.S. private assets abroad (increase −)	**−101**	**−108**	**−43**	**−12**
2. Netherlands Antilles (inflow −)	−3	−9	−4	−4
3. IBF claims on foreigners (increase +)	62	78	28	15
4. Net claims of banks in the United States on their IBFs (increase −)	−18	−6	4	−1
5. Adjusted U.S. private assets abroad (1+2+3+4)	**−60**	**−45**	**−15**	**−2**
6. Direct investment, adjusted[a]	−13	−4	−9	−10
7. Foreign securities	−6	−8	−8	−5
8. Other nonbank	−1	7	−5	6
9. Bank claims on foreigners, adjusted[b]	−39	−40	7	7
10. Claims on nonbanks[c]	−11	−6	−3	5
11. Other claims	−28	−34	10	2
12. Alternative measure: U.S. private assets abroad (6+7+8+10)	**−31**	**−11**	**−25**	**−4**
13. Foreign private assets in United States (increase +)	**76**	**92**	**76**	**90**
14. Netherlands Antilles (inflow +)	3	9	4	4
15. IBF liabilities to foreigners (increase −)	−44	−72	−32	−14
16. Adjusted foreign private assets in United States (13+14+15)	**35**	**29**	**49**	**80**
17. Direct investment	23	15	11	21
18. U.S. Treasury securities	3	7	9	22
19. Other securities[a]	10	15	13	17
20. Other nonbank	1	−2	−1	6
21. Bank liabilities, adjusted[b]	−2	−6	17	14
22. Liabilities to nonbanks[d]	4	3	5	7
23. Other liabilities	−6	−9	12	7
24. Alternative measure: foreign private assets in United States (17+18+19+20+22)	**41**	**38**	**37**	**73**
Memorandum item:				
25. Net of banks' other claims and liabilities[e]	−34	−43	22	9

Source: *Survey of Current Business,* vol. 65 (March 1985), "U.S. International Transactions," tables 1–2, 6, 8, 9, and D, and previous issues.

a. Inflows from finance affiliates of U.S. companies in the Netherlands Antilles through the third quarter of 1984 have been excluded from direct investment outflows (line 6) and added to foreign purchases of U.S. securities (line 19) because they were largely the result of Eurobond sales.

b. Bank claims and liabilities have been adjusted to exclude claims and liabilities vis-à-vis foreigners on the books of IBFs (lines 3 and 15). In addition, approximate changes in net claims of banks in the United States on IBFs (line 4) have been added on the claims side. These adjusted series, while necessarily somewhat arbitrary, permit rough comparisons of 1981 and 1982 with subsequent years, but do not permit comparisons with earlier years, because some of the assets and liabilities at the IBFs would have been booked at U.S. rather than offshore offices if IBFs had not been created.

c. Banks' own claims on foreign public borrowers and other nonbanks, denominated in dollars, adjusted roughly for shifts in assets from domestic offices to IBFs ($21 billion in 1981 and $5 billion in 1982, based on a Federal Reserve survey).

direct investment data and add them instead to foreign purchases of U.S. corporate securities.

It is also appropriate—and quantitatively more significant—to adjust the U.S. international transactions data for the effects of the establishment of IBFs in December 1981 and early 1982. As IBFs were established, both assets and liabilities were shifted from the books of banking offices abroad to the books of banking offices in the United States, inflating the growth of both U.S. banks' claims on foreigners and U.S. banks' liabilities to foreigners in 1981 and 1982 (lines 3 and 15). These increases in 1981–82 flows magnified the 1983–84 slowdown in the growth of claims of banks in the United States on foreigners, and also reduced the 1983–84 change in the growth of bank liabilities to foreigners. Although decisions on how to adjust the data for IBFs are necessarily somewhat arbitrary, the adjusted data in the table show a more moderate slowdown in U.S. private acquisitions of assets abroad (line 5 compared with line 1) and a more rapid increase in foreign private acquisitions of assets in the United States (line 16 compared with line 13).[2]

The data can be adjusted still further for interbank transactions, in order to avoid attaching significance to whether U.S. banking offices reduce their claims or increase their liabilities to offshore banking offices. Changes in interbank flows (lines 11 and 23) have been major components of the shifts in gross private capital outflows and inflows over the past four years. The changes in interbank flows were influenced in part by concerns about capital adequacy and financial market developments in late 1983 and 1984, which led U.S.-owned banks to reduce their participation in Eurodollar interbank markets, as both lenders and borrowers; these concerns also contributed to reductions in the Eurodollar deposits of U.S. nonbanks at the foreign offices of both foreign- and U.S.-owned banks. Such developments slowed the growth of both claims and

2. The adjusted data in the table (lines 5 and 16) simply exclude changes in IBF claims on foreigners (line 3) and liabilities to foreigners (line 15), effectively treating IBFs as "foreign." But if IBFs are viewed as foreign, then changes in the claims and liabilities of banks in the United States on their IBFs should be included. These data are only available net (line 4) and have been entered on the claims side.

d. Banks' own and custody liabilities (other than U.S. Treasury bills or certificates) to foreign private nonbanks and nonmonetary international and regional organizations, denominated in dollars.

e. Line 11 plus line 23. Includes transactions with affiliated and unaffiliated banks, custody claims, and claims and liabilities denominated in foreign currencies, as well as the difference between net claims of banks in the United States on their IBFs (line 4) and the estimated shift in claims on foreign nonbanks from domestic offices to IBFs.

liabilities of U.S. residents vis-à-vis foreigners as reported in the international accounts, although many of the transactions essentially were links in a chain of intermediation between Americans. It is worth noting, in addition, that a reduction in the gross claims of a U.S. banking office on its own foreign offices can result from a decision either to reduce loans or to increase liabilities to unaffiliated foreigners booked at the foreign offices. Because of the ambiguities in the interpretation of interbank transactions, adjusted measures excluding them are shown in lines 12 and 24 of the table.

To summarize table 2, a careful interpretation of the U.S. international transactions accounts suggests that when interbank flows, the effects of the establishment of IBFs, and the treatment of Netherlands Antilles affiliates are filtered out of the data, the following picture emerges: a slowing since 1981 in the rate of growth in U.S. private claims on foreigners (line 12), particularly bank claims, and a sharp increase in the rate of growth of private foreigners' claims on Americans (line 24). In 1984, in particular, there was a very sharp increase in foreign private purchases of U.S. Treasury securities (line 18), as well as a near record volume of foreign direct investment in the United States (line 17).

The adjustments explicitly made in table 2 by no means eliminate entirely the ambiguities in the data. A major ambiguity is that the data are based on the residence, rather than the nationality, of the reporter. For example, if the U.S. office of a foreign-owned bank reduces its lending to foreign residents and lends instead to U.S. nonbanks, this shift will appear in the accounts as a reduction in U.S. claims on foreigners, not as an increase in U.S. borrowing from foreigners. Foreign-owned banks in the United States accounted for almost 45 percent of U.S. banks' claims on foreign residents as of the end of September 1984.

Partly in recognition of this difficulty, an alternative approach to judging whether U.S. bank claims on nonbank foreigners have been reduced is to examine the consolidated reports of U.S.-owned banks' offices worldwide from the Country Exposure Lending Survey.[3] These data indicate that the growth of U.S. banks' consolidated claims on foreign public borrowers and other foreign nonbanks has slowed from

3. Board of Governors of the Federal Reserve System, "Country Exposure Lending Survey," Statistical Release E.16 (April 19, 1985), and previous issues.

$24 billion in 1981 to $13 billion in 1982 and $8 billion in 1983; in the first nine months of 1984, these claims contracted by $3 billion.[4]

With regard to currency denomination, the assertion that U.S. residents have been selling assets denominated in foreign currencies and are, therefore, "responsible" for the recent appreciation of the dollar is not supported by data from the U.S. international transactions accounts. Almost all of the reported U.S. claims on foreigners are denominated in dollars. As shown in table 3, the foreign currency claims and liabilities of U.S. banking offices and corporations (not consolidated with their foreign affiliates) have not changed much over the last several years. Nor have U.S. residents made net sales of foreign securities or reduced their direct investment position abroad (see table 2, lines 6 and 7, recalling that a negative flow indicates positive investment abroad by U.S. residents). Of course, U.S. investors can shift their positions in foreign currencies without selling assets or acquiring liabilities that show up in the U.S. international transactions accounts. These alternatives include off-balance-sheet transactions such as forward contracts and cross-currency interest rate swaps, as well as transactions that change the currency composition of the balance sheets of offshore affiliates. The appreciation of the dollar may well have been associated with a change in the net foreign currency position of U.S. residents, but this hypothesis cannot be readily substantiated using ex post data from the international transactions accounts.

As a final and fundamental point, regardless of the data inadequacies and conceptual difficulties in interpreting the extent to which U.S. residents have been liquidating claims on foreigners rather than extending liabilities, the interpretation of the current account deficit is unambiguous. The United States is currently absorbing more goods and services than it is producing, and the difference is being supplied by the rest of the world.

Capital Flows and Hypotheses about the Dollar's Appreciation

Three hypotheses have been advanced to explain the strong ex ante net capital inflow into the United States in recent years and, as a

4. The dollar value of these claims in each of the four years was reduced by the impact of the appreciation of the dollar on the value of claims denominated in foreign currencies, which are held largely at the offshore offices of the banks.

Table 3. Claims on and Liabilities to Foreigners, Payable in Foreign Currencies, 1981–84[a]

Billions of dollars; end-of-year stocks

Item	*1981*	*1982*	*1983*	*1984*
Banks				
Banks' own claims	5.0	7.7	7.2	10.7
Claims of banks' domestic customers	1.0	0.7	1.1	0.6
Banks' own liabilities	3.5	4.8	5.2	7.4
Nonbanks				
Claims on unaffiliated foreigners	3.6	2.6	3.1	2.8[b]
Liabilities to unaffiliated foreigners	3.7	3.2	2.9	2.8[b]

Source: *Federal Reserve Bulletin*, vol. 71 (April 1985), tables 3.16, 3.22, and 3.23, and previous issues.
a. Reported by banks and nonbanking enterprises in the United States.
b. End of September 1984.

consequence, the substantial appreciation of the dollar. One hypothesis emphasizes the safe haven motive, that is, the shifting of assets into the United States, or into dollars, because of increased political or economic instability abroad. The other two focus on changes in real interest differentials. One is based on the observation that the after-tax return on real capital in the United States has risen; the other argues that the change in real interest differentials has been primarily associated with the budget deficit and its impact on the rates of return on financial assets.

In light of the Reagan administration's tax and regulatory changes, the large shift in the U.S. structural budget deficit, and the international debt crisis, each of these three hypotheses undoubtedly has some validity. The focus of this section is on whether the ex post composition of U.S. capital flows sheds much light on the relative importance of the three hypotheses.

The short answer to this question is no. Consider first the safe haven hypothesis. One might attempt to measure the importance of the safe haven motive by examining the actual capital inflow from residents of countries experiencing economic or political crises. As shown in table 4, there have been substantial increases in liabilities of banks in the United States to nonbank residents of Latin America, particularly Argentina, Mexico, and Venezuela. But the largest increases occurred in 1982 and may primarily reflect a shift in the location of deposits as a result of the establishment of IBFs. There are several other difficulties, as well, in using balance of payments data to assess the importance of the safe haven motive. First, asset holders from "unsafe" countries

Table 4. Changes in U.S. Banks' Liabilities to Foreign Nonbanks, Payable in Dollars, 1981–84[a]

Billions of dollars

Region	*1981*	*1982*	*1983*	*1984*
All countries	5.9	17.7	10.1	11.1
Europe	1.0	3.7	0.6	1.5
Canada	−0.1	1.1	2.6	1.7
Latin America and Caribbean	4.2	12.2	5.6	7.0
Argentina	0.4	1.1	0.8	0.5
Brazil	0.1	0.4	0.3	0.5
Mexico	1.8	2.1	0.8	2.2
Venezuela	0.6	2.8	0.8	0.9
Asia	0.7	0.7	1.4	0.6
Philippines	*	*	0.2	0.2
Africa and other	0.1	0.1	*	0.1

Source: *Treasury Bulletin,* 1st quarter, Fiscal 1985 (Winter Issue), table CM-I-4, and previous issues.
* Less than $50 million.
a. Includes changes in custody liabilities other than U.S. Treasury bills. Excludes foreign official institutions. A positive entry indicates increase in liabilities.

might invest in dollar assets in the Eurodollar markets; the U.S. international transactions accounts would then show inflows from Switzerland, the United Kingdom, or the Caribbean, rather than direct inflows from the countries experiencing crises. Second, investors seeking safe haven in the United States may desire anonymity and may therefore invest in ways that are not reported in the U.S. international transactions accounts. And, finally, ex post capital flows out of an "unsafe" country into the United States or elsewhere can differ from ex ante desires to move capital. Ex post flows are limited by how fast the current account balance of the "unsafe" country adjusts, or how much it draws down official reserves or borrows.

Next, consider the difficulty of using data on U.S. capital inflows to assess how strongly the appreciation of the dollar has been related to the increase in the after-tax return on physical capital in the United States. It has been suggested that such an assessment should focus on whether there has been an increase in direct investment inflows or purchases of corporate stocks, rather than investment in other financial assets. But the likely pattern of flows is ambiguous, because an increase in the real return on physical capital in the United States can induce U.S. residents to borrow in financial markets in order to obtain funds for real investment.

Rates of return on financial assets would tend to rise, and foreigners might well be observed increasing their holdings of financial claims on U.S. residents, even though the initial change was an increase in return on physical capital. Conversely, an increase in foreign direct investment in the United States may well result from changes in financial market conditions and funding decisions, rather than changes in expected capital productivity and real investment decisions.

Table 5 provides data on direct investment inflows in the balance of payments accounts, the level of business fixed investment in the U.S. GNP accounts, and the level of plant and equipment investment in the United States by companies owned by foreign direct investors. The latter two series have indeed shown increases since 1980 and could reflect an increase in the expected productivity of capital. The balance of payments data, on the other hand, are defined differently, including stock purchases resulting from takeovers, and they do not tell the same story. Record inflows of direct investment in 1981 and 1984 were associated with a few very large corporate takeovers: for example, the 1984 takeover of the publicly held shares of U.S. Shell Oil Co. by its parent, Royal Dutch–Shell Group, which apparently valued the oil reserves of U.S. Shell more highly than did the average stock market investor. Takeovers, in general, indicate that someone values a company's assets more highly than do stock market investors on average. To that extent, a large part of the direct investment inflows in recent years may have had little to do with any general increase in the return on physical capital in the United States. Moreover, direct investment inflows have been increasing rapidly since the late 1970s; thus, the acceleration predates the Reagan administration's tax and regulatory reforms. In addition to the factors that have affected the general returns to capital located in the United States, regardless of the nationality of its owners, the acceleration of foreign direct investment in the United States has probably been related to increased foreign penetration of U.S. markets, to the increased financial strength of foreign-based multinational corporations, and to fears of protectionist measures in certain U.S. industries, such as automobiles.

Foreign net purchases of equities are also not necessarily correlated with increases in capital productivity in the United States. News of an increase in capital productivity would have an immediate impact on stock market prices, providing capital gains for existing stockholders.

Table 5. Comparison of Foreign Direct Investment in the United States and Plant and Equipment Investment, 1970–84

Billions of dollars

Year	*Foreign direct investment in the United States*	*Business fixed investment in the U.S. GNP accounts*	*Plant and equipment expenditures by foreign direct investors*[a]
1970	1.5	104	n.a.
1971	0.4	108	n.a.
1972	0.9	121	n.a.
1973	2.8	143	n.a.
1974	4.8	157	n.a.
1975	2.6	158	n.a.
1976	4.3	174	n.a.
1977	3.7	205	n.a.
1978	7.9	249	n.a.
1979	11.9	290	n.a.
1980	16.9	309	19.4
1981	23.1	354	28.8
1982	14.9	350	31.1
1983	11.3	353	n.a.
1984	21.2	426	n.a.

Source: *Survey of Current Business,* vol. 65 (March 1985), "U.S. International Transactions," table 1–2, and previous issues; national income and product accounts, table 1.1.; and unpublished survey by the Board of Governors of the Federal Reserve System.

n.a. Not available.

a. Expenditures in the United States by companies in which a foreign party owns more than 10 percent of the equity.

Transactions, on the other hand, reflect differences of opinion about capital productivity or prospective changes in equity prices. The lack of large foreign net purchases of U.S. equities may merely indicate that foreigners are no more optimistic on average than U.S. residents about future capital productivity or equity prices in the United States.

In conclusion, the composition of U.S. capital flows offers little evidence on the relative importance of various forces that might explain the recent appreciation of the dollar. Nor does the overall size of the net private capital inflow necessarily measure the upward pressures on the value of the currency. If the dollar dropped sharply tomorrow, the United States would still run a substantial current account deficit this year and, barring large official dollar purchases, would still record large net private capital inflows.

Concerns about U.S. Net International Indebtedness

Should we be concerned about the U.S. net international investment position per se,[5] apart from being concerned about the underlying causes of the shift toward a position of large U.S. net international indebtedness? Three areas of possible concern are the implications of the net interest payments to foreigners to service U.S. debts, the vulnerability of the U.S. economy to future shocks, and the constraints that policy authorities may face in responding to future shocks.

Whether future interest payments will be a serious burden depends largely on whether the dollar's appreciation and the consequent current account deficit are the result of increased incentives to invest in U.S. physical capital. When the productivity of capital increases in one country, a reallocation of the world's investable resources toward that country is an implication of a Pareto efficient response that raises prospective consumption paths worldwide, even though in the short run it also raises the net international indebtedness of the country whose productivity has increased.

Alternatively, when the growing debt is counterpart to increased current consumption, welfare judgments require a weighing of current benefits against future costs.[6] One significant cost of consuming more currently is that with an unchanged future capital stock, the necessity of servicing the debt implies lower real income in the future.

5. The official Department of Commerce data, traditionally reported in August issues of *Survey of Current Business,* are likely to show that the recorded U.S. net international investment position at the end of 1984 was a net creditor position of about $35 billion. The statistical discrepancies in the U.S. international accounts, however, have netted to an inflow of about $150 billion since 1970; this probably includes a net unreported capital inflow in excess of $35 billion, which might suggest that the United States is already in a net debtor position. A further complication, however, is that several components of the U.S. net international investment position, including gold and direct investment assets and liabilities, are not valued at market prices.

6. Some perspective on the present U.S. experience is provided by comparing the national income accounts for 1984 with their average composition for 1973–80, the first eight years of the floating-rate period. As shares of GNP, the federal budget deficit and the net inflow of saving from abroad in 1984 were 2.5 to 3 percentage points higher than their 1973–80 averages, while net private domestic investment and the net saving of the private domestic sector plus state and local governments in 1984 were each about 0.5 and 1 percentage point higher than their 1973–80 averages, respectively.

Other concerns are that increased U.S. net international indebtedness may increase the vulnerability of the U.S. economy to future shocks or constrain policy authorities in responding to future shocks. To the extent that the risks perceived by foreigners in holding net claims on the U.S. economy are different from the risks perceived by U.S. residents, it is quite conceivable that a shock that changes perceptions of risk would have impacts on market-clearing exchange rates or interest rates that vary directly with the size of U.S. international indebtedness.

To push the analysis further requires an assumption about whether market participants have behaved rationally in driving the dollar to its present high value. If it is assumed that the dollar has been riding an irrational bubble (or even the type of rational bubble that Jeffrey Frankel discusses in his paper in this volume), then we have little basis for modeling the response of market participants, but there is a presumption that the dollar could depreciate sharply in response to an unfavorable shock.

The alternative assumption is that the present value of the dollar is rational and bubblefree. In that case, it is feasible to provide a model-based analysis of whether the U.S. economy's vulnerability to shocks will increase as its net international indebtedness rises. One appealing analytic framework is the steady-state growth paradigm. This suggests that the equilibrium long-run real exchange rate must produce a balance of trade in goods plus noncapital services so that the current account deficit equals net investment income payments on the external debt. Under these conditions, net international indebtedness grows at the rate of interest, which equals the steady-state growth rate.

Note that in this framework, the path to long-run equilibrium does not require the dollar to depreciate sufficiently to generate a trade surplus with which to meet the net interest payments on the external debt. The United States continues to borrow to meet its net interest payments. Thus it is possible that any level of external debt is consistent with an equilibrium level of the exchange rate.

Even if equilibrium may exist with different levels of indebtedness, this does not mean that the vulnerability of the economy to shocks is independent of the level of indebtedness.[7] The experiences of debt-

7. A number of open-economy macro models have provided insights into conditions that define the equilibrium long-run real exchange rate in a stationary state; for a recent innovative example, see William H. Branson, Arminio Fraga, and Robert A. Johnson,

burdened developing countries in recent years provide dramatic evidence that an economy's vulnerability to shocks can indeed be very sensitive to the level of its net international debt, as well as to the composition of its external assets and liabilities.[8]

Before drawing inferences from the experiences of less developed countries, however, it is worth emphasizing two major differences between the United States and the debt-burdened developing countries. First, the United States does not appear to be building up large debts denominated in foreign currencies, although not much is known about exposure through forward exchange contracts and other measures that escape our data collection networks. And, second, creditor confidence in the ability of the United States to service its international debts is enhanced by a large and diversified U.S. tradable goods sector, even though that sector is being placed under increasing strains by the prolonged strength of the dollar. These considerations temper any judgments about U.S. vulnerability to shocks. But a convincing analysis would require more successful models of the exchange rate than are now available.

The Possibility of a Gradual, Prolonged Depreciation

In an expanding world economy, it is plausible that the United States could sustain a forever-growing net international indebtedness, provided

"Expected Fiscal Policy and the Recession of 1982" (Princeton University, 1985). But attempts to relate the equilibrium long-run stock of debt to the risks perceived by creditors are limited; for one such attempt, see Michael P. Dooley and Peter Isard, "Country Risk, International Lending, and Exchange Rate Determination," International Finance Discussion Paper 221 (Board of Governors of the Federal Reserve System, 1983).

8. Some have argued that the volatility of a country's exchange rate in response to shocks depends on the mix between its short- and long-term liabilities to foreigners. We do not find this argument convincing, however, based on the lack of a close correspondence between the maturity and the liquidity of assets. Many short-term investments, such as time deposits, may be less liquid than assets classified as long-term; in particular, government bonds and corporate stocks can be sold quickly, while direct investors can manipulate leads and lags on their accounts. Moreover, changes in market expectations could lead to large shifts in exchange rates even if all financial assets were illiquid, partly because opportunities exist to speculate in forward exchange markets or through the use of currency options.

that it stabilized at a relatively low share of foreign net worth.[9] As a condition for U.S. net indebtedness to stabilize (and perhaps eventually begin to decline) as a share of foreign net worth, it seems appropriate to assume that the balance of trade in goods plus noncapital services must move out of deficit. The U.S. current account deficit would then be no larger than the deficit on net investment income payments, so that U.S. net international indebtedness would expand no faster than the interest rate and hence, presumably, no faster than foreign net worth.

It is difficult to imagine that the trade deficit (in goods plus noncapital services) could be eliminated without a very substantial depreciation of the dollar. It is possible, however, that the depreciation could be gradual and prolonged. The calculations summarized in table 6 suggest that if the dollar depreciated at 3 percent per year, the trade deficit could be eliminated in thirteen years while the U.S. net international indebtedness position accumulated to about $2.3 trillion.[10] At a depreciation rate of 4 percent per year, the trade deficit could be eliminated in ten years while U.S. net international indebtedness increased to about $1.5 trillion. It should be emphasized that these paths eliminate the trade deficit, not the current account deficit. With a 3 percent depreciation, the current account deficit would double to $200 billion over the next decade before beginning to decline. But after the trade deficit had been eliminated, foreigners' net claims on the United States would stop increasing as a share of their net worth, despite continuing large U.S. current account deficits.

9. The material in this section is drawn heavily from Michael P. Dooley and Peter Isard, "The Appreciation of the Dollar: An Analysis of the Safe Haven Phenomenon," DM/85/20 (International Monetary Fund, 1985).

10. In these calculations the assumed rates of change in the prices and volumes of U.S. exports and imports are consistent with assumptions of 4 percent annual inflation of domestic product prices and 3 percent annual growth of real expenditure, both in the United States and abroad. The dollar price of U.S. exports is assumed to increase at 4 percent annually, and the dollar price of U.S. imports, at 4 percent plus the rate of depreciation. Based on volume elasticities of 1.5 with respect to real expenditure and 1.0 with respect to relative price, the volume of U.S. exports is assumed to increase annually by 4.5 percent plus the rate of depreciation, while the volume of U.S. imports increases annually by 4.5 percent minus the rate of depreciation. These price and volume changes imply the annual percentage changes shown in table 6 for the dollar values of exports and imports. The initial conditions for U.S. exports and imports (of merchandise plus noncapital services) are ballpark assumptions for 1985, making some allowance for the lagged effects of the dollar's appreciation through early 1985.

Table 6. Estimated Implications of Gradual Depreciation of the U.S. Dollar

Item	*Annual dollar depreciation*	
	Three percent	*Four percent*
Initial conditions		
U.S. exports in 1985 ($ billions)[a]	275.0	275.0
U.S. imports in 1985 ($ billions)[a]	400.0	400.0
Rates of change (annual percent)		
Dollar price of U.S. exports	4.0	4.0
Dollar price of U.S. imports	7.0	8.0
Volume of U.S. exports	7.5	8.5
Volume of U.S. imports	1.5	0.5
Dollar value of U.S. exports	11.8	12.8
Dollar value of U.S. imports	8.6	8.6
Number of years until trade deficit is eliminated	13	10
Cumulative current account deficit ($ trillions)[b]	2.3	1.5
Time path of current account deficit ($ billions)		
1984	102	102
1988	157	144
1991	186	150
1994	201	119
1997	184	. . .

a. Goods plus noncapital services.

b. The calculations assume a nominal interest rate of 7.5 percent, slightly greater than the growth rate of U.S. nominal aggregate demand. In each year, the U.S. current account deficit is projected to change by the sum of the change in the trade deficit (on goods plus noncapital services) plus 7.5 percent of the previous year's addition to U.S. net external debt (that is, the previous year's current account deficit). Numbers in table are rounded figures.

Unless one rejects the implicit hypothesis that the assumptions underlying the calculations represent a consistent and rational forecast,[11] the plausibility of sustaining a gradual 3 or 4 percent annual decline in the dollar over a prolonged period hinges on whether rational foreigners would willingly accumulate the implied stocks of net claims on the United

11. The calculations are illustrative and subject to criticism on several counts. One basic criticism is the use of a very simplified short-term forecasting model in which imports and exports are determined independently and as functions only of aggregate expenditure and relative price, with no role for productive capacity or other supply-side variables. In such models an exchange rate change has the same predicted long-run effect on net international indebtedness regardless of whether the change in the trade balance in the short run reflects a change in consumption relative to production or a change in investment relative to production. The assumptions might also be challenged for suggesting that the two regions could grow and inflate at the same rates while the dollar depreciates, although this approximates what many forecasters are now projecting.

States. As a ballpark estimate, private foreigners' net holdings of the public sector debts of their own countries, plus claims on the United States, plus tangible assets, would be around $25 trillion equivalent after thirteen years if the dollar depreciated at 3 percent per year;[12] thus, private foreigners' net claims on the United States might amount to no more than 10 percent of their net worth. Slightly more rapid rates of depreciation would imply somewhat lower portfolio shares. Arguments that a gradual, prolonged depreciation or "soft landing" is conceivable can be translated into arguments that private foreigners could rationally desire to build their portfolio shares to such levels.[13]

Conclusions

Our examination of the composition of recent U.S. international capital flows reveals that the unadjusted data are misleading. Appropriate adjustments indicate that the counterpart to the widening U.S. current account deficit has been a combination of a slowdown in the growth of U.S. claims on foreigners and a significant increase in the growth of U.S. liabilities to foreigners. Capital flow data are also inadequate to evaluate the hypotheses that have been advanced to explain the appreciation of the dollar. What can be reliably inferred from the international accounts is that the United States is absorbing substantially more goods and services than it is producing, and that the difference is being supplied by the rest of the world.

To the extent that this accumulation of net debt to foreigners does not

12. The public debt of the Group of Ten countries other than the United States can be projected to exceed $9 trillion-equivalent in thirteen years if general government debts remain about half as large as (or grow at the same rate as) gross domestic products, and if nominal dollar-equivalent GDPs grow at 10 percent annually (3 percent real, 7 percent prices translated into dollars). Moreover, if private foreign net saving remains in the neighborhood of 13 percent of GDP, cumulative savings over the 13 years will approach $19 trillion, of which about $9 trillion would be used to acquire additional claims on public sectors plus claims on the United States, while about $10 trillion would finance investments in tangible assets. The $19 trillion cumulative flow of net savings adds to initial (end-1984) holdings of nearly $3 trillion of claims on public sectors, plus another $3 trillion, perhaps, of tangible assets. For the basis of these statistics, see *OECD Economic Outlook,* no. 35 (Paris: OECD, July 1984), p. 29, for data on public debts, and *OECD Historical Statistics, 1960–1982* (Paris: OECD, 1984), for data on savings ratios.

13. For further discussion that emphasizes the strength of the safe haven phenomenon, see Dooley and Isard, "Appreciation of the Dollar."

lead to investment to increase productive capacity, servicing that debt in the future will require lower U.S. absorption. Whether increased international indebtedness will also leave the U.S. economy more vulnerable to shocks is difficult to analyze without a better understanding of exchange rate behavior.

There is a possibility that a substantial depreciation of the dollar may occur only gradually and over a prolonged period of time. The calculations that we present to support this possibility, however, are not intended as a forecast. Nor is the nonalarmist tone of our conclusions intended to belittle strong concerns about the high dollar, its underlying causes, and the present state of the world economy.