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Implications of the U.S. Net Capital Inflow

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An escalating international imbalance, necessarily including both real and financial aspects, has become the outstanding failing of U.S. macroeconomic performance in the 1980s. The half-again real appreciation of the dollar exchange rate since the beginning of the decade has severely impaired the ability of U.S. producers to compete for export sales abroad, or even to protect their traditional domestic markets against foreign imports. The resulting devastation of the economy's internationally exposed sectors, especially agriculture and manufacturing, has in turn led to lost profits, lost jobs, and a continuing rash of actual and/or threatened bankruptcies.

At the same time, the financing of a record trade gap by exporting assets instead of goods and services has sharply altered traditional U.S. financial relationships. The United States has now dissipated its net international investment position and, on the current trajectory, will soon become the world's leading debtor nation. Correspondingly, foreign investors and foreign financial institutions now play a far larger role in the U.S. financial markets than they did just a short time ago.

These problematic developments, at least in rough outline, have been the predictable (and much predicted) consequences of the macroeconomic policy course followed by the United States since 1981. The extraordinary combination of personal tax cuts, accelerated build-up of military spending, and resistance to reductions in major nonmilitary government spending programs such as Social Security and Medicare has led to federal budget deficits far beyond the nation's prior peacetime experience. Meanwhile, the basic priority of monetary policy has been first to lower, and then to contain, the economy's rate of price inflation. This fundamental fiscal-monetary imbalance has led to unprecedentedly high real interest rates, and has thereby

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helped to drive up the real dollar exchange rate. Its predictably negative impact has fallen both on the economy's investment sector and on the internationally competitive sector. The only real surprise has come in the split between these two, with more of the impact falling on the international sector (and correspondingly less on the investment sector) than all but a few observers had predicted at the outset.

The object of this chapter is to explore the implications for the U.S. economy of the financial side of this growing international imbalance. The first section uses basic concepts of national income accounting and balance of payments accounting to review the role of the net foreign capital inflow in financing the economy's stagnant net investment and swollen government deficit. The second section then examines the likely implications of a continuation of this inflow, at magnitudes like those of the recent past, for some time into the future. The discussion here primarily examines the implications, for the pricing of U.S. financial assets, of the growing share of these assets owned by foreign investors. By contrast, the third section considers what would happen if the United States suddenly had to make do without this capital inflow, and includes the results of an attempt to quantify the most important of these effects. The final section briefly summarizes the principal conclusions advanced in the chapter.

Capital Inflows, Investment, and Government Deficits

The deterioration of the U.S. balance of international payments in the 1980s has been spectacular in both speed and extent. As table 4-1 shows, on average during the 1970s a positive balance on services, together with other net receipts, was just sufficient to deliver an essentially balanced current account despite a significant deficit on merchandise trade in the years following the first price increase imposed by the international oil cartel. Indeed, by the end of the decade even the merchandise trade deficit was narrowing despite the further oil price increase imposed in 1979.

The U.S. performance thus far in the 1980s has been dramatically different. By 1983, the trade deficit had jumped to approximately double the level at which it had appeared to plateau during the prior five years, and the further deterioration in 1984 alone represented almost another doubling. Data for 1985 to date indicate yet a further deterioration, albeit not nearly at so dramatic a pace. At the same time, the current account first showed a massive deficit in 1983, and it too has continued to deteriorate ever since.

The fact that producers abroad sell more goods and services to Americans than U.S. producers sell to foreigners automatically and necessarily has a financial counterpart. Precisely because foreign producers are *selling* their goods to Americans, rather than donating them in some eleemosynary fash-

Table 4-1
U.S. Trade and Current Account Balances, 1951-85
(billions of dollars)

	<i>Trade Account</i>		<i>Current Account</i>	
	<i>Amount</i>	<i>% of GNP</i>	<i>Amount</i>	<i>% of GNP</i>
Average, 1951-60	\$ 2.9	0.7%	\$ 0.6	0.1%
Average, 1961-70	4.1	0.7	3.3	0.5
Average, 1971-80	-10.5	-0.5	-0.4	0.0
1971	2.6	0.3	2.3	0.2
1972	-2.3	-0.2	-1.4	-0.1
1973	-6.4	-0.5	-5.8	-0.5
1974	0.8	0.1	7.1	0.5
1975	-5.1	-0.4	2.0	0.1
1976	8.7	0.6	18.1	1.2
1977	-9.1	-0.5	4.2	0.2
1978	-30.5	-1.6	-14.5	-0.8
1979	-33.6	-1.6	-15.4	-0.7
1980	-30.3	-1.3	-1.0	0.0
1981	-24.2	-0.9	1.9	0.1
1982	-28.4	-1.0	6.3	0.2
1983	-60.4	-1.8	-41.6	-1.3
1984	-106.2	-2.9	-101.5	-2.8
1985	-119.4	-3.1	-116.3	-3.0

Source: U.S. Department of Commerce, *Survey of Current Business* (various issues).

Note: Data for 1985 are through 1985:Q2 for the trade account, and through 1985:Q1 for the current account, at seasonally adjusted annual rates.

ion, they receive payment. That payment may occur directly in the form of a dollar deposit on some U.S. bank remitted to the foreign seller. Alternatively, the American buyer may pay the foreign seller in the seller's own currency by first purchasing the needed amount of that currency in the foreign exchange market. In either case, some foreigner—either the seller of goods or the seller of currency—then holds an additional dollar deposit in the amount corresponding to the U.S. import.

When U.S. imports exceed U.S. exports, the amount of dollar deposits acquired in this way by foreign holders exceeds the amount of foreign currency deposits acquired by U.S. holders. On a net basis, therefore—that is, even after U.S. holders use the foreign exchange market to swap the foreign currency they have received back into dollars—foreign holders still have a remaining amount of dollar deposits conceptually equal to the U.S. current account deficit. They need not continue to hold these assets in deposit form, of course, and no individual foreigner need hold any additional dollar assets at all. All foreign investors together, however, must increase their net hold-

Table 4-2
U.S. Net Exports and Net Foreign Investment, 1984
(billions of dollars)

<i>Balance of payments accounts</i>	
Balance of goods and services	- \$90.1
Merchandise exports	220.3
Other exports	142.1
Merchandise imports (-)	- 328.6
Other imports (-)	- 123.9
Government grants abroad (-)	- 8.5
Other flows abroad (-)	- 2.9
Balance on current account	- 101.5
Statistical discrepancy	24.7
Net capital flow	- 76.8
U.S. assets abroad	20.4
Foreign assets in the U.S. (-)	- 97.3
<i>Relationship to national income accounts</i>	
Balance on goods and services (balance of payments accounts)	- \$90.1
Net gold exports (-)	1.2
Net capital gains in services income (-)	9.1
Government interest in services imports	19.8
Other accounting differences	- 4.2
Balance on goods and services (national income accounts)	- 64.2
<i>National income accounts</i>	
Balance on goods and services	- \$64.2
Merchandise exports	219.2
Services exports	145.0
Merchandise imports (-)	- 325.5
Services imports (-)	- 103.0
Net transfers abroad (-)	- 9.6
Government interest payments abroad (-)	- 19.6
Net foreign investment	- 93.4

Source: U.S. Department of Commerce, *Survey of Current Business* (various issues).

Note: Figures may not add up perfectly because of rounding.

ings of dollar assets by just the amount by which U.S. imports exceed U.S. exports.

By presenting the relevant data for 1984, table 4-2 illustrates this essential connection between the U.S. export-import balance and foreign holders' net acquisition of dollar assets. After adjustment for statistical discrepancy, 1984's \$102 billion current account deficit in the conventional balance of payments accounts corresponded to a "net capital flow" of -\$77 billion—

that is, an excess of \$77 billion in foreign holders' accumulation of dollar assets over U.S. holders' accumulation of assets abroad. Because of both conceptual and statistical differences (primarily involving treatment of the statistical discrepancy, but including other items as well), the corresponding "net foreign investment" flow in the conventional national income accounts was – \$93 billion—that is, an excess of \$93 billion in foreign saving applied to U.S. uses over U.S. saving applied to foreign uses.

Even in an economy the size of the United States, the presence of net capital inflows from abroad in this magnitude makes a substantial difference for the overall balance of saving and investment. Table 4–3, using national income accounting concepts, shows the U.S. balance of net saving and net investment for 1984. The economy's \$272 billion of net private saving, including personal saving plus corporate retained earnings, represented the amount that the economy's private sector as a whole made available in 1984 to finance new investment beyond what was necessary just to maintain the nation's depreciating stocks of business and residential capital. Nevertheless, because of the need to finance a \$176 billion federal government deficit, a deficit only partly offset by an aggregate \$53 billion surplus for all state and local governments, the economy's total net saving was only \$149 billion.

The economy's total net investment, which equals total net saving except for a small statistical discrepancy, was therefore only \$141 billion in 1984.¹ By contrast, net private domestic investment, including business and residential fixed capital formation as well as business inventory accumulation,

Table 4–3
U.S. Net Saving and Investment, 1984
(billions of dollars)

Total net saving	\$148.6
Net private saving	271.6
Personal saving	156.1
Corporate saving	115.4
State-local government surplus	52.9
Federal government surplus	– 175.8
Total net investment	\$141.2
Net private domestic investment	234.6
Fixed investment	176.4
Inventory accumulation	58.2
Net foreign investment	– 93.4
Statistical discrepancy	\$7.4

Source: U.S. Department of Commerce, *Survey of Current Business* (various issues).

Note: Figures may not add up perfectly because of rounding.

amounted to \$235 billion. The two totals were consistent because, instead of devoting part of net saving to net investment abroad, the United States *dis-*invested abroad by \$93 billion. That is, it accumulated \$93 billion less in assets abroad than foreign holders accumulated in the United States. In other words, by importing more goods and services than it exported, the United States was able to take advantage of the corresponding net capital inflow to supplement the saving available from domestic sources.

Placed in this context, the \$93 billion net capital inflow in 1984 was of substantial importance. It has lately become fashionable in the business press to describe this inflow from abroad as having financed more than half of the federal government's deficit. Given the inherent fungibility of financial flows at this level of aggregation, it would be equally correct to say that the capital inflow had financed more than half of the nation's net fixed capital formation—or, similarly, more than all of the U.S. business sector's net investment in new plant and equipment.² A less misleading description would be merely to say that the \$93 billion net capital inflow had supplemented a net domestic saving total of only \$149 billion.

This massive U.S. reliance on foreign capital is unprecedented in the twentieth century. Table 4-4 reviews the main 1951-85 movements of the U.S. balance of net saving and investment, in a form comparable to table 4-3, but stated in percentages of gross national product so as to abstract from the economy's growth. Despite substantial variation since World War II in such factors as tax rates, price inflation, real rates of return, and income growth trends—all of which could in principle affect saving behavior—the U.S. economy's net private saving rate has remained steady throughout this period. Its postwar mean has been 7.2 percent, with a standard deviation around the mean of only 1 percent, and it has displayed no significant time trend during this period (once the data are corrected for cyclical variation). The saving rate has varied in a modestly procyclical pattern, however, and this variation accounts for the slightly higher than average level during the 1960s and (in part) for the distinctly lower than average level during the early 1980s.

Table 4-4 makes clear the extraordinary stance of U.S. fiscal policy during the 1980s. In contrast to a nearly balanced federal budget on average throughout the 1950s and 1960s, and a deficit equal to less than 2 percent of gross national product on average during the 1970s, the federal budget deficit has now been approximately 5 percent of gross national product—above the prior record for any peacetime year—in each of the past four consecutive years. By contrast, state and local governments have increasingly run budget surpluses during this period, as current pension surpluses have grown faster than operating deficits. With net private saving slightly lower than the historical average, and the federal deficit ballooning far beyond the aggregate state-local government surplus, both total net saving and total net investment dur-

Table 4-4
U.S. Net Saving and Investment as Percentages of GNP, 1951-85

	1951-60	1961-70	1971-80	1981	1982	1983	1984	1985
Total net saving	6.9%	7.5%	6.1%	5.2%	1.6%	1.8%	4.1%	3.0%
Net private saving	7.2	8.0	7.1	6.1	5.4	5.9	7.4	6.5
Personal saving	4.7	4.7	4.9	4.6	4.4	3.6	4.3	3.3
Corporate saving	2.5	3.3	2.2	1.4	1.0	2.3	3.1	3.2
State-local government surplus	-0.2	0.1	0.9	1.3	1.1	1.3	1.4	1.4
Federal government surplus	-0.2	-0.5	-1.9	-2.2	-4.8	-5.4	-4.8	-4.9
Total net investment	7.0	7.5	6.3	5.4	1.6	1.8	3.8	2.8
Net private domestic investment	6.7	7.0	6.2	5.2	1.8	2.9	6.4	5.7
Plant and equipment	2.7	3.5	3.0	3.1	2.0	1.5	4.8	4.9
Residential construction	3.2	2.5	2.5	1.3	0.6	1.8	1.6	0.8
Inventory accumulation	0.8	1.1	0.7	0.9	-0.9	-0.4	1.6	0.8
Net foreign investment	0.3	0.5	0.1	0.2	-0.2	-1.0	-2.6	-2.9
Memoranda: Capital consumption	8.9	8.5	9.9	11.2	11.7	11.4	11.0	11.0
Gross private saving	16.1	16.4	17.0	17.2	17.1	17.3	18.4	17.6

Source: U.S. Department of Commerce, *Survey of Current Business* (various issues), and author's estimate.

Notes: Data are averages (except for 1981-85) of annual flows. Data for 1985 are through 1985: Q2 at seasonally adjusted annual rates. Total net saving and total net investment differ by statistical discrepancy. Detail may not add to totals because of rounding.

ing the 1980s have fallen far short of prior U.S. norms. Instead of the typical 7-percent rate that characterized the prior three decades, total net investment averaged only 3.1 percent of gross national product during 1981–85, and only 2.5 percent for 1982–85.

Increasingly since 1982, however, a negative net foreign investment position has cushioned the impact of this change on the U.S. economy's domestic capital formation. U.S. net foreign investment was last positive—that is, the United States last devoted more saving to foreign uses than it imported saving from abroad for domestic uses—in 1981. Since then the nation's net foreign investment has been negative, and increasingly so each year as the current account balance has deteriorated.

To be sure, the 1980s have hardly been a banner period for capital formation in the United States, even with the aid of so much foreign saving. Net private domestic investment has averaged only 4.4 percent of gross national product during this period, well below the 6–7-percent range typical of the prior three decades. Nor has business investment in plant and equipment fared particularly well (presumably at the expense of homebuilding), despite the tax incentives legislated in 1981.³ The absence of greater strength in business fixed capital formation, in turn, has probably played at least some role in disappointing hopes that the U.S. economy's productivity growth might show renewed strength in the 1980s.⁴ Nevertheless, even this meager investment performance would presumably have been still more disappointing in the absence of the swelling foreign capital inflow.

The continuing and increasing reliance on foreign capital to finance its massive government deficit and modest net capital formation raises two sets of issues for the United States. First, what consequences follow if the capital inflow continues? Second, what if it doesn't? The next two sections address these questions.

What if the Capital Inflow Continues?

Financial flows represent changes in stocks of assets owned and liabilities owed. As table 4–2 shows, during 1984 foreign holders collectively accumulated \$97 billion of assets in the United States, including debt liabilities issued by U.S. borrowers as well as equity claims and real estate, while U.S. holders accumulated only \$20 billion of analogous assets abroad. These totals, though certainly substantial enough, are still but one year's contribution to the building over time of assets internationally owned and liabilities internationally owed. If U.S. exports of goods and services continue to fall short of U.S. imports by anything like the deficit experienced in 1984, these internationally relevant asset and liability stocks will continue to grow, not just absolutely but also in comparison to the size of the U.S. economy.

Table 4–5 shows the 1970–84 evolution of the stock of assets abroad owned by U.S. holders, the stock of assets in the United States owned by foreign holders, and the U.S. “net international investment position” consisting of the difference between the two. These asset stocks (measured in dollars) grow from year to year not only with the capital flows that finance the U.S. balance of payments but also as a result of valuation changes due to either asset prices or exchange rates. In 1984, for example, U.S. holdings of assets abroad increased by \$21 billion as a result of a \$20 billion capital flow, enhanced by \$6 billion due to increases in foreign asset prices (and other statistical adjustments), and reduced by \$5 billion due to the falling value of most foreign currencies in dollar terms. Similarly, in 1984, foreign asset holdings in the United States increased by \$99 billion as a result of a \$97 billion capital flow, enhanced by \$2 billion due to increases in U.S. asset prices.

The most dramatic development of the 1980s documented in table 4–5 is the dramatic reduction, in just two years, of the positive U.S. net international investment position. During the nineteenth century the United States, in a pattern that has since become typical of many developing countries, financed its initial industrialization with large inflows of foreign capital. Once its industrial development was under way, however, the United States began to export capital rather than import it. By 1914, this new capital outflow had sufficiently accumulated to render U.S. holdings of assets abroad greater than foreign holdings of assets in the United States—that is, to give the United States a positive net international investment position. A continuing excess of U.S. accumulation abroad over foreign accumulation in the United States, on average over nearly seven decades, brought the U.S. net international investment position to \$147 billion (nearly 5 percent of U.S.

Table 4–5
U.S. Net Investment Position, 1970–84
(billions of dollars)

	<i>U.S. Assets Abroad^a</i>	<i>Foreign Assets in the U.S.^a</i>	<i>Net U.S. Position^a</i>
1970	\$165.4	\$106.9	\$ 58.5
1975	295.1	220.9	74.2
1980	606.9	500.8	106.1
1981	719.9	579.0	140.9
1982	839.0	692.0	147.0
1983	893.8	787.6	106.2
1984	914.7	886.4	28.3

Source: U.S. Department of Commerce, *Survey of Current Business* (various issues).

^aAt year-end.

gross national product) by year-end 1982. The capital flows required to finance just the last two years of U.S. imports in excess of U.S. exports reduced this net position to only \$28 billion by year-end 1984. By the end of 1985, the net position will be negative, and at current rates it will grow to – \$400–500 billion (in today's prices) by the end of the decade.

The dissipation of the U.S. net international investment position—and, still worse, the continuing movement of the United States into net debtor status—bears potentially worrisome implications for the freedom of U.S. economic policy and for the nation's ability to achieve a rising standard of living. At the most obvious level, net debtor status implies the need not just to service debt obligations owed abroad but to nurture foreign leaders' confidence in the nation's ability to meet its obligations, and hence their willingness to hold them. To be sure, the situation of the United States would be unlike that of many of today's troubled debtor nations, in that the great majority of U.S. liabilities are denominated in the United States's own currency. Even so, a net external debt of \$400–500 billion (in constant prices) would represent 11–14 percent of 1990 gross national product if the U.S. economy achieved an average 3-percent real growth for the remainder of the decade, or roughly 100 percent of 1990 total exports if the export share of total output remains as it is today.

Moreover, even apart from the strains that would be implied by the sheer magnitude of the debt service obligation due to such a large net external debt position, it is worrisome that, in contrast to the experience of prior years, the recent accumulation of U.S. assets held abroad has been almost entirely due to private rather than official (that is, government) holders. During 1971–78, for example, foreign official holders accumulated a total of \$147 billion of U.S. assets, while foreign private holders accumulated a total of \$118 billion of U.S. assets. During 1979–84, the foreign official and foreign private accumulations have totalled \$26 billion and \$489 billion, respectively. As a result, private holders accounted for 78 percent of the \$886 billion of U.S. assets held abroad as of year-end 1984. On the other side of the account, it is also worrisome that almost half of all U.S. holdings of assets abroad (\$443 billion out of \$915 billion at year-end 1984) now consist of bank loans to foreign borrowers, many of whom are unable to meet their own obligations except in the highly artificial sense implied by the recent widening circle of reschedulings.⁵

Even if foreign holders continue not to question the creditworthiness of U.S. obligors, so that neither actual defaults nor crises of confidence disrupt financial flows and, consequently, economic activity, the net debtor status of the United States poses a significant challenge to the nation's ability to achieve increases over time in its standard of living. As the direct connection between net capital inflows and the balance of payments on goods and services suggests, a nation's net debtor or creditor status determines its ability to

consume (or invest) in relation to what it produces. If asset returns are approximately equalized in international markets, a creditor nation earns a positive net flow of income by virtue of owning more than it owes internationally. It may then apply that income to finance consumption in excess of domestic production. As table 4–1 shows, on average during the 1970s, the United States maintained an approximately balanced current account, despite a significant trade deficit, because of service income including earnings on its relatively large positive net international investment position. As recently as 1982, the United States ran a \$6 billion current account surplus, despite a \$28 billion trade deficit, almost entirely because of earning \$85 billion on assets abroad while having to pay only \$55 billion on foreign holdings of U.S. assets.

As the U.S. net international investment position has eroded since 1982, so too has the positive net flow of income earned on international asset holdings. In 1984, the United States earned \$87 billion on assets abroad (including “payments” of interest on rescheduled debts held by U.S. banks), while paying \$68 billion. Hence in 1984 again, the United States could still use investment income to finance at least part of its shortfall of goods exports behind goods imports.

Now, however, as the United States becomes a net debtor, it will have to produce more than it consumes (and invests) if it is not to spiral explosively into ever greater indebtedness relative to the economy’s productive capacity. What makes this prospect all the more problematic is that the United States has not been using the bulge in financial capital inflows to facilitate a bulge in the formation of either physical or human capital resources, as rapidly developing countries typically do. As table 4–4 shows, U.S. investment in productive physical capital has been below average during these years. Nor has spending for research and development or for education shown any unusual strength. Instead of mortgaging part of the future income from its investments—a familiar activity that may or may not be sensible, depending upon the relative returns and the associated risks involved—the United States has been mortgaging its future income in order to finance a combination of government and private consumption.

Finally, the increasing accumulation of foreign asset holdings in the United States can significantly affect U.S. financial markets, and hence the resulting outcomes for U.S. economic activity more broadly, in still another way. Because the capital inflow required to finance today’s U.S. export–import imbalance is so large, foreign holdings of U.S. assets are rising not just in relation to U.S. holdings of assets abroad but also in relation to the overall size of the U.S. financial markets. Throughout the 1960s, total foreign asset holdings in the United States (including foreign direct investment) represented only some 3 percent of the total of financial assets held and traded in U.S. markets.⁶ As table 4–6 shows, the share of U.S. financial assets held by

Table 4-6
Foreign Holdings of U.S. Financial Assets, 1960-84
(billions of dollars)

	<i>Amount^a</i>	<i>% of U.S. Market^a</i>
1960	\$ 40.6	3.1%
1965	57.7	3.0
1970	98.3	3.8
1975	187.7	5.2
1980	390.7	6.1
1981	420.1	6.1
1982	440.0	5.8
1983	512.8	6.1
1984	618.8	6.7

Source: Board of Governors of the Federal Reserve System, *Flow of Funds* (various issues.)

Notes: Foreign holdings exclude gold and Special Drawing Rights (SDR), and include interbank claims net of foreign interbank liabilities. U.S. market size includes foreign plus all domestic nonfinancial sectors.

^aAt year-end.

foreign investors has risen rapidly since then, and it is continuing to do so. As of year-end 1984, foreign holdings accounted for nearly 7 percent of all U.S. financial assets.⁷

This increasing foreign ownership of U.S. financial assets will affect the equilibrium of asset prices and asset returns determined in U.S. markets, and hence also affect U.S. nonfinancial economic activity, unless foreign investors turn out to exhibit portfolio preferences identical to those of American investors. When the investors who collectively hold the assets in any market are heterogeneous, in general the resulting equilibrium set of asset prices and returns is some weighted combination of the equilibrium prices and returns that would result if each group, in turn, uniquely constituted the entire market. For example, as Lintner (1969) showed, when investors have differing degrees of risk aversion, the resulting equilibrium price of risk is a weighted (harmonic) mean of each investor's own degree of risk aversion, with the weights corresponding to each investor's relative share of total asset holdings. Changes in different investors' relative market importance in this sense therefore lead to changes in the overall market price of risk.

More generally, if the market consists of investors, indexed by i , each of whose single-period asset preferences are of the form

$$\mathbf{A}_{it}^D = W_{it} \cdot (\mathbf{B}_{it} \mathbf{r}_t^e + \boldsymbol{\pi}_{it}) \quad (4.1)$$

where \mathbf{A}^D is a vector of asset demands (satisfying $\mathbf{A}^D \mathbf{1} = \mathbf{W}$), \mathbf{W} is the inves-

tor's total wealth, \mathbf{r}^e is a vector of expected asset returns, and \mathbf{B} and $\boldsymbol{\pi}$ are, respectively, a matrix and a vector of coefficients determined by the investor's risk preferences and assessments of the risks associated with the various available assets,⁸ then the asset market partial equilibrium condition

$$\sum_i \mathbf{A}_{it}^D = \mathbf{A}_t^S \quad (4.2)$$

for vector \mathbf{A}^S of asset supplies outstanding, determines the market-clearing structure of expected asset returns as

$$\mathbf{r}_t^e = \left(\sum_i \mathbf{W}_{it} \mathbf{B}_{it} \right)^{-1} \left(\mathbf{A}_t^S - \sum_i \mathbf{W}_{it} \boldsymbol{\pi}_{it} \right). \quad (4.3)$$

If investors' risk preferences and/or risk assessments differ, then the nonproportionate growth of different investors' wealth positions over time changes the resulting asset return structure.⁹

Foreign investors in U.S. asset markets may exhibit portfolio preferences different from those of American investors for a variety of easily understandable reasons. First, in a world still of limited (though increasing) capital mobility, the relevant set of available assets for foreign investors differs from the corresponding set for Americans. Because of the consequent differences in the set of relevant asset return covariances, even the same assets may have different risk properties as seen by the two respective groups of investors. Second, investors with incomes largely originating in different countries face different sets of macroeconomic risks, due to the countries' differing policy regimes, industrial structures, dependence on imported oil and other raw materials, and other analogous characteristics. Again, even identical assets may therefore have different risk characteristics from the perspective of investors in different countries.¹⁰ Third, there is no reason to expect such aspects of underlying preferences as risk aversion to be uniform across countries with widely differing societal structures and traditions.

For any or all of these reasons, foreign investors participating in the U.S. financial markets may prefer either more or less risky assets overall, may prefer either more debt securities or more equity securities, may prefer either more long-term or short-term debt, or may prefer either more volatile or less volatile equities, in comparison to American investors. If so, then the rapidly increasing share of U.S. financial assets held by foreign investors implies that their portfolio preferences will assume greater importance—in the sense of equation 4.3, foreign investors' W_i will rise, relative to that for U.S. investors—in determining the yield and price relationships that prevail in U.S. markets.

Table 4–7 compares the composition of foreign holdings of U.S. finan-

Table 4-7
Foreign versus Domestic Holdings of Financial Assets, 1984
(billions of dollars)

	Foreign Holders		Domestic Holders	
	Amount ^a	% of Total ^a	Amount ^a	% of Total ^a
Checkable deposits and currency	\$ 19.7	4.4%	\$ 582.2	7.1%
Large time deposits	39.4	8.8	392.3	4.8
Short-term U.S. government securities	72.0	16.0	1,709.5	20.8
Long-term U.S. government securities	120.8	26.9		
Other short-term paper	40.9	9.1	266.4	3.2
Corporate bonds	61.8	13.8	588.1	7.2
State-local government securities	0.0	0.0	543.6	6.6
Mortgages	0.0	0.0	2,028.9	24.7
Corporate equities	94.5	21.0	2,090.3	25.5
Total	449.1	100.0	8,201.3	100.0

Source: Board of Governors of the Federal Reserve System, *Flow of Funds* (various issues).

Notes: Short-term U.S. government securities include marketable securities only. Other short-term paper includes commercial paper and bankers acceptances. Foreign holdings of corporate equities exclude foreign direct investment. Totals exclude small time and saving deposits, money market mutual funds, interbank claims, and other miscellaneous assets.

^aAt year-end.

cial assets to the corresponding composition of financial asset holdings by all domestic U.S. investors, for year-end 1984.¹¹ Although the absence of foreign ownership of some specific assets stands out, the rough outlines of the two aggregate portfolios are quite similar. The respective fractions invested in equities, for example, are within four percentage points.¹² Similarly, the respective fractions invested in bank-issued claims (plus currency) are essentially identical.

The most significant difference between foreign and U.S. financial asset holdings shown in table 4-7 is in the maturity composition of debt instruments. As of year-end 1984, foreign investors held \$152 billion of short-term debt instruments issued in U.S. markets (including negotiable time deposits, but excluding checkable deposits and currency) versus \$183 billion of long-term instruments, for a roughly 5-to-6 short-to-long maturity structure. Determining the analogous ratio for domestic investors is more problematic because of the unavailability of current data on the maturity composition of the relevant holdings of U.S. government securities,¹³ but a plausible infer-

ence based on what data are available suggests that the corresponding totals for domestic investors are \$1.4 trillion of short-term debt instruments versus \$4.1 trillion of long-term instruments, for a 1-to-3 short-to-long maturity structure.

If foreign investors continue to represent an increasing share of U.S. financial asset holdings, and if their portfolio preferences remain unchanged, over time the market-clearing relationship among asset returns is therefore likely to require a greater premium of expected returns on long-term debts over expected returns on short-term debts than has been the case on average in the past. Such a change in the prevailing structure of interest rates (and asset returns more generally) will not only bear a variety of implications within the U.S. financial markets—for example, for the relative attractiveness of different forms of saving, and hence of different kinds of saving institutions—but also, and more importantly, exert effects on U.S. nonfinancial economic activity. In particular, evidence on both business and household financing patterns suggests that such a widening of average maturity premiums, if not offset by other factors, is likely in turn to shift the composition of aggregate demand away from fixed capital formation toward other applications.¹⁴ Hence it will further compound the economy's recent problem of poor investment performance shown in table 4-4.

What if the Capital Inflow Does Not Continue?

The entire question of implications of continuing massive inflow of foreign capital into the United States will, of course, become moot if the capital inflow soon shrinks—that is, if the United States manages to regain a much greater degree of balance between its exports and its imports. A decline in the real exchange value of the dollar, due either to a shift in the mix of U.S. fiscal and monetary policies or to a change in international portfolio preferences, is probably the most obvious development that would bring about such an outcome. There are other possibilities too, however. For example, U.S. producers could become more competitive abroad, even at the current dollar exchange rate, if they developed new products eagerly sought by foreign buyers, or if trade negotiations succeeded in lessening restrictions impeding U.S. exports. Alternatively, U.S. producers could regain domestic sales if additional protectionist measures enacted by the United States further excluded foreign imports.¹⁵

In light of the increasingly important role played by the net capital inflow in the U.S. balance of saving and investment, discussed at length under **Capital Inflows, Investment, and Government Deficits**, any imminent shrinkage of this inflow would have serious repercussions for major aspects of U.S. economic activity. Even so, unraveling those repercussions is far from straight-

forward. For example, as that section notes, the business press has recently emphasized the role of the capital inflow in financing the federal government's budget deficit. The standard implication drawn in such evaluations is that, in the absence of the capital inflow, the government deficit would absorb a larger share of domestic net private saving, leaving less available to finance domestic capital formation. Whether such an outcome would in fact follow from a shrinking of the capital flow, however, depends crucially on what caused the capital flow to shrink in the first place. If the exogenous event at the beginning of the causal chain were a return to the typical pre-1980s fiscal policy, for example, then the smaller budget deficit would itself offset all or part of the lost foreign capital.

In evaluating such questions, therefore, it is essential not only to separate what is exogenous from what is endogenous but also to specify clearly the exact experiment under consideration. The most useful way to begin is with the balance of saving and investment in the form implicit from table 4-4 (excluding the statistical discrepancy)

$$PS = DI + GD + FI \quad (4.4)$$

where *PS* is net private saving, *DI* is net private domestic investment, *GD* is the combined deficit of federal and all state and local governments, and *FI* is net foreign investment (that is, the negative of the foreign capital inflow). Because this identity must hold at all times, no one of the four variables indicated can vary without a precisely offsetting variation in one or more of the other three. More specifically, in the context of thought experiments in which all four of these variables are endogenous, no exogenous shock—neither a change in U.S. fiscal and monetary policies, nor a change in foreign investors' willingness to hold dollar assets—can affect any one of the four without affecting one or more of the others in a precisely offsetting way.

Table 4-8 indicates the nature of these offsetting movements in the respective elements of the balance of saving and investment in response to U.S. fiscal and monetary policies, based on seasonally adjusted quarterly data spanning 1970-84. The first column of the table reports results from ordinary-least-squares regressions of the form

$$Y_{it} = \alpha_i + \sum_{j=0}^3 \beta_{ij} FP_{t-j} + u_{it} \quad (4.5)$$

where y_i is in turn each of the four saving or investment variables shown in equation 4.4, measured as a percentage of gross national product; *FP* is the federal government budget deficit calculated on a 6-percent unemployment basis, and also measured as a percentage of gross national product;¹⁶ α_i and

Table 4-8
Estimated Effects on the Balance of Saving and Investment

Dependent Variable	Independent Variable	
	FP	MP
PS: $\hat{\beta}_0$	-.09 (-0.4)	-10.42 (-2.7)
$\Sigma \hat{\beta}_j$	-.68 (-2.9)	3.72 (8.0)
SE (\bar{R}^2)	1.10 (.08)	.79 (.53)
DI: $\hat{\beta}_0$	-1.24 (-3.6)	-1.78 (2.6)
$\Sigma \hat{\beta}_j$	-.80 (-2.1)	6.38 (7.5)
SE (\bar{R}^2)	1.74 (.28)	1.45 (.50)
GD: $\hat{\beta}_0$	1.48 (5.9)	9.48 (1.4)
$\Sigma \hat{\beta}_j$.86 (3.2)	-4.68 (-5.7)
SE (\bar{R}^2)	1.26 (.49)	1.39 (.38)
FI: $\hat{\beta}_0$	-.31 (-2.0)	1.17 (0.3)
$\Sigma \hat{\beta}_j$	-.86 (-5.4)	2.07 (5.0)
SE (\bar{R}^2)	.74 (.33)	.70 (.39)

Notes: Ordinary-least-squares regression results for equation (4.5) (column 1) and equation (4.6) (column 2).

Quarterly data, 1970:Q1-1984:Q4, seasonally adjusted.

Numbers in parentheses by coefficient estimates are *t*-statistics.

All variables except *MP* are stated as percentages of GNP.

Definitions of variables symbols:

PS = net private saving

DI = net private domestic investment

GD = federal plus state-local government deficit

FI = net foreign investment

FP = high-employment federal deficit

MP = logarithm of trend-adjusted ratio of money stock to GNP

the β_{ij} are fixed coefficients to be estimated; and u_i is a disturbance term corresponding to y_i . For each of the four regressions, the table presents only partial results consisting of the estimated $\hat{\beta}_0$ and $\Sigma_{t=0}^3 \hat{\beta}_j$, the associated *t*-statistics, and the standard error of estimate (SE) and associated \bar{R}^2 . The second column reports analogous results for regressions of the form

$$y_{it} = \alpha_i + \sum_{j=0}^3 \beta_{ij} MP_{t-j} + u_{it} \quad (4.6)$$

where *MP* is a monetary policy index indicating the logarithm of the (quadratic) trend-adjusted value of the *M*-1 money stock relative to gross national product.¹⁷

Because of the restriction imposed by the identity in equation 4.4, ordinary-least-squares estimates of any system of equations of the form

$$y_t = \alpha + \mathbf{B}z_t + u_t \quad (4.7)$$

where

$$y = \begin{bmatrix} PS \\ -DI \\ -GD \\ -FI \end{bmatrix} \quad (4.8)$$

and z is any vector of driving variables, necessarily satisfy the “adding-up” conditions

$$\hat{\alpha}'\mathbf{1} = \hat{\beta}'_j\mathbf{1} = u_t\mathbf{1} = 0 \quad (4.9)$$

where $\hat{\beta}_j$ is the j th column of matrix \mathbf{B} .¹⁸ As comparison down the two columns of table 4–8 shows, after appropriate sign changes the two sets of $\hat{\beta}_0$ values and $\sum_j \hat{\beta}_j$ values satisfy these conditions to within the accuracy implied by the omission of the statistical discrepancy.

The two sets of regression results reported in table 4–8 therefore indicate answers to the question of how the elements of the U.S. balance of saving and investment vary together, based on two separate thought experiments. First, what if the driving variable is a change in U.S. fiscal policy, as represented by an increase in the high-employment federal deficit relative to gross national product? As the $\hat{\beta}_0$ values in the first column show, the overall actual government deficit responds immediately and sharply to the high-employment deficit; with essentially no response in private saving, the immediate result is both to crowd out domestic investment ($\hat{\beta}_{DI,0} = -1.24$) and, to a much lesser extent, to draw in foreign capital ($\hat{\beta}_{FI} = -.31$).¹⁹

The corresponding one-year cumulative effects of a change in fiscal policy tell a roughly similar story, albeit with some interesting differences. Over a year private saving declines ($\sum \hat{\beta}_{PS,j} = -.68$). The crowding out of domestic investment becomes smaller ($\sum \hat{\beta}_{DI,j} = -.80$), while the impact on the foreign capital inflow becomes larger ($\sum \hat{\beta}_{FI,j} = -.86$), so that after a year the two effects are approximately equal magnitude. Overall, the entire set of estimates broadly corresponds to the U.S. experience thus far during the 1980s. Read in the opposite direction, they provide a plausible enough

first answer to the question of what would happen as the result of a tightening of U.S. fiscal policy.

The second column of table 4–8 tells a roughly analogous story about the effects of an easing of U.S. monetary policy.²⁰ The estimated immediate impact of greater money growth is to depress both private saving and domestic investment; the accompanying effects on the government deficit and on net foreign investment are insignificantly different from zero.²¹ Over a year an easier monetary policy stimulates private saving ($\sum \hat{\beta}_{PS,j} = 3.72$) and stimulates domestic investment by much more ($\sum \hat{\beta}_{DI,j} = 6.38$). Because the government deficit narrows ($\sum \hat{\beta}_{GD,j} = -4.68$), net foreign investment increases—in other words, the capital inflow becomes smaller ($\sum \hat{\beta}_{FI,j} = 2.07$).

Univariate regressions such as those reported in table 4–8 do not clearly separate the effects of fiscal and monetary policies because they do not hold one policy constant while analyzing the other. Table 4–9 presents corresponding partial results (for convenience, omitting the initial impact estimates) from ordinary-least-squares regressions of the form

$$y_{it} = \alpha_i + \sum_{j=0}^3 \hat{\beta}_{ij} EX_{t-j} + \sum_{j=0}^3 \gamma_{ij} RE_{t-j} + \sum_{j=0}^3 \delta_{ij} MP_{t-j} + u_{it} \quad (4.10)$$

where *EX* and *RE* are federal government expenditures and revenues, respectively, with both calculated on a 6-percent unemployment basis and measured as percentages of gross national product, and all other variables are as in equations 4.5 and 4.6.²² The underlying sample again consists of seasonally adjusted quarterly data spanning 1970–84.

On balance, the one-year cumulative effects of fiscal and monetary policies reported in table 4–9 are consistent with the separate effects reported in table 4–8, although fewer of these effects are statistically significant in the multivariate context. Over a year the partial effect of greater high-employment federal government expenditures is to enlarge the overall actual government deficit with essentially no offsetting increase in private saving. The result is to crowd out domestic investment ($\sum \hat{\beta}_{DI,j} = -1.07$) and, to a much lesser extent (and not significantly), to draw in foreign capital ($\sum \hat{\beta}_{FI,j} = -.23$). The partial effect of greater high-employment federal government revenues is to enlarge the overall actual government deficit by much less than one-for-one, although again with no increase in private saving.²³ The result is primarily to increase net foreign investment ($\sum \hat{\gamma}_{FI,j} = .85$) and, to a lesser extent (and not significantly), to crowd out investment ($\sum \hat{\gamma}_{DI,j} = -.35$). Finally, the partial effect of more rapid money growth is primarily to stimulate both private saving ($\sum \hat{\delta}_{PS,j} = 5.00$) and domestic investment ($\sum \hat{\delta}_{DI,j} = 4.08$). To a rough approximation, these results again correspond to the now familiar analysis of the deterioration of the U.S. trade balance and of U.S. capital

Table 4-9
Estimated Joint Effects on the Balance of Saving and Investment

Dependent Variable	$\Sigma \hat{\beta}_j$	$\Sigma \hat{\gamma}_j$	$\Sigma \hat{\delta}_j$	SE	\bar{R}^2
PS	.10 (0.3)	.02 (0.1)	5.00 (8.1)	.67	.66
DI	-1.07 (-1.7)	-.35 (-0.9)	4.08 (3.1)	1.43	.51
GD	1.28 (2.5)	-.35 (-1.0)	-1.28 (-1.2)	1.15	.57
FI	-.23 (-0.9)	.85 (5.1)	2.02 (3.8)	.58	.58

Notes: Ordinary-least-squares regression results for equation (4.10).

Quarterly data, 1970:Q1-1984:Q4, seasonally adjusted.

Numbers in parentheses are *t*-statistics.

All variables except *MP* are stated as percentages of GNP.

Definitions of variable symbols:

EX = high-employment federal expenditures

RE = high-employment federal revenues

PS = net private saving

DI = net private domestic investment

GD = federal plus state-local government deficit

FI = net foreign investment

FP = high-employment federal deficit

MP = logarithm of trend-adjusted ratio of money stock to GNP

formation in the 1980s, in terms of the radical turn during this period in the U.S. fiscal–monetary policy mix.

Apart from a change in U.S. fiscal or monetary policy, the most obvious possible cause of a decline in the real dollar exchange rate—and hence a narrowing of the U.S. trade deficit and a corresponding shrinkage of the foreign capital inflow—is a change in the willingness of foreign investors to hold dollar-denominated assets.²⁴ Even so, carrying out an analysis of the effects of shifting foreign portfolio preferences corresponding to the analysis of fiscal and monetary policies in tables 4–8 and 4–9 is highly problematic. Presumably, foreign investors' asset preferences respond to a variety of influences—for example, both interest rates and exchange rates—that in turn either directly depend on the outcomes for the major elements of the saving–investment balance or, at the least, are jointly determined with them. To the extent that such codetermination is present, such variables are not valid right-hand-side variables in any system like equation 4.8, and the resulting estimates would be biased.

What would be necessary, instead—as in the analysis of fiscal and monetary policies—is to identify some genuinely exogenous influence to serve as the initial point of the causal chain constituting the thought experiment at issue. If some exogenous factor increases the aggregate demand for net dollar assets, therefore leads to a rise in the dollar exchange rate, therefore leads to a larger trade deficit, therefore leads to a large net capital inflow, and therefore affects some or all of the other elements in the U.S. balance of saving and investment, it is that exogenous factor—not the capital inflow, nor the trade deficit, nor the exchange rate—which constitutes the valid right-hand-side variable for these purposes. Unfortunately, attempts along these lines based on two separate approaches, both aimed at isolating independent components of movements in either exchange rates or interest rate differentials, proved insufficient.²⁵ A structural modeling approach, such as that applied by Sachs (1985), is apparently necessary to unravel the effects of shifts in foreign portfolio preferences.

Summary of Conclusions

The rapidly growing net inflow of capital from abroad, mirroring the extraordinary deterioration of the U.S. export–import balance, has played a major role in equilibrating overall saving and investment in the United States in the face of unprecedentedly large and persistent federal government budget deficits during the 1980s. As of the middle of the decade, this capital inflow is more than half as large as the total net saving of the United States. By relying on it in this way, the United States has already dissipated the positive net international investment position it had built up over the previous seven

decades. On the current trajectory, the United States will soon be the world's leading debtor nation.

Because of the sheer size of the foreign capital inflow, the share of U.S. financial assets held by foreign investors is also growing rapidly. To the extent that foreign investors' portfolio preferences differ from those of U.S. investors, their increasing relative importance in this sense will change the equilibrium price and yield relationships determined in U.S. markets. The most readily apparent difference between foreign and domestic patterns of asset holdings in this regard is that foreign investors, on average, hold far less of their portfolios in long-term debt instruments and, correspondingly, far more of their portfolios in short-term debt instruments, than do American investors. The increasing share of foreign ownership of U.S. financial assets is therefore likely to raise the expected return premium on long-term debt, and hence to shift the composition of U.S. financial activity away from capital formation.

The foreign capital inflow—and with it the U.S. export–import balance—may change in response to a variety of possible influences, including especially either fiscal and monetary policies in the United States or shifts in foreign investors' portfolio preferences for dollar assets versus assets denominated in other currencies. Empirical estimates indicate that a tightening of U.S. fiscal policy would significantly stimulate U.S. capital formation as well as shrink the U.S. capital inflow (that is, improve the U.S. export–import balance). Similar estimates indicate that an easing of U.S. monetary policy would also significantly stimulate capital formation and shrink the capital inflow. The difficulty of isolating genuinely independent movements of exchange rates and international interest rate differentials precludes deriving similar estimates for the analogous effects of a shift in portfolio preferences.

Notes

1. The statistical discrepancy in the national income accounts is not the same as that in the balance of payments accounts.

2. Data indicating the split between net business investment in plant and equipment and net residential investment, within the \$176 billion total shown in table 4–3, are not yet available. Extrapolations based on prior years' allocation of the relevant depreciation flows suggests that each component probably represented about one-half of the total.

3. See again note 2.

4. Growth of output per manhour in the U.S. economy's nonfarm business sector averaged 2.7 percent per annum during 1948–65, but then declined to 1.8 percent per annum during 1966–77. Productivity then remained flat during 1978–82. Despite the usual cyclical increase at the outset of the current business expansion, productivity growth during the expansion to date (1983:Q1–1985:Q2) has averaged 2.3 percent

per annum, actually somewhat below the comparable average for prior postwar expansions.

5. Other problems of asset valuation and reporting suggest that the data in table 4–5 may over- or underestimate the U.S. position. These data value U.S. direct investment abroad and foreign direct investment in the United States at cost, and hence presumably undervalue both, but the former exceeds the latter by a large margin (\$233 billion versus \$160 billion at year-end 1984). Similarly, the data value U.S. gold holdings (\$12 billion at year-end 1984) at only \$42.22 per ounce. Yet another potential problem, of course, is the accumulation of unreported flows in both directions. The accumulated statistical discrepancy since 1970 has been a \$150 billion inflow, part of which has probably been a capital inflow.

6. Even this low percentage represents a small overstatement in that foreign direct investment (\$7 billion out of the \$41 billion total for 1960, for example) includes some real estate holdings, while the comparison base consists of financial claims only.

7. The totals shown in table 4–6 are smaller than the foreign holdings shown in table 4–5 for several reasons, especially the netting of interbank claims. Other differences include the treatment of U.S. corporations' borrowing abroad via Netherlands Antilles subsidiaries and (since 1981) the operation of U.S. banks' international banking facilities (IBFs). Isard and Stekler (1985) have shown that adjusting for these factors (especially IBFs) substantially diminishes the apparent accumulation of foreign claims during 1981–82, but does so to a much smaller extent thereafter.

8. The linear homogenous form in equation 4.1 follows, for example, from the assumptions of constant relative risk aversion and joint normally (or lognormally) distributed asset return assessments. If all assets are risky, for example, the specific relationship is

$$B = - \frac{1}{\rho} [\Omega^{-1} - (1' \Omega^{-1} 1)^{-1} \Omega^{-1} 1 1' \Omega^{-1}]$$

$$\pi = (1' \Omega^{-1} 1)^{-1} \Omega^{-1} 1$$

where ρ is the coefficient of relative risk aversion and Ω is the variance–covariance matrix associated with r^e . See Friedman and Roley (forthcoming) for further details of the derivation and underlying assumptions.

9. See Friedman (1982) for an analysis along these lines in a general equilibrium model (that is, one including simultaneous determination of financial and nonfinancial market outcomes), but in a closed-economy context.

10. In terms of the familiar generalization of the capital asset pricing model due to Breeden (1979), the point is simply that the consumption stream to be hedged is typically different for residents of different countries.

11. Foreign holdings here exclude \$154 billion of foreign direct investment, as well as a variety of miscellaneous claims that are not typically traded in the market (for example, \$23 billion of trade credit). Domestic holdings analogously exclude claims not typically traded (for example, \$633 billion of trade credit, and \$1.7 trillion of small time and savings deposits).

12. Note again, however, the exclusion of \$154 of foreign direct investment.

13. In 1982, the U.S. Treasury discontinued the regular Treasury *Survey of Ownership*.

14. See, for example, the results in Friedman (1982). Moreover, this factor acting to enlarge the maturity premium on long-term debts will work in the same direction as the independent changes in risk structures analyzed by Bodie *et al.* (1984).

15. In the case of U.S. protectionism, the ultimate effect on the U.S. trade balance would, of course, depend on the absence of a like response by foreign countries.

16. It is not in general the case that government expenditures and revenues have just offsetting effects, so that on purely a priori grounds it is more appealing to present results for expenditures and revenues separately, rather than for the deficit as in table 4–8. Nevertheless, regressions corresponding to those in table 4–8, but using as independent variable either government expenditures or government revenues (both calculated on a 6 percent unemployment basis) uniformly exhibit larger standard errors than those reported in table 4–8 based on the deficit variable. By contrast, the multiple regressions reported in table 4–9 treat expenditures and revenues separately.

17. The variable is the residual from the ordinary-least-squares regression

$$\ln \frac{M - 1}{\text{GNP}} = \alpha + \beta_1 t + \beta_2 t^2.$$

I am grateful to Ken Weiller for the use of this variable; see Weiller (1985).

18. The analogy to the basic insight of Brainard and Tobin (1968) is readily apparent.

19. The greater than one-for-one response of both the overall deficit and domestic investment is surprising. These current-quarter results probably reflect simultaneity biases, due, for example, to the use of fiscal policy for purposes of countercyclical stabilization. See the discussion of such biases in Goldfeld and Blinder (1972).

20. The absolute magnitudes of the coefficient estimates are larger here, because the *MP* variable is a logarithm rather than a percentage of GNP.

21. Here, too, the estimated current-quarter effects presumably reflect simultaneity biases, including the countercyclical use of monetary policy as well as the endogeneity of the money stock in the usual sense; see again Goldfeld and Blinder (1972).

22. Here, unlike in the results for equation 4.5 reported in table 4–8, treating government expenditures and revenues separately leads to regressions with smaller standard errors, in three of the four cases, than those for analogous regressions combining the two into a single deficit variable.

23. The unresponsiveness of private saving to government expenditures or government revenues in these estimates (and, still worse if it were credible, the finding of a negative response of private saving to the deficit in table 4–8) is a manifestation of the now familiar empirical contradiction of the Barro (1974) hypothesis. For a recent more detailed look at the evidence on this issue, see Blinder and Deaton (1985).

24. Marris (1985a, 1985b) in particular has emphasized this prospect.

25. The first of these approaches attempted to isolate the component of the movement of exchange rates or interest rate differentials that is not attributable either to ordinary U.S. business fluctuations or to variations in U.S. fiscal and monetary policies, and hence that may plausibly represent other exogenous influences like changing portfolio preferences. The method used was to proxy these influences by the *residuals*

from preliminary regressions relating exchange rates or interest rate differentials to the *FP* and *MP* variables used in equations 4.5 and 4.6, together with the U.S. unemployment rate, growth rate of real GNP, and inflation rate. The second approach focused more directly on foreign fiscal and monetary policies by using the *fitted values* from preliminary regressions relating exchange rates or interest rate differentials to indexes of foreign fiscal and monetary policies, analogous to the *FP* and *MP* variables, constructed on a GNP-weighted basis for six countries other than the United States.

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