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U.S. FISCAL DEFICITS AND THE WORLD IMBALANCE OF PAYMENTS

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I. *Introduction*

At the top of the discussion agenda in international economics are the four related phenomena of a high U.S. structural budget deficit, high U.S. real interest rates, a massive real appreciation of the dollar, and an unprecedented U.S. balance of payments deficit on current account. Byproducts of the "big four" phenomena are an ongoing recession in U.S. manufacturing employment and a near-depression in its farm sector, a rapid shift for the U.S. from external net creditor to net debtor status, and a growing LDC debt burden aggravated by high real interest rates and deteriorating terms of trade. Some would add to this list of byproducts persistent high unemployment in most European countries since 1980, with double digit unemployment rates in numerous countries and teenage unemployment rates above the 20 percent level in France, Italy, and the U.K. These aspects of the international economic situation emerged at various times over the first half of the 1980s but have moved to the foreground of policy discussion as the result of publicity given to the new net debtor status of the U.S. that dates from early 1985, as well as the ongoing hemorrhage of American factories and farms, but most particularly because of the sharp rise of protectionist sentiment in the U.S. Congress.

Judging by the majority of accounts by academics and journalists, the primary culprit for this remarkable set of events is the U.S. Federal budget deficit, to which high real U.S. interest rates, the strong dollar, and the U.S. current account deficit are directly attributed. In the words of Martin Feldstein (1984, pp. 40–41), for instance, ". . . there is nothing surprising about the fact that the dollar has appreciated in the face of enlarged budget deficits." Rudiger Dornbusch (1984, pp. 186–9) supports Feldstein's position, stating

> "The fiscal explanation is highly relevant to the U.S. situation because there has been an enormous shift in the *relative* fiscal position of the U.S. on one side and Europe and Japan on the other side. . . . The U.S. has moved to a strongly expansionary stance while Germany and Japan have moved in exactly the opposite direction. There is no surprise therefore that the dollar responded to the asynchronized fiscal policy by a sharp appreciation."

Even more definitive is William Branson (1985, p. 26), for whom "the conclusion is clear: the shift in the budget did it!"

The predominant role in most discussions of U.S. Federal budget deficits as the root cause of the strong dollar and trade imbalance seems to imply that the situation will not

be corrected until the budget deficits are eliminated. Yet Congressional actions in 1985 achieved only minor reductions in the budget deficit, and negotiations for a comprehensive reform of the Federal tax system has heated up the Washington lobbying industry to a new furor that, even if it does not scuttle tax reform entirely, may lead to revenue-reducing compromises that further amplify the budget deficit. The lack of any real "budget fix" on the horizon increases further the probability of protectionist measures in the U.S. Congress as the malaise of American factories and farms deepens year by year.[1] Faced with an apparent reality in which U.S. budget deficits are here to stay, and in which the anathema of protectionism looms on the near-term horizon, the world naturally searches for some other way out of the present set of imbalances.

The primary purpose of this paper is to provide a skeptical review of the argument that U.S. fiscal deficits are the primary culprit for the behavior of interest rates, the exchange rate, and the balance of payments. In doing so, we compare the case for a "U.S. fiscal-only" explanation with the case for alternative sources of causation, including U.S. monetary policy, foreign fiscal policy, the safe haven hypothesis, and the U.S. profitability hypothesis. Each of these alternatives has its proponents. For instance, some investigators doubt that the U.S. budget deficit has pushed up the dollar by itself, but rather feel that the operative factor was the *combination* of easy fiscal policy with tight monetary policy. Can an easing of U.S. monetary policy correct the international imbalance without any change in U.S. fiscal policy? Indeed, has such an easing of U.S. monetary policy already occurred? In parallel fashion, one might inquire into the potential for a shift in the monetary-fiscal mix outside the U.S. toward more expansionary fiscal policy, to reverse the contractionary impulse noted in the Dornbusch quote above.

Once one steps outside the narrow bounds of the linkage between the deficit, dollar, and balance of payments, one encounters further issues that must be clarified. How much of the increase in the dollar was caused not by the monetary-fiscal policy mix but by an inflow of capital attracted to a "political safe haven"? How much credence should be given to those who argue that the strength of the dollar can be attributed not to U.S. fiscal policy but to a significant increase in the perceived relative long-term profitability of investment in the U.S.? And how much attention should be paid to the U.S. monetarists who argue that higher real interest rates antedate the emergence of *structural* fiscal deficits by at least two years, and thus a major weight in the explanation of both high real interest rates and of the strong dollar must be attributed to the high perceived variability of U.S. monetary policy, as measured by the variance of M1 growth?

In the end, the paper emerges by rejecting any single-cause explanation of the international economic imbalance of the 1980s, because no single explanation is consistent with all the facts. To make its basic case, the paper begins in Parts II and III with a heavy dose of the relevant facts. Part II starts with data on U.S. government deficits, both as reported and after adjustment for the business cycle, inflation, and interest rate changes. Familiar national income identities link major changes in government deficits with offsetting changes

[1] The recent Gramm-Rudman legislation is not regarded as a budget fix, because as currently written it provides for no tax increase and exempts two-thirds of government spending, implying that the remaining $300 billion, of which two-thirds is non-procurement defense, would have to be cut by *half* by 1991 to eliminate the deficit. There seems little doubt that the Gramm-Rudman system will be overridden as both the President and Congress are forced to agree that some things are more important than balancing the budget.

in private saving, private investment, and the current account surplus, and we examine data to learn how higher U.S. government deficits have been matched in the national accounts. This section also compares the U.S. experience with that of other major industrialized nations.

Part III asks how the high U.S. deficits came about, in both a factual and theoretical sense. The factual record is examined to decompose the share of the higher deficits that resulted from reduced taxes and from higher expenditures in various major categories. Recent positive theories of the determination of the debt are summarized, and their ability to predict recent U.S. developments is reviewed.

In Part IV we turn to the core of the economic analysis by tracing the economic chain of causation that leads from government deficits to the balance of payments. After an initial look at data on real interest rates, exchange rates, and current account balances for major industrialized nations, we state the familiar analysis of fiscal crowding out in a closed economy and the critique of this analysis based on the Barro-Ricardo equivalence theorem. Then we turn to an open-economy analysis of crowding out, summarizing the simple "fundamentals" model of international commodity-market and financial-market equilibrium recently developed by Branson (1985). The sustainability of the strong dollar, and the consensus view that the dollar must fall back to or beyond its 1980 level, as examined.

Part V examines alternative hypotheses that have been put forth to explain the real interest rate differential in favor of the U.S. and the strong dollar. These include tight or erratic U.S. monetary policy, tight foreign fiscal policies, the "political safe haven" idea, and the view that the dollar has been buoyed by an increase in the profitability of investment in the U.S. The competing hypotheses are subjected to two criteria to discriminate among them, first, whether they correctly predict the required changes in the net supply of U.S. bonds necessary to account for observed interest rate differentials, and second, whether the timing of actual outcomes is consistent with each alleged cause.

The analysis concludes that no one explanation is adequate, and that a "double hump" hypothesis is required, with mainly monetary factors explaining the initial 1981–82 phase of high U.S. interest rates and the first half of the dollar's rise, and fiscal-cum-profitability elements explaining the more recent 1983–85 interval. The paper ends by considering four hypothetical scenarios for the future and assesses the likelihood of a collapse in the dollar and an end to the world trade imbalance, both with and without a "fix" of U.S. government budget deficits.

II. *Facts About the U.S. Government Budget Deficits*

Corrections for the Business Cycle, Inflation, and Interest Rate Movements

One of the best-known economic facts in the world must be that the U.S. Federal government is currently running a deficit of around $200 billion per year. In column (1) of Table 1 is traced the historical evolution of the U.S. Federal deficit on the "official" national income accounts basis since 1955. Deficits are hardly unusual, having occurred in all but seven out of the last 30 years, and in each of the last 15 consecutive years. "Triple-digit" deficits

TABLE 1. ACTUAL BUDGET SURPLUS IN BILLIONS OF DOLLARS 1955–84
SURPLUS OR DEFICIT (−) ON NATIONAL INCOME ACCOUNTS

Year	Official	Adjusted for Price Effects	Adjusted for Interest Effects	Adjusted for Price and Interest Effects
	(1)	(2)	(3)	(4)
1955	4.4	10.5	8.3	14.3
1956	6.1	14.3	9.9	18.2
1957	2.3	7.1	−3.3	1.5
1958	−10.3	−6.1	−4.4	−.2
1959	−1.1	3.6	3.0	7.8
1960	3.0	5.3	−6.8	−4.5
1961	−3.9	−.6	−1.5	1.8
1962	−4.2	.0	−6.6	−2.3
1963	.3	3.6	3.0	6.3
1964	−3.3	.6	−3.6	.2
1965	.5	6.4	3.7	9.5
1966	−1.8	6.3	−3.5	4.6
1967	−13.2	−5.2	−8.7	−.8
1968	−6.0	5.5	−5.0	6.5
1969	8.4	21.9	16.0	29.4
1970	−12.4	−.2	−26.4	−14.2
1971	−22.0	−9.5	−25.9	−13.4
1972	−16.8	−4.5	−12.5	−.1
1973	−5.5	15.7	−2.1	19.1
1974	−11.5	19.7	−13.5	17.7
1975	−69.3	−46.0	−71.8	−48.6
1976	−53.1	−32.0	−65.7	−44.6
1977	−45.9	−16.6	−29.8	−.6
1978	−29.5	13.7	−10.3	32.9
1979	−16.1	27.5	−11.5	32.1
1980	−61.2	−6.1	−47.5	7.6
1981	−64.3	−14.6	−68.0	−18.3
1982	−148.2	−114.8	−210.6	−177.2
1983	−178.6	−143.5	−136.3	−101.2
1984	−175.7	−133.6	−196.3	−154.1

Source: Eisner (1985), Table 7.

began in 1982, and current projections are for the 1985 deficit to reach $207 billion.[2]

In recent years we have learned that officially reported budget deficit totals can be deceiving. If the budget is balanced and nominal GNP is growing, whether through real growth or inflation, the ratio of national debt to GNP must decline. Thus if the benchmark for an acceptable deficit is one which maintains the current ratio of debt to GNP, the acceptable ratio of the current deficit to the current stock of outstanding debt can be equal to the growth rate of nominal GNP. In the current U.S. situation, with nominal GNP

[2] Shearson Lehman Forecast dated September 26, 1985, for the fiscal year 1985 (extending from October 1, 1984 to September 30, 1985).

growing at 6 percent annually and a gross outstanding debt held by the public of $1,500 billion, a deficit of $90 billion (90/1500=0.06) would satisfy this criterion.

In recent work Robert Eisner and Paul Pieper (1984) have emphasized the systematic overstatement of the U.S. Federal deficit due to what they call "price effects" and "interest effects." The first of these is the same point made in the preceding paragraph, taking just the inflation component of nominal GNP growth.[3] For instance, in our example if the 6 percent nominal GNP growth rate consisted of 2 percent real GNP growth and 4 percent inflation, Eisner and Pieper would deduct from the officially reported deficit 4 percent of the outstanding debt, or $60 billion (60/1500=0.04). The second column of Table 1 shows the calculations using the Eisner-Pieper methodology for the past 30 years. In the low inflation period of the 1950s and early 1960s this correction makes little difference, but in some more recent years the correction is major, virtually eliminating $60 billion deficits in 1980 and 1981. Of greater importance for the present paper, however, is that the price correction accentuates rather than minimizes the extent of the recent increase in the deficit, boosting the 1980–84 slide into the red from $114.5 billion to $127.5 billion.

The next column in Table 1 adjusts the deficit for what Eisner and Pieper call "interest effects." When interest rates increase, the price of outstanding government bonds declines, and so does the market value of the outstanding debt. Since the purpose of the adjustment is to arrive at a deficit figure which corresponds to the change in the market value of the debt, any decline in the price of outstanding bonds creates a positive adjustment, i.e., reduces the deficit. Thus in column (3) the interest rate adjustments make the official deficit smaller during the period 1977–80 when interest rates were rising but larger in years like 1982 when interest rates fell.

The combined effect of the price and interest adjustments, showing in column (4) of Table 1, is to reduce the 1980 deficit by a large amount, $68.8 billion, but the 1984 deficit by a much smaller $20.5 billion, implying that the "true" deficit rose between 1980 and 1984 by the official amount ($114.5 billion), plus the negative swing in the adjustment factor ($48.3 billion), for a total increase of $162.8 billion.

Table 1 is misleading because all figures are stated in nominal amounts, and some increase in the nominal budget deficit would be expected in an economy experiencing growth in nominal economic activity. The official surplus and the various Eisner-Pieper adjustments are exhibited in Table 2 as percentages of nominal GNP. Here we see that the 1984 official deficit, far from being unprecedented, was only a bit higher than the 1975 deficit. What marks the 1982–84 deficit experience is not the absolute size of the deficit in any given year, but rather the failure of the deficit to shrink markedly after a single-year peak, as occurred after 1958, 1967, 1971, and 1975.

But even Table 2 is not fully satisfactory, since changes in the deficit ratios from year to year can occur either because of cyclical changes from prosperity to recession, or because of more fundamental "structural factors," e.g., tax rate changes and discretionary changes in expenditures. To correct for this Table 3 restates the budget balance for a constant unemployment rate. This "high employment surplus" is always more positive in Table 3 than the actual surplus in Table 2 in any year when the unemployment rate is higher than 5.1 percent, which includes every year since 1973. Inspecting column (4) of Table 3, which

[3] Eisner and Pieper count only the inflation component of nominal GNP growth, because their concept of a zero deficit corresponds to a constant real debt, not a constant debt/GNP ratio.

TABLE 2. ACTUAL BUDGET SURPLUS AS PERCENT OF GNP 1955–84
SURPLUS OR DEFICIT (−) ON NATIONAL INCOME ACCOUNTS

Year	Official	Adjusted for Price Effects	Adjusted for Interest Effects	Adjusted for Price and Interest Effects
	(1)	(2)	(3)	(4)
1955	1.10	2.61	2.06	3.58
1956	1.44	3.39	2.35	4.31
1957	.51	1.60	−.75	.34
1958	−2.28	−1.36	−.97	−.04
1959	−.23	.75	.62	1.60
1960	.60	1.04	−1.34	−.90
1961	−.74	−.11	−.28	.35
1962	−.75	.00	−1.17	−.41
1963	.04	.60	.50	1.06
1964	−.51	.09	−.57	.04
1965	.08	.93	.53	1.38
1966	−.24	.84	−.47	.61
1967	−1.65	−.65	−1.09	−.10
1968	−.69	.62	−.57	.75
1969	.89	2.32	1.69	3.11
1970	−1.25	−.02	−2.66	−1.43
1971	−2.04	−.88	−2.41	−1.25
1972	−1.42	−.38	−1.05	−.01
1973	−.42	1.19	−.16	1.44
1974	−.80	1.37	−.94	1.23
1975	−4.47	−2.97	−4.63	−3.13
1976	−3.09	−1.86	−3.82	−2.60
1977	−2.39	−.87	−1.55	−.03
1978	−1.36	.63	−.48	1.52
1979	−.67	1.14	−.48	1.33
1980	−2.33	−.23	−1.81	.29
1981	−2.17	−.49	−2.30	−.62
1982	−4.83	−3.74	−6.86	−5.77
1983	−5.40	−4.34	−4.12	−3.06
1984	−4.80	−3.65	−5.36	−4.21

Source: Eisner (1985), Table 11.

shows the high-employment surplus with the Eisner-Pieper price and interest adjustments, we find, in contrast to the conventional wisdom, that the years of the Carter administration (1977–80) were characterized by an extremely tight fiscal policy. In the Carter period there was the longest string of consecutive sizeable fiscal surplusses since the infamous Eisenhower years (1955–59) that provoked Walter Heller, James Tobin, and the other "new economists" in the Kennedy years to recommend the 1964 income tax cut.[4]

[4] The criterion of 5.1 percent unemployment, on which the calculations of Table 3 are based, does not accord with the current consensus that the U.S. economy's natural rate of unemployment is more like 6.0 percent. I have shown (Gordon, 1982) that the "natural" (i.e., constant inflation) unemployment rate drifted

TABLE 3. HIGH-EMPLOYMENT SURPLUS AS PERCENT OF GNP 1955–84
SURPLUS OR DEFICIT (−) ON NATIONAL INCOME ACCOUNTS

Year	Official	Adjusted for Price Effects	Adjusted for Interest Effects	Adjusted for Price and Interest Effects	Percent Change in GNP
	(1)	(2)	(3)	(4)	(5)
1955	1.30	2.81	2.26	3.77	6.72
1956	1.87	3.83	2.79	4.74	2.14
1957	1.37	2.46	.11	1.20	1.82
1958	.00	.93	1.32	2.24	−.42
1959	1.11	2.09	1.96	2.94	5.99
1960	2.39	2.83	.45	.89	2.15
1961	1.35	1.99	1.81	2.45	2.63
1962	.53	1.28	.12	.87	5.78
1963	1.24	1.79	1.70	2.25	4.02
1964	.17	.78	.12	.72	5.27
1965	.13	.98	.58	1.43	6.04
1966	−.74	.33	−.97	.11	5.97
1967	−1.89	−.89	−1.33	−.34	2.70
1968	−1.26	.06	−1.14	.18	4.62
1969	.52	1.94	1.32	2.74	2.79
1970	−.46	.77	−1.87	−.64	−.18
1971	−1.05	.11	−1.41	−.25	3.39
1972	−1.02	.02	−.66	.39	5.66
1973	−.72	.89	−.46	1.14	5.77
1974	−.02	2.15	−.16	2.01	−.64
1975	−1.88	−.38	−2.04	−.54	−1.18
1976	−1.01	.22	−1.75	−.52	5.41
1977	−1.06	.46	−.23	1.30	5.51
1978	−.73	1.26	.15	2.15	5.03
1979	−.08	1.72	.11	1.91	2.84
1980	−.65	1.45	−.13	1.97	−.30
1981	−.11	1.57	−.23	1.45	2.52
1982	−1.06	.02	−3.10	−2.01	−2.13
1983	−1.81	−.75	−.53	.54	3.70
1984	−2.96	−1.81	−3.53	−2.37	6.78

Source: Eisner (1985), Table 8.3.

Internal and External Crowding Out

Since the topic of this paper is the link between budget deficits and current account deficits on the balance of payments, the obvious unifying framework is the national income accounting identity that relates the two. This states that gross investment, both domestic and foreign, must be equal to gross saving, both private and public:

up from 5 percent in the mid 1950s to 6 percent after 1974, implying that the figures in Table 3 are roughly correct for the earlier years but in the later years overstate the high-unemployment surplus. A correction for this discrepancy would change the adjusted 1984 figure in column (4) of Table 3 from −2.37 to about −3.60 percent.

$$(1) \qquad I^D + I^F \equiv S + (T - G),$$

where I^D is domestic gross investment, I^F is net foreign investment, S is gross private saving, T is government tax receipts, and G is government expenditures.[5] This expression is true in either nominal or real terms, but for our subsequent analysis it is convenient to think of each term as being expressed in real terms.

Equation (1) can be easily rearranged to facilitate an analysis of an exogenous change in the government deficit $(G-T)$. We move public saving to the left-hand side of the equation, and the two investment terms to the right-hand side, reversing signs in each case, and obtain:

$$(2) \qquad G - T \equiv (S - I^D) - I^F.$$

This states that the government deficit must be equal to the excess of gross private saving over gross domestic investment, minus net foreign investment. When we combine (2) with the balance of payments identity which states that net foreign investment (private and public) must be equal to net exports (X), we can write another version of (2) in terms of net exports:

$$(3) \qquad G - T \equiv (S - I^D) - X.$$

In our theoretical analysis in Part IV, we shall examine the factors that determine how an exogenous increase in the government deficit is balanced by an increase in saving, a decline in domestic investment, or a decline in net exports. For now, in this section on data, we simply report what has happened in the U.S. Table 4 displays equation (2) for the period 1955–85, with each component expressed as a percentage of GNP. The Federal budget surplus figures in column (1) correspond exactly to the official series in Table 2, column (1). Diminishing the size of recent Federal deficits have been a steady string of state and local government budget surplusses, amounting in 1984 to 1.4 percent of GNP. However, there is little evidence that the state and local governments have responded to high Federal deficits by increasing their surplusses, since the surplus in 1983–84 was little different than in the late 1970s when Federal deficits were much smaller.

The Barro-Ricardo equivalence theorem, discussed in Part IV, predicts that an exogenous increase in the government deficit, i.e., a reduction in public saving, will be matched instantaneously by an increase in private saving. By this analysis the gross private saving percentage in column (4) should have increased between 1980 and 1985 (all figures for 1985 refer to the first half of the year) by 2.4 points, matching the increase in the total government deficit in column (3).[6] Indeed there was an increase in private saving of about half the required amount, 1.3 points. We can make another comparison to smooth out year-to-year variations, between 1979–80 and 1984–85, yielding the result that the private saving percentage increased by 1.4 points compared to an increase in the total government deficit

[5] In the usual textbook treatment T is taxes minus transfers and subsidies, while G is government expenditures on goods and services. Alternatively, T could be tax receipts and G could be total government expenditures on goods and services, transfers, and subsidies. In either case, $T-G$ is the government surplus in the national income accounts. See Gordon (1984), Chapter 2 (these relationships are discussed on pp. 43–47 in the Japanese translation).

[6] The civilian unemployment rate in 1980 was 7.1 percent, compared with a 1985 figure of 7.3 percent. Thus the comparison in the text between 1980 and 1985 is made for roughly the same set of cyclical conditions and would be equally valid for a comparison of the change in the high employment surplus and the high employment level of private saving.

TABLE 4. GROSS SAVING AND INVESTMENT AS PERCENT OF GNP, 1955–85

Year	Federal Budget Surplus	State and Local Budget Surplus	Total Government Budget Surplus	Gross Private Saving	Total Gross Saving	Gross Private Domestic Investment	Net Foreign Investment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1955	1.1	−0.3	0.8	16.1	16.9	17.1	0.1
1956	1.4	−0.2	1.2	16.8	18.0	16.8	0.7
1957	0.5	−0.3	0.2	16.7	16.9	15.6	1.1
1958	−2.3	−0.5	−2.8	16.7	13.9	13.8	0.2
1959	−0.2	−0.1	−0.3	16.4	16.0	16.0	−0.2
1960	0.6	0.0	0.6	15.4	16.0	15.0	0.6
1961	−0.7	−0.1	−0.8	15.8	15.0	14.3	0.7
1962	−0.7	0.1	−0.7	16.0	15.3	15.1	0.6
1963	0.1	0.1	0.1	15.6	15.7	15.2	0.7
1964	−0.5	0.2	−0.4	16.7	16.3	15.3	1.1
1965	0.1	0.0	0.1	17.3	17.4	16.4	0.8
1966	−2.4	0.1	−0.2	17.0	16.8	16.6	0.4
1967	−1.7	−0.1	−1.8	17.5	15.7	15.4	0.3
1968	−0.7	0.0	−0.7	16.3	15.6	15.3	0.1
1969	0.9	0.2	1.0	15.2	16.3	15.8	0.0
1970	−1.2	0.2	−1.1	16.0	15.0	14.5	0.3
1971	−2.0	0.2	−1.8	16.7	15.0	15.4	−0.1
1972	−1.4	1.1	−0.3	16.0	15.7	16.4	−0.4
1973	−0.4	1.0	0.6	17.2	17.8	17.3	0.5
1974	−0.8	0.5	−0.3	16.4	15.9	15.9	0.2
1975	−4.5	0.4	−4.1	18.2	14.1	13.3	1.2
1976	−3.1	1.0	−2.1	17.1	15.0	15.0	0.3
1977	−2.4	1.5	−0.9	17.0	16.1	16.9	−0.7
1978	−1.4	1.4	0.0	17.3	17.3	17.9	−0.7
1979	−0.7	1.3	0.6	16.8	17.5	17.5	−0.1
1980	−2.3	1.2	−1.2	16.5	15.4	15.3	0.2
1981	−2.2	1.3	−0.9	17.2	16.4	16.4	0.2
1982	−4.8	1.1	−3.8	17.1	13.3	13.5	−0.2
1983	−5.4	1.3	−4.1	17.3	13.2	14.3	−1.0
1984	−4.8	1.4	−3.4	18.4	15.0	17.4	−2.6
First Half 1985	−5.0	1.4	−3.6	17.8	14.2	16.8	−3.0

Note: Columns (6) plus (7) do not add to (5) due to omitted statistical discrepancy.
Source: Econ. Report of President, 1985, Tables B-1, B-25.

percentage of 3.2 points.

The rest of Table 4 shows how changes in government and private saving were balanced by changes in domestic and foreign investment. During most of the postwar period the major variations have been cyclical increases in the government deficit by a much larger amount than movements in private saving, balanced by reductions in private domestic investment, with only a small swing in foreign investment. This pattern is evident in 1958, 1967, 1970–71, 1975, and 1982. However, in 1983–85 the response has been quite differ-

ent, with an investment boom *augmenting* rather than *offsetting* the borrowing needs of government, requiring a decline in net foreign investment larger than the increase in the deficit.

The reaction of the components of equation (2) over the two intervals 1980–85 and 1979/80–84/85 can be summarized as follows:

CHANGE OVER INTERVAL (IN PERCENT POINTS)

Interval	$G-T$	S	I^D	I^F	Statistical Discrepancy
1980–85	2.4	1.3	1.5	−3.2	−0.6
1979/80–1984/85	3.2	1.4	0.7	−2.9	−0.4

It is evident from this comparison that the traditional response to a higher government deficit, "crowding out" of domestic investment, did not occur at all in the recent U.S. experience. Instead, a simple way of thinking about the data is that the higher private saving rate "paid for" the higher domestic investment, requiring foreign investment (i.e., lower net exports) to "pay for" the entire increase in the government deficit. In Parts IV and V we will return to these responses and ask why they occurred.

Fiscal Easing at Home, Tightening Abroad

How has the behavior of the U.S. deficit, properly adjusted for inflation and cyclical effects, compared to that of other major industrialized nations? In testimony quoted in the introduction, Dornbusch called attention to the "enormous shift" in the relative fiscal position of the U.S. as compared to Europe and Japan. This phenomenon is documented in Table 5, where the surplus concept shown is corrected by the OECD for both the cycle and inflation in a comparable way.[7]

TABLE 5. GOVERNMENT BUDGET SURPLUS AS A PERCENTAGE OF GNP, ADJUSTED FOR CYCLE AND INFLATION, 1978–86

Year	United States	France	West Germany	United Kingdom	Italy	Japan	Weighted Average of Five
1978	0.5	−2.1	−2.9	−2.1	−2.6	−5.1	−3.4
1979	1.3	−1.0	−3.3	0.6	−1.2	−4.4	−2.4
1980	1.1	0.7	−3.2	4.0	3.4	−3.3	−0.7
1981	1.4	−0.3	−3.0	4.4	−1.4	−3.1	−1.2
1982	−0.1	−0.9	−1.6	4.8	−2.0	−3.2	−1.1
1983	−1.0	−0.9	−0.6	2.3	0.7	−2.8	−0.8
1984	−1.9	0.1	−0.3	1.6	−1.7	−2.0	−0.7
1985	−2.4	0.3	0.2	2.1	−2.6	−0.9	−0.2
1986	−2.4	0.4	0.2	2.4	−2.5	−0.1	0.2

Sources: 1978–81, OECD, "Structural Budget Deficits and Fiscal Stance," Working Paper 15 (Paris, July 1, 1984).
1982–86, *OECD Economic Outlook*, no. 37, June, 1985, Table 3, p. 4.
Weights are 1981 dollar GNP weights, from *Statistical Abstract of the United States 1985*, Table 1481.

[7] Table 5 is an updated version of Table 10 in Blanchard-Summers (1984), p. 298.

The OECD surplus concept shown in Table 5 for the U.S. is very close to the inflation-adjusted high-employment surplus figure previously discussed in Table 3, column (3), and it moves into deficit by 3.8 percent of GNP between 1980 and 1985. In contrast, the weighted average of the other five countries shifts toward surplus by 0.9 points. As pointed out by Blanchard, Buiter, and Dornbusch (1985), one reason for this fiscal tightening in Europe was an inappropriate concern about deficits measured at the actual and rising unemployment rate, rather than the more appropriate criterion that would focus on the high or natural employment deficit.

On the basis of evidence like that presented in Table 5, Blanchard and Summers (1984) doubt the fiscal explanation of high world real longterm interest rates. In their view, the higher U.S. deficit was virtually offset by a movement toward surplus in Japan and Europe, leaving no fiscal easing for the industrial world as a whole. However, the data in Table 5 do not support their interpretation, because the most of the fiscal tightening outside of the U.S. occurred in 1978–80, whereas the fiscal easing in the U.S. occurred later, as shown in these changes over selected intervals computed from Table 5:

Interval	U.S.	Weighted Average of Other Five
1978-80	0.6	2.7
1980-82	−1.2	−0.3
1982-85	−2.3	0.9

Over the crucial 1980–82 period when real interest rates increased, there was no offset, contrary to the Blanchard-Summers discussion, and instead there was fiscal easing both in the U.S. and, to a lesser degree, abroad. In fact the main problem with a fiscal explanation of high real interest rates (and indirectly of the strong dollar and declining U.S. net exports), to which we return below, is that most of the U.S. fiscal easing occurred *after* 1982, whereas all of the increase in U.S. real interest rates and the U.S.-foreign interest differential occurred between 1980 and 1982.

III. *What Caused the Federal Budget Deficits?*

The Share of Government in GNP

There seems little disagreement that the U.S. has moved toward fiscal ease in the 1980s as contrasted with the late 1970s. One symptom of this is the behavior of the national debt. As shown in the right-hand column of Table 6, the national debt held by the public (i.e., excluding the part of the debt held by the Federal Reserve and other government agencies), declined as a percentage of GNP from 57 percent in 1955 to 24 percent in 1974, and remained stable in the 27–29 percent range during the six years 1976–81. However, a rapid increase in the debt has been a result of the easy fiscal policy of the 1980s, raising the debt percentage to 40 percent by the end of 1985 and to a projected 50 percent by 1990.

What contributed to this radical change in fiscal policy? Traditional mainstream U.S. economists point to the massive three-year phased introduction of substantial personal and business tax cuts enacted in 1981, while conservatives and supply-siders claim that the problem is excessive government spending. Table 6, which exhibits ratios to GNP

of Federal receipts, expenditures, and debt held by the public, seems consistent with the conservative claim, at least on the surface (below in this section we provide an interpretation more consistent with the mainstream focus on the tax cuts). In 1983–85 Federal Expenditures averaged 24.5 percent of GNP, an increase of 3.3 points from the 21.2 percent average of the 1970–79 decade. In contrast Federal Receipts in 1983–85 averaged 19.4 percent of GNP, *precisely the same* as the 1970–79 average.

In examining the column for receipts in Table 6, we notice a zig-zag pattern in which receipts creep up over the years and then sharply fall. This reflects "bracket creep" (i.e., an elasticity of tax revenues to nominal GNP of greater than unity) together with periodic

TABLE 6. FEDERAL RECEIPTS, EXPENDITURES, AND DEBT AS PERCENT OF GNP

Year	Federal Government Receipts	Federal Government Expenditures	Federal Debt Held by Public
1955	18.2	17.0	56.7
1956	18.5	17.1	52.7
1957	18.4	17.9	49.4
1958	17.5	19.8	50.3
1959	18.4	18.7	48.2
1960	19.0	18.4	46.8
1961	18.7	19.4	45.5
1962	18.8	19.5	44.0
1963	19.2	19.1	42.7
1964	18.0	18.5	40.4
1965	18.0	17.9	37.9
1966	18.8	19.0	35.0
1967	18.8	20.5	33.5
1968	20.0	20.7	33.3
1969	20.9	20.0	29.6
1970	19.3	20.6	28.7
1971	18.4	20.5	28.2
1972	19.2	20.6	27.3
1973	19.5	19.9	25.9
1974	20.1	20.9	24.1
1975	18.5	23.0	25.6
1976	19.3	22.4	28.0
1977	19.6	22.0	28.8
1978	19.9	21.3	28.2
1979	20.4	21.1	26.7
1980	20.6	22.9	27.2
1981	21.1	23.3	26.9
1982	20.1	24.9	30.3
1983	19.4	24.8	34.5
1984	19.2	24.0	35.9
1985	19.6	24.6	39.5

Source: U.S. National Income Accounts.
Note: Receipts and expenditures are for calendar years; debt is for fiscal years.

legislative tax cuts (1964, 1970–71, 1975, 1982–84) that offset the creep.[8] The fact that the ratio of receipts to GNP has remained so stable in the 19 percent range can be interpreted as representing the "revealed preference" of the political process, although politicians have hardly been idle, since they increased the share of payroll taxes from 2.1 to 5.7 percent of GNP from 1960 to 1984 while reducing the percentage for all other taxes from 16.4 to 13 percent.

The same political process has allowed an upward creep in the ratio of expenditures to GNP. The expenditure percentage was 18.1 in 1955–59, 20.1 in 1960–69, 21.2 in 1970–79, and 24.1 in 1980–85. The left hand giveth and the right hand taketh away at different rates (or, "the right hand doesn't know what the left hand is doing").

Categories of Spending

Which expenditures have been responsible for the upward drift in the percentage of expenditures in GNP? First, virtually all of the increased share of government spending in GNP can be attributed to Social Security and Medicare, which went from 2.3 percent of GNP in 1960 to 6.6 percent in 1984. Second, other nondefense programs have been cut substantially in the Reagan period, from 9.3 percent in 1980 to 7.3 percent in 1984. Third, the share of defense spending fell from 9.7 percent in 1960 to 5.3 percent in 1980 and then increased to 6.5 percent in 1984.

A central cause of U.S. fiscal problems is a largely unintended increase in the well-being of social security recipients in the 1970s that neither Congress nor the Administration have the courage either to finance or to reverse. Duirng the 1970s, Social Security benefits per retiree rose 50 percent after adjusting for inflation, while average real earnings per employee did not increase at all, amounting to a substantial redistribution of income from workers to the elderly. This occurred because overly generous indexation clauses more than compensated retirees for inflation (which itself was exaggerated by measurement errors in the CPI), while most workers outside of the unionized sector had little or no formal indexation protection. An important byproduct has been a marked reduction in the percentage of the elderly who have incomes below the official poverty line, from 35.2 percent of the over-65 population in 1959 to just 12.4 percent in 1984. Congress and the Administration refuse to acknowledge this shift in the distribution of income, to levy the taxes to pay for it, or to take the steps required to reverse it.

A useful way of decomposing the increase in the Federal budget deficit is provided in Table 7. In this projection made in early 1984, the deficit grows to $245 billion in Fiscal Year 1987. More recent projections incorporate subsequent budget cuts, not taken into account in Table 7, and predict a 1987 deficit of $193 billion.[9] As shown in lines 1 and 4, the effects of tax legislation, combined with the cyclical adjustment for the fact that the economy has operated with an unemployment rate above 6.0 percent, together roughly account for the deficit shown in the top line. The importance of the tax cuts has increased as additional reductions have been phased in and as the effect of indexation begins to take

[8] The 1968–72 episode was atypical, involving a 10 percent income tax surcharge to pay for part of the expenses of the Vietnam war. The "tax cut" that appears in Table 6 in 1970–71 reflects the removal of this surcharge.

[9] See Capra and Sinai (1985), Table 5, p. 13. Their analysis points out that lower deficit projections by the Congressional Budget Office are flawed by exaggerating budget cuts and by making unrealistically optimistic economic assumptions about growth and interest rates.

TABLE 7. SOURCES OF BUDGET DEFICITS, FISCAL YEARS 1983–87
(Unified budget basis, billions of dollars)

	1983	1984	1985	1986	1987
Budget Deficits[a]	195	189	197	217	245
Some contributing factors					
1. Tax legislation[b]	75	90	115	145	175
2. Defense growth	35	40	50	65	80
3. Entitlement growth	15	10	10	10	10
4. Cyclical[c]	105	75	60	50	40
5. Interest on debt	10	25	35	45	60
Total (1+2+3+4+5)	240	240	270	315	365

Source: Wallich and Cohen (1984), Table 2.

Notes: *a.* Figures for 1984–87 are estimates and allow for annual real increases in defense spending of 5 percent.

b. Estimates represent large tax reductions in the Economic Recovery Tax Act of 1981, partially offset by tax increases in other enacted legislation in 1982–84.

c. Estimates are the difference between the projected deficit in the top line and a Congressional Budget Office estimate of the high employment budget evaluated at a 6 percent unemployment rate.

effect in 1985 and subsequent years. The cyclical adjustment fades with the economic recovery, which is assumed to involve a very slow further reduction of the unemployment rate from the present 7 percent level towards 6 percent. Defense spending growth is measured in comparison with what would have occurred if the ratio of defense spending to GNP were to have remained at its value at the start of 1981. Thus, the positive figures on line 2 reflect a rising share of defense sending in GNP. The figure for entitlement growth is only slightly above a zero figure which would have been consistent with a share of social insurance outlays to GNP fixed at the 1981 level. The final item on line 5 is the increase in interest payments above what would have occurred if the ratio of interest outlays to GNP had remained at its early-1981 value.

It is evident that the elements on lines 1 through 5 more than explain the deficit, with $120 billion left over in 1987. This simply reflects the fact that without tax rate changes, and with all expenditure ratios pegged to their early-1981 values, the Federal government would have run a large and growing surplus in the 1980s. Stated another way, we noted in Table 6 that the share of Federal expenditures in GNP has been steadily creeping up while the share of Federal receipts has remained at roughly 19 percent. Without the Reagan tax rate changes, the share of Federal receipts by 1985 would have been 22.6 percent instead of 19.6 percent. A reasonable conclusion is that the U.S. budget deficits can indeed be attributed to tax cuts, as the mainstream approach suggests, in the sense that by cutting taxes in 1981, Congress explicitly refused to pay for the higher GNP percentage of social insurance that its own actions had mandated.

The Positive Theory of Government Budget Deficits

In recent work, Robert J. Barro (1986) has provided a new perspective on current U.S. deficits by asking whether indeed they are large in the sense that there has been a fundamental shift in the government's fiscal policy, or whether the observed deficits represent a normal

response to other influences, such as recession, inflation, or temporary increases in expenditure. The basis of Barro's theory is a "tax-smoothing" hypothesis; since tax rates influence people's incentives to work, produce, and consume, distortions are minimized when tax rates are roughly the same from period to period. The theory implies that the *real* government debt should rise in recessions (whenever output falls below "natural" output) and in response to temporary wartime increases in government spending, and the *nominal* government debt should rise for these reasons and one-for-one in response to inflation.

The Barro concept of a government budget deficit is the same as that of an 'acceptable" budget deficit introduced at the beginning of Part II above, for it defines a zero deficit when the real debt is growing at the long-term output growth trend of the economy, i.e., when the ratio of the nominal debt to nominal GNP is constant. On the basis of an empirical analysis for the period 1920–82, he concludes that the actual behavior of the public debt through 1983 was "reasonably well in line with the experience of debt issue since at least the end of World War I." This verdict is consistent with Table 3, column (2), which shows that the Eisner-Pieper high-employment inflation-adjusted deficit is quite stable over the years, remaining within the range of $+/-$ 2 percent of GNP since 1960. Barro reports that for 1984 and 1985 the budget deficit is about $70 billion, or 1.8 percent of GNP, "too high," and this corresponds to the 1984 inflation-adjusted high-employment deficit of 1.81 percent in Table 3, column (2). The overall implication is that the "unusual component" of the U.S. budget deficit is not nearly as large as is implied by the popular press or some doomsday analysts, and thus we should be cautious in the subsequent analysis before attributing the 1980s behavior of the real interest rate, dollar, and current account deficit solely to the U.S. budget deficit.

IV. *Effects of Budget Deficits*

Data on Interest Rates, the Exchange Rate, and the Current Account

As a preliminary to the study of analytical links between budget deficits and the balance of payments, it is appropriate to examine data on the main variables of interest for the large industrialized countries, the real interest rate, the real exchange rate, and the balance of payments on current account. Short-term real interest rates are displayed in Table 8 for the United States and the same major industrialized countries whose budget deficits were previously examined in Table 5.

Before looking at Table 8, I would have described the "stylized facts" involving real interest rates as (1) a marked increase everywhere in the real interest rate after 1980 and (2) a marked increase in the differential between U.S. real interest rates and those of other major industrialized nations. The table shows that this impression is only partly correct. While real interest rates everywhere have been higher in the 1980s than in the 1970s, the extent of the increase in the U.S.-foreign short-term interest rate differential seems to have been greatly overstated. Compared to the 1973–79 average differential of 3.0 percent, the differential in the 1980s was higher in only two years, 1981 and 1982. In 1983–85:I the differential has declined to below its 1973–79 average and in 1985:I was actually negative. The stylized facts are more accurate for long-term real interest rates. The following contrasts the short-term and long-term U.S.-foreign interest rate differentials as recently com-

TABLE 8. REAL SHORT-TERM INTEREST RATES USING STATISTICAL FORECASTS OF INFLATION, 1965–85:I

(Percent)

Period	United States	France	West Germany	United Kingdom	Italy	Japan	Weighted Average of Five[c]	U.S. minus Five
1965-72	1.5	1.7	3.0	1.5	n.a.	1.0	1.7[b]	−0.2
1973-77	1.5	−0.3	1.4	−3.9	−2.5	−3.3	−1.8	3.3
1978	0.3	0.7	0.8	−0.9	−2.5	−5.0	−1.9	2.2
1979	1.3	−0.7	1.2	−4.3	−4.4	0.4	−0.9	2.2
1980	0.4	0.3	3.2	0.9	0.0	3.4	2.1	−1.7
1981	7.0	3.6	6.0	1.1	2.0	1.7	2.9	4.1
1982	6.5	4.9	3.8	1.5	2.8	2.7	3.0	3.5
1983	4.7	4.5	1.4	2.3	3.2	2.9	2.8	1.9
1984	5.7	3.5	2.8	4.0	5.4	3.7	3.7	2.0
1985:I[a]	4.5	4.0	3.7	7.1	7.5	4.5	5.0	−0.5

Source: Blanchard-Summers (1984), p. 277, extrapolated using OECD *Economic Outlook* (June 1985), "Conventionally Measured Real Interest Rate Series," pp. 13–14.

Notes: *a.* Roman numeral (I) refers to the first half of the year.
b. Average omits Italy.
c. See Table 5 for Source of Weights.

TABLE 9. DIVIDEND-PRICE RATIOS, 1965–85:I

(Percent)

Period	United States	France	West Germany	United Kingdom	Italy	Japan	Weighted Average of Five[c]	U.S. minus Five
1965-72	3.2	3.8	3.6	4.5	4.1	n.a.	4.0[b]	−0.8
1973-77	4.0	6.2	3.6	5.9	3.9	2.0	3.9	0.1
1978	5.3	6.6	4.5	5.5	5.1	1.6	4.1	1.2
1979	5.5	5.7	5.0	5.7	3.4	1.4	3.8	1.7
1980	5.2	6.2	5.7	6.7	2.5	1.5	4.1	1.1
1981	5.2	8.1	5.7	6.1	2.0	1.4	4.2	1.0
1982	5.8	7.9	5.5	5.6	2.2	1.6	4.2	1.6
1983	4.4	6.6	3.9	4.7	2.4	1.3	3.4	1.0
1984	4.6	5.2	3.7	4.5	3.1	1.0	3.1	1.5
1985:I[a]	4.3	3.9	3.4	4.3	3.0	0.9	2.7	1.6

Source: International Financial Statistics, various tables.

Notes: *a.* Roman numeral (I) refers to the first half of the year.
b. Weighted average excludes Japan.
c. See Table 5 for source of weighted average.

piled by Jeffrey Frankel (1985a, Table 2):[10]

Thus there was a much more substantial jump in the long-term real interest differential starting in 1981 and becoming greater by 1985.

Table 9 exhibits dividend-price ratios for the same countries. Here we note no change in the U.S.-foreign differential for the 1980s compared to the 1970s. As pointed out by

[10] Frankel's one-year series is computed through June, 1985, and is based on a comparisons of the current one-year nominal interest rate with the one-year rate of inflation one year previously. The ten-year series subtracts from a ten-year nominal yield the OECD two-year forecast of inflation. The U.S. is compared with four countries, that is, the five included in Table 8 minus Italy.

	One-Year	Ten-Year
1976–78	0.5	0.5
1979–80	−1.2	1.1
1981–82	2.1	4.0
1983–84	2.1	4.2
1985	1.1	5.3

Blanchard-Summers (1984), arbitrage between bonds and stocks implies the following relation:

$$D/P = R + z - d, \tag{4}$$

where D/P is the dividend-price ratio, R is the long real rate on bonds, z is the risk premium required by portfolio holders to hold equities rather than long bonds, and d is the expected rate of growth of real dividends. What is remarkable about the 1980s is that the increase in the long real rate on bonds has not been accompanied by an increase in the dividend-price ratio, implying that stock prices have been surprisingly strong in the 1980s. Blanchard-Summers reason from (4) that there must have been either a marked decline in the perceived risk of investing in equities, or that the expected growth rate of real dividends must be much higher now than in the late 1970s, and they use this observation to discriminate among alternative explanations of high real interest rates in the 1980s.

But their analysis is not convincing; the movement in stock prices between the 1970s and 1980s does not necessarily imply unusual strength in the 1980s but could stem from unusual weakness in the 1970s, which has been attributed by Modigliani-Cohn (1979), among others, to irrational money illusion on the part of stock market investors. In addition we note in Table 9 that the U.S. dividend-price ratio in 1983–85 was higher, not lower, than in 1973–77, and much higher than in 1965–72. By this measure the stock market has continued to be weak.

Next, Table 10 exhibits the well-known facts of the appreciation of the effective real dollar exchange rate since 1980, and the effective depreciation of the European currencies, with little movement in the effective real exchange rate for Japan since its depreciation in 1978–80. For the purposes of the debate regarding the role of U.S. fiscal deficits, it is useful to note that roughly half of the dollar appreciation occurred in 1980–82, and the remaining half in 1982 through the first half of 1985.

The final set of facts presented in this section is the set of current account balances for the same set of countries. The major systematic pattern before 1983 was a movement toward deficit in 1980–81 by the oil-importing nations with a movement toward surplus in the oil-exporting U.K. As recently as 1982, with the exception of France (which suffered in 1981–83 from its attempt to pursue unilateral expansionary policies), current accounts in the major industrialized countries were in a reasonable state of balance. This observation should be qualified, however, since the U.S. figure for 1982 is deceptive due to the effect of a sharp recession in artificially depressing imports and thus making the current account appear to be in a larger surplus than underlying conditions warranted. Leaving aside this qualification, we see that the much-discussed imbalance between the U.S. and Japan emerged only beginning in 1983, and in 1984–5 the current account balances in the two countries were of exactly offsetting magnitudes when expressed as percentages of GNP.

TABLE 10. REAL APPRECIATION OF THE DOLLAR, 1978–85:I

Index: 1980=100

Period	United States	France	West Germany	United Kingdom	Italy	Japan
1978	104.6	92.5	104.5	72.6	95.9	117.3
1979	100.2	96.3	105.4	81.2	97.7	103.4
1980	100.0	100.0	100.0	100.0	100.0	100.0
1981	115.2	93.9	92.2	102.6	94.9	107.8
1982	122.1	89.4	96.0	99.2	94.5	98.8
1983	125.7	86.8	96.2	91.7	95.5	105.1
1984	135.6	85.2	92.4	89.4	95.5	108.6
1985:I	149.0	83.5	89.9	85.9	91.1	107.3

Source: *International Financial Statistics*, Series 99 by 110, extrapolated for 1985 with the nominal effective exchange rate from the *International Financial Statistics*, line amx.

Note: Roman numeral (I) refers to the first half of the year.

Fiscal Expansion in a Closed Economy

Most undergraduate students are introduced to the IS-LM analysis of the effects of monetary and fiscal policy in a closed economy. A discretionary fiscal expansion shifts the IS curve upward. Output increases and so does the demand for money, forcing interest rates up if the real supply of money is fixed. The IS-LM intersection moves to the northeast, since the LM curve is held fixed by the constant real money supply. The result is "crowding out" of interest-sensitive expenditures, particularly investment and expenditures on consumer durables. In light of the relatively strong performance of U.S. investment in the past few years, this standard result must be qualified to allow for changes in the structure of taxation introduced as part of the fiscal stimulus. For instance, if the fiscal stimulus mainly takes the form of subsidies to investment, the positive effect on investment may outweigh the dampening effect on investment of higher real interest rates. Crowding out will be still experienced, however, by whatever components of expenditure are not eligible for the new investment incentives, e.g., consumer durables.

The crowding-out analysis depends entirely on the postulated increase in the demand for money relative to the fixed money stock. If the money supply is allowed to rise by whatever increase in money demand occurs, no increase in the interest rate will occur. This response of the money supply occurs automatically if the central bank's policy is to target the interest rate; in this case the bank is said to "accommodate" the stimulative fiscal policy.

There are a number of possible objections to this standard analysis, of which the most prominent is the Barro-Ricardo Equivalence Theorem (BRET), revived by Barro (1974). The BRET states that agents fully perceive that government debt implies future taxes whose present value equals the current value of the debt. If this hypothesis is correct, government debt is not treated as net wealth, because its value is exactly cancelled by its implied taxes. Among the implications of the BRET are that a debt-financed fiscal expansion, like that which has occurred in the U.S. since 1981, is on a qualitatively different footing than a money-financed expansion. A one-period tax reduction financed by bond sales has no effect on aggregate demand, for the implied increase in future taxes just offsets the effect on wealth of the reduction in current taxes. In contrast, the case of a tax reduction financed by *money* creation is quite different, for the asset value of the additional money is not offset by extra implied future taxes, of which there are none.

The central argument supporting the Barro version of the BRET is that people discount future taxes, even those that occur after they die, because the existence of bequests provides *de facto* evidence that individuals care about future generations and, implicitly, about the taxes that current deficits will cause them to pay. Why would people leave bequests, so Barro's story goes, unless they cared about their children and, indirectly, their childrens' children, since if they did not care they could consume all their wealth during their lifetime and leave their children to take care of themselves.

Many objections to the Barro argument have surfaced in the literature, and the following discussion is limited to a few of the counterarguments that I find most persuasive. First, some people do not have children. There *is* no future generation whose suffering from future tax liabilities needs to be considered. Second, even if everyone has children, the reason for bequests may be that parents are buying their children's affection. What the children care about is their slice of the will, not the dollar amount. A parent who consumes rather than saves in response to a bond-financed tax cut can neglect the future taxes paid by the children, since what counts is the trade between the slice and the affection.

The most profound weakness of the bequest analysis is that bequests may be involuntary, implying nothing about concern for children, because imperfect financial markets make it almost impossible for individuals with assets to die penniless. I can't trade my net worth for an annuity and maintain my standard of living, because no rental markets exists for my house, antiques, and oriental rugs. Thus my bequests are whatever is left over, and their total amount is out of my control (depending on unpredictable capital gains and the length of my lifetime).

Also important are the facts about who saves in the United States. Eighty percent of the population has less than $5,000 in financial assets, and 92 percent has less than $20,000. Forty percent of financial wealth is held by the top one percent of the population. Almost all of measured personal saving is through deferred benefit pension plans (not counted in the figures of financial assets). Taking out pension saving, the remaining ratio of personal saving to disposable income is barely positive. This implies that a large fraction of the population is not saving. They're living from week to week, or year to year, and if you give them a higher disposable income through a bond-financed tax cut, they'll spend a good part of it. This skepticism about BRET is consistent with the figures on U.S. gross saving in Table 4, which show virtually no evidence in 1983–5 of the instantaneous jump in the private saving rate that must occur (according to BRET) to offset the decline in government saving that occurs in response to a bond-financed deficit.

The Branson "Fundamentals" Model for an Open Economy

With a fixed money supply, as we have seen, a fiscal deficit must cause an increase in the interest rate in a closed economy if the BRET is even partly invalid. A broader range of possibilities can occur in an open economy under a floating-exchange rate regime, since both the real interest rate and the exchange rate are free to adjust. This can be seen immediately if we repeat equation (3) above, allowing saving (S) and domestic investment (I^D) to depend on the real interest rate (r) and net exports to depend on the real exchange rate (e):

$$G-T\equiv \mathrm{S}(r)-I^D(r)-X(e), \quad S_r>0,\ I^D<0,\ X_e>0, \tag{5}$$

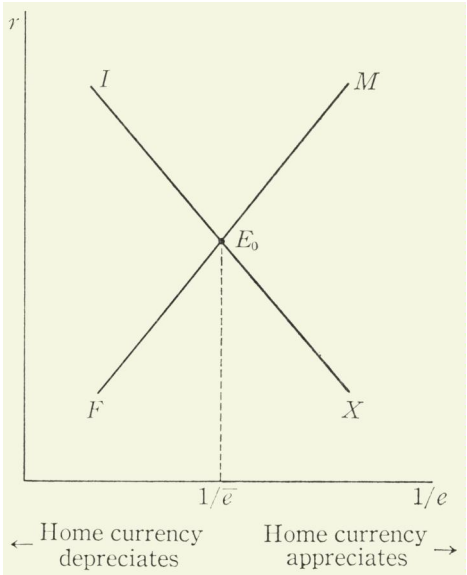
where the real exchange rate (e) is expressed as units of home currency per unit of foreign exchange, adjusted for differential inflation in the home and foreign country, so that an increase in e represents a *depreciation* of the home currency.

If each of the magnitudes in (5) is measured at a "high" or "natural" employment rate, then an exogenous increase in $(G-T)$ is equivalent to a decline in the natural-employment surplus and must have as its counterpart an increase in saving (S), a decline in investment (I), and/or a decline in net exports (X). The required increase in $S-I$ and/or decrease in X makes it necessary for r to increase and/or for e to decline (appreciate).

Thus far the open economy's adjustment to a fiscal stimulus corresponds to that in the simple Mundell-Fleming model, which also predicts an increase in the domestic real interest rate and an exchange appreciation sufficient completely to offset the output effects of the fiscal expansion. The story can stop here if the fiscal stimulus occurs on a one-shot basis for a quarter or a year, since the change in international indebtedness caused by the exchange appreciation is not likely to be significant. But with a sustained fiscal expansion yielding a multi-year path of substantial deficits, as in the U.S. case in the 1980s, the effects of international debt accumulation must be introduced explicitly into the model.[11]

Branson (1985) has devised a simple analytical apparatus that helps us to trace the path of r and e, and indirectly the balance of payments on current account, in response to an exogenous fiscal stimulus. In figure 1 the "IX" curve represents the locus of all combinations of r and e that maintain equilibrium in the commodity market equation (5) for given values of $G-T$ and S; equilibrium may be maintained on the northwest section of the IX line with low investment and high net exports, or on the southeast section with the

FIGURE 1.



[11] For a brief and clear exposition of the Mundell-Fleming model, see Dornbusch (1980), pp. 194–202.

opposite combination.[12] The IX line is shifted upward by an autonomous increase in the fiscal deficit, in investment, or in the trade surplus, or by an autonomous decrease in private saving.

To close the model Branson introduces a second relationship between r and e implied by financial market equilibrium. The holder of home assets compares a real return (r) with a real return on foreign assets consisting of the nominal foreign return (i^*) plus the expected change in the exchange rate ($\dot{e}$) minus the domestic inflation rate (p). In equilibrium the difference between the return on home and foreign returns must be equal to the market-determined risk premium, $z(B)$, where B is the outstanding stock of dollar-denominated bonds:

$$r-(i^*+\dot{e}-p)=z(B), \quad z_B>0. \tag{6}$$

The exchange rate is assumed to return gradually to an equilibrium value ($\bar{e}$) that will set the natural-employment current account balance at zero:

$$e=\theta(\dot{e}-e). \tag{7}$$

Here θ is a positive adjustment coefficient, so that if e is below its expected long-run equilibrium value, it is expected to rise ($\dot{e}>0$). The financial-market relationship between e and r is obtained by substituting (7) into (6) and rearranging:

$$e=\bar{e}-\frac{1}{\theta}[r-i^*-p-z(B)]. \tag{8}$$

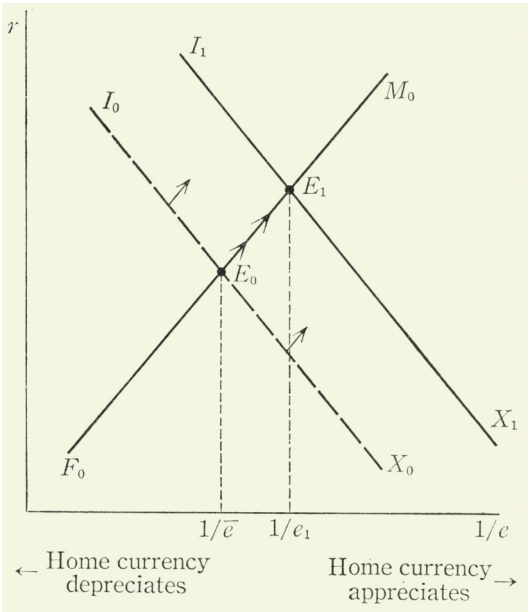
Given the stock of bonds (B), the inflation rate (p), the foreign nominal interest rate (i^*), and the long-run equilibrium real exchange rate ($\bar{e}$), an increase in the home interest rate (r) requires an immediate appreciation (drop in e) to establish the expected future depreciation of the home currency ($\dot{e}>0$) that makes domestic investors willing to hold foreign assets at an unchanged interest rate.

The negative relationship between r and e implied by equation (8) is plotted in Figure 1, where for convenience the horizontal axis is the inverse of the exchange rate, $1/e$, converting (8) into a positively sloped schedule labelled the FM line. A northeast movement along FM represents the appreciation that must accompany an increase in the home interest rate in order to maintain equilibrium in the financial market. A growing U.S. international debt that raises the supply of bonds (B) would shift the FM schedule up and to the left, as would an increase in the foreign interest rate or the domestic inflation rate, or a depreciation in the equilibrium long-run exchange rate (increase in e).

Now we can put the model into action in Figure 2 to trace the effects of an autonomous increase in the fiscal deficit of the home country. Initially the home country deficit shifts the IX schedule up to the right along a fixed FM schedule, and the economy moves from point E_0 to point E_1. In terms of the accounting identity (5), the increase in the interest rate and the appreciation cause an increase in domestic saving relative to investment ($S-I$) and a decline in net exports (X) which together sum to the exogenous increase in ($G-T$). The higher return on home currency assets during the transition period attracts foreign capital which finances the part of the budget deficit that exceeds the increase in ($S-I$.)

[12] We deviate from Branson's r, e axes by plotting r against $1/e$. This has the advantage that an appreciation is depicted as a rightward movement, and also that the IX schedule has the same negative slope as the traditional textbook IS schedule.

FIGURE 2.



Why the Dollar Must Depreciate

If we apply the Branson model to the experience of the United States in 1981–85, it appears to provide a useful first approximation in explaining the observed increase in the U.S. real interest rate and appreciation of the dollar. The observed appreciation in turn seems adequate to explain the large and growing U.S. current account deficit on the balance of payments, as documented in Table 11. Problems and qualifications in the relation between theory and facts are discussed below in Part V. Here we turn to the outlook for the future. In particular, is point E_1 in Figure 2 sustainable, and, if not, what path does the model predict for the interest rate and exchange rate?

Numerous recent papers, including those by Frankel (1985b), Krugman (1985), and Marris (1985), have stressed the inevitability of a decline in the dollar as a consequence of the steady buildup of U.S. international debt as the counterpart of the large U.S. current account deficit. The simple arithmetic seems to make an overwhelming case. The first step is to estimate how far the dollar would have to fall to reestablish exchange rate balance. A consensus view is that the extent of overvaluation in this sense is about 35 percent, roughly the increase of the dollar between 1980 and 1984 on a trade-weighted basis that gives the properly heavy weight to Canada and Japan. This estimate of the overvaluation of the dollar is also consistent with the estimate of John Williamson that, leaving aside interest payments made necessary by any future capital outflow, the dollar was overvalued in 1984:Q4 by 37 percent.[13]

The second step is to estimate the real interest rate differential in favor of the dollar. Krugman (1985) and Frankel (1985b) take a value of 2.5 percentage points in favor of the

[13] As reported in *The Economist*, Survey of International Monetary Reform, October 5, 1985, p. 32.

TABLE 11. CURRENT ACCOUNT BALANCES AS PERCENTAGE OF GNP, MAJOR INDUSTRIALIZED NATIONS, 1976–85

	United States	France	West Germany	United Kingdom	Italy	Japan
1976	0.3	−1.5	0.9	−1.6	−1.5	0.7
1977	−0.7	−0.7	0.8	0.0	1.2	1.6
1978	−0.7	0.6	1.4	0.6	2.4	1.7
1979	−0.1	0.0	−0.8	0.1	1.7	−0.9
1980	0.2	−1.4	−1.8	1.8	−2.5	−1.1
1981	0.2	−1.4	−0.8	2.7	−2.3	0.5
1982	−0.2	−3.0	0.6	1.7	−1.6	0.7
1983	−1.0	−1.6	0.7	0.8	0.2	1.8
1984	−2.8	0.0	1.1	0.0	−0.9	2.8
1985	−3.1	0.0	1.9	0.3	−1.1	3.0

Source: 1976–83. *OECD Economic Outlook*, June 1985, Appendix Table R5.
1984–85. *OECD Economic Outlook*, June 1985, Table 27, p. 55.

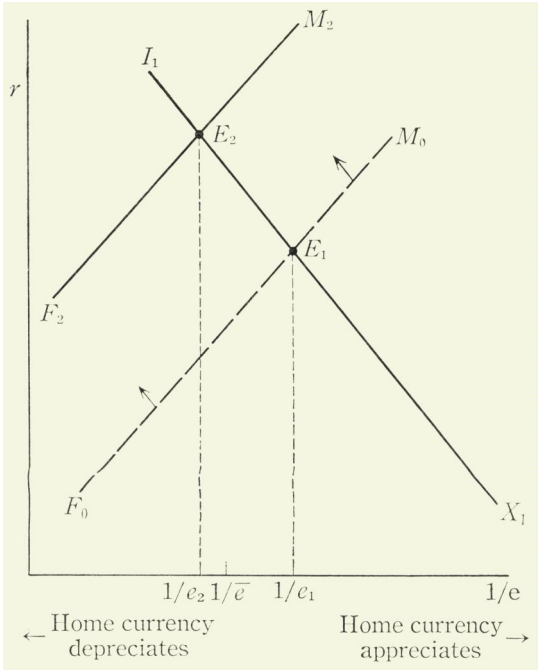
U.S., using the same weights as used for the exchange rate.[14] In the context of the portfolio equilibrium condition (equation 6), the real interest rate differential tells us how rapidly the exchange market expects the dollar to depreciate, since investors are happy to hold dollars with a 2.5 percentage point real interest differential only if they expect the dollar to depreciate at 2.5 percent per year. If they expect a faster depreciation, say 7.5 percent per year, they are irrational to hold dollars, since deducting the expected 7.5 percent depreciation from the 2.5 percent interest advantage of dollar assets leaves them with 5.0 percent less per year than if they were to hold deutsche marks.

With a few other assumptions, especially how fast the U.S. trade balance would fade away if the dollar were to fall by 7.5 percent a year, it is possible to calculate that the U.S. external debt will keep growing relative to our GNP *continuously* for the next 23 years, that is, until the year 2008. When the debt/GNP ratio finally stabilizes, the U.S. debt to foreigners will be *half* of a year's GNP (almost $2 trillion in today's economy and much more in the economy of the year 2008). The clear implication is that the exchange market is irrational to expect a depreciation of only 2.5 percent a year, in light of the enormous accumulation of U.S. external debt that this implies, and should upon realizing this bid the dollar down immediately. The substantial decline in the effective exchange rate of the dollar since the February, 1985, peak supports this interpretation.

The Branson model introduces the buildup of U.S. foreign indebtedness through the risk premium term, $z(B)$. At the short-run equilibrium point E_1 in Figure 3, investors are assumed to have a desired distribution of their portfolio between U.S. and foreign assets. As time goes on, the buildup of dollar assets (B) in their portfolios beyond the desired distribution leads to an increase in the risk premium, $z(B)$, and shifts up the FM schedule from the initial F_0M_0 to the new F_2M_2. The refusal of investors to provide a continued capital inflow at the r,e combination exhibited at point E_1 makes the current account deficit unsustainable and requires a drastic depreciation of the dollar. Because B continues to grow until the current account deficit disappears, the movement of FM toward the position F_2M_2

[14] The value of 2.5 percent is somewhat higher than the short-term differential of 2.1 percent computed by Frankel (1985a) for 1983–84 and reported above.

FIGURE 3.



must continue until the current account is zero. This occurs at point E_2, where the exchange rate e_2 has depreciated below the initial value $\bar{e}$, since a greater surplus on the trade account is needed to service the much-enlarged burden of interest *payments* (in contrast to net interest *receipts* for the U.S. prior to 1985).

Some economists, even while accepting the verdict of overvaluation, dispute that the dollar must fall the full distance implied by Figure 3. One problem is that empirical work, e.g., Frankel (1985b), indicates that the quantitative magnitude of the risk premium (the basis for the shift in the FM schedule in Figure 3) is quite small. Further, the specification in the Branson model, e.g., equation (6), on the risk premium as depending only on the relative supplies of bonds of different currency denominations focusses on a narrow segment of asset holders portfolios.[15] Foreign investors may not balk at the prospect of adding to their dollar portfolios $100 billion per year (the size of the U.S. 1984 current account deficit). Richard Cooper estimates that the world currently has a GNP of $11 trillion and saving of perhaps $1.1 trillion. "Is it implausible," he asks, "that the rest of the world would want to put 10 percent of its net new savings into the United States. . . . ?" The dollar would still have to depreciate to push the trade account deficit down by enough to allow the dollar debt to be serviced, but by this analysis it would not have to depreciate back to the 1980 level or below.

If Cooper is wrong and foreigners are unwilling to accumulate dollar debt continuously

[15] This paragraph summarizes points made in more detail in a symposium in *Brookings Papers on Economic Activity*, 1985, no. 2, pp. 245–52, and by Jacob Frenkel in comments on Branson (1985).

at a rate of roughly $100 billion per year, the implications of the Branson model are extremely gloomy for the future growth prospects of the U.S. Since the national income identity (5) must be satisfied continuously, the massive improvement in the U.S. trade account needed to service interest on the international U.S. debt, together with the assumption that the U.S. fiscal deficit is permanent, implies "super crowding-out" of investment. Given the recent verdict that U.S. aggregate productivity is growing at something between zero (Denison, 1985) and one percent (Gordon, 1984), the U.S. economy could be at a point of total stagnation when the entire scenario is completed. If the "fiscal-only" explanation of the strong dollar is correct, then it would appear that the only hope for long-term growth is an elimination of the U.S. structural budget deficit.

V. *Weaknesses of a "Fiscal-Only" Explanation*

Whatever the pedagogical appeal of the Branson model, his conclusion of a "fiscal-only" explanation of high real interest rates and a strong dollar ("the shift in the budget did it!") is not convincing. As we have seen in Table 3, the high-employment deficit did not rise to its previous 1975 peak until 1983 and did not exceed it until 1984. Yet in Table 7 it is evident that U.S. short-term real interest rates jumped in 1981, several years earlier. It is important for us to determine which of several other possible explanations for high real interest rates and the strong dollar are convincing, in order to determine whether a resolution of current U.S. balance of payments problems requires an elimination of U.S. government budget deficits, or whether these problems may remain intact even if a "budget fix" occurs.

The Role of Monetary Policy

A scan of the monthly U.S. data on nominal and real interest rates reveals convincing evidence against a "budget-only" interpretation.[16] An interpretation of the 1979–81 period for almost any topic in U.S. macroeconomics is distorted by the influence of the Carter credit controls in causing a collapse in the demand for durable goods in the middle two quarters of 1980. Leaving aside the transitory interest rate decline in the spring and summer of 1980 (which shows up in Table 7 as a low annual average real interest rate for 1980), short-term nominal interest rates in the U.S. were at or above 12 percent almost continuously from December 1979 to July 1982. Nominal rates on long-term government securities also reached double-digit levels as early as December 1979. The dollar began its climb in November, 1980.

Branson and other proponents of a fiscal-only explanation must explain why interest rates rose so much earlier than the high-employment budget deficit. Their standard argument is that the large future deficits were fully anticipated in early 1981, as market analysts rejected the overly rosy Reagan administration forecasts that rapid growth would cause the deficits to evaporate. However, this line of defense is sheer speculation and is refuted by three sets of facts:

[16] The comments in the text are based on an inspection of a monthly time series plot of the U.S. Treasury bill rate and long-term Treasury bond rate in *Business Conditions Digest*, September 1985, series 114 and 115.

(1) Records are available on the anticipations of one of the most influential commercial forecasting firms, Data Resources, Inc. (DRI). The following shows that the DRI forecast of the 1985 Federal budget deficit was not large in early 1981, when short-term U.S. real interest rates were close to their peak, and did not reach an accurate level until 1983 (forecasts were made in March of each year):[17]

FORECAST OF FISCAL 1985 FEDERAL BUDGET SURPLUS MADE BY DRI, MARCH OF EACH YEAR

	1981	1982	1983	1984
1985 Budget Position as Percent of GNP	−1.0	−2.5	−5.2	−5.0

This forecasting record provides no support for the idea that high interest rates in early 1981 were entirely or even partly due to large anticipated Federal deficits.

(2) Future anticipated Federal deficits should cause current long-term rates to rise, but there is no reason for short-term rates to rise in the absence of any current Federal financing requirement or stimulus to output. In late 1980 and all of 1981 the yield curve was negatively sloped, with short-term rates higher than long-term rates. This pattern is completely consistent with tight money as an explanation of high real rates and the appreciation of the dollar, as is the fact that 1981 interest rate levels were reached in late 1979 and early 1980 (before the Carter credit controls), immediately after the introduction of the new Volcker monetary regime, but when there was no hint of the Reagan deficits on the horizon.

(3) The anticipated deficit argument also has trouble with the time path of real interest rates since 1981. As shown in Table 7, short-term real interest rates in the United States were lower in 1983 and 1985:I than in 1981–82, and the differential between U.S. and foreign short-term real rates fell to zero in eary 1985. Yet the high-employment fiscal deficit kept growing during this period, while the continuing inability of Congress and the Administration to compromise on a credible plan for ending the deficits raised the anticipated level of the deficits for the last half of the decade. Again, the pattern of interest rate movements, particularly the sharp decline in the fall of 1982, rise in early 1984, and decline since mid-1984, seems explicable only with reference to monetary policy, which stimulated a U.S. economic recovery by allowing double-digit monetary growth between mid-1982 and mid-1983, and which has attempted to keep the recovery from sputtering out with another sustained period of double-digit monetary growth in 1985.

As a result of these factors, particularly the absence of evidence that large future deficits were widely anticipated in early 1981, and the close connection between the timing of interest rate movements and shifts in the stance of monetary policy, the primary responsibility for the behavior of real interest rates and the dollar in the 1979–82 period must fall on monetary policy. Some role for the fiscal stimulus, particularly in conjunction with the 1983–84 investment boom created by tax incentives, seems essential in explaining why the first six quarters of the post-1982 U.S. economic recovery were so strong, and why *long-term* real interest rates have remained so high.

To accept a role for monetary policy in accounting for high U.S. real interest rates, particularly during 1979–82, does not require acceptance of the monetarist verdict that the

[17] The source is Blanchard-Summers (1984), Table 11, p. 301.

way monetary policy operated was through the variance of monetary growth, as in the claim of A. Steven Holland (1984, p. 29) that "the phenomenon most closely coincident with the rise in real rates was an increase in the variability of monetary growth, which increased economic uncertainty and the risk premium on interest rates." But we have learned since 1982 that periods of double-digit monetary growth can be accompanied by a decline in velocity rather than a boom in nominal GNP. Volatility in the growth rate of the money supply may simply reflect changes in the demand for money, due to rapidly shifting financial regulations that change the relative attractions of accounts that are included in or excluded from $M1$. These demand-driven changes have no necessary consequences for real output growth or inflation.

Thus there is no reason why investors should have required a higher real return to hold government bonds solely because of monetary variability. Further, the conventional monetarists verdict that monetary variability for the money supply measure $M1$ increased in the 1979–82 period is true only for quarter-to-quarter variability, while there was no increase at all in the variance of the four-quarter moving average of $M1$ (Gordon, 1985, Table 3.4, p. 64). Yet countless studies have shown that what matters for growth in nominal income is a four-quarter moving average of monetary changes, not individual quarter-to-quarter fluctuations. Because the variance argument is not convincing, we conclude that the Federal Reserve raised real interest rates "the old-fashoned way," by reducing the supply of money relative to the demand. Since the demand is unobservable, it is not possible to measure changes in the tightness of monetary policy simply by observing changes in the growth rate of $M1$, as is the habit even of otherwise sensible observers like Maurice Obstfeld (1985, pp. 17–18).

Foreign Fiscal Policy

A further weakness in the "fiscal-only" argument is that it seems quantitatively too weak to account for the full 1981–85 rise in the dollar. In a recent simulation of the Federal Reserve Board's Multicountry Model, Peter Hooper (1984) finds that U.S. fiscal measures undertaken in 1981–84 would have caused the dollar to appreciate by about 8 percent in real terms had there been no change in foreign fiscal or monetary policies. In a related simulation of the MINILINK Model, Paul Masson and Adrian Blundell-Wignall (1985, Table 1) find that an unanticipated $50 billion reduction in U.S. government expenditure would create a depreciation of the effective dollar exchange rate of no more than 4 percent over the following five years, implying that a $150 exogenous increase in the U.S. deficit in the early 1980s could not explain more than a 12 percent appreciation of the dollar, which is only a third or less of what actually occurred. The corresponding figure in a simulation exercise by Ishii, McKibbin, and Sachs (1985, Table 5) is a 4 percent appreciation for a $35 billion fiscal stimulus, implying that a $150 billion stimulus would have caused a 17 percent appreciation.

To come close explaining the dollar appreciation that actually occurred, the analyst must appeal to some factors beyond U.S. fiscal policy itself. One of the most plausible elements, and fully complementary to the U.S. monetary policy element discussed above, is the shift toward fiscal contraction in Europe and Japan. It is the *combination* of easy domestic fiscal policy and tight foreign fiscal policy that seems most plausible, together with tight domestic monetary policy in 1979–82, as an explanation for the behavior of both

real interest rates and the dollar. Ishii, McKibbin, and Sachs (1985) conclude that a U.S. fiscal stimulus equal to 4.0 percent of GNP, *combined with* a Japanese fiscal contraction of 2.0 percent of GNP (roughly the amounts that occurred during 1981–85), can account for a U.S. current account deterioration of $78 billion, the bulk of the actual movement. However, the timing evident in Table 5, with much more of the foreign fiscal tightening occurring in 1978–80 than in 1980–85, raises doubts whether foreign fiscal policy could have played more than a secondary role in explaining the behavior of the dollar.

The "Safe Haven" Argument

Because it seems difficult to find a model that can fully decompose the 1980–85 appreciation of the dollar into "fundamental" factors, without some substantial leftover "bubble" component, economists have searched around for additional factors that may have played a special role over the past five years but do not fall within the traditional categories of monetary or fiscal policy. Of these the two most popular are the "safe haven" argument that world portfolio preferences shifted toward dollar assets, and the "increased profitability" hypothesis that foreign investment was pulled in by a step increase in the rate of return on U.S. assets.

The safe haven argument is implausible on its face, because it cannot account for the observed pattern of real interest rates. Unlike a fiscal deficit, which raises the *supply* of dollar-denominated bonds and causes both an exchange rate appreciation and an increase in the real interest rate, an autonomous portfolio shift toward dollars increases the *demand* for dollar assets, thus causing an exchange rate appreciation but a decrease in the real interest rate. The safe haven portfolio shift hypothesis would be consistent with the data only if we had observed in the 1980s not just a boom in the U.S. stock market, which in fact did occur, but also a boom in the bond market which reduced rather than increased real interest rates. Yet the Frankel evidence reviewed above shows that the long-term interest rate differential in favor of the U.S. was larger than ever in 1983–85.

Another blow against the safe haven argument comes from an examination of foreign financial markets. There was no decline in stock market prices in Europe and Japan at the time that the U.S. stock market boomed, and in fact Table 9 shows no important change in the differential between dividend-price ratios in the U.S. and abroad over the 1978–85 period. Further, Eurodollar rates (rates on dollar instruments located in Europe) do not differ from U.S. rates (that is, rates on dollar instruments located in Europe). This points out that safe haven advocates have been fuzzy on the distinction between the currency denomination of an asset and the jurisdiction where it is located. Shifting dollar deposits from London to New York has no effect on the exchange rate, while shifting from sterling to dollar deposits in London does have such an effect.

Even if we are willing to neglect the awkward fact that the safe haven argument makes the wrong prediction for the behavior of the U.S. bond market and foreign stock markets, it is hard to accept this hypothesis for capital inflows to the U.S. from the other major industrialized nations. With the exception of France, the other large industrial countries have been politically stable over the four years of the dollar appreciation. Britain has had its most pro-business government in years, and there have been few serious problems in Germany beyond some nervousness over Poland, which has now been dissipated. Most convincingly, why would capital leave Japan to seek a safe haven in the United States? In

short, the safe haven argument can only explain the strength of the dollar if the market attaches a significant probability to the prospect that claims on Europeans or Japanese will at some time be repudiated or expropriated, presumably as the result of a Russian attack that somehow does not engulf the United States. Leaving aside this implausible scenario, any remaining life in the safe haven hypothesis must come from capital flight from debtor countries that have been in near-crisis condition since 1981–82, including Mexico, Brazil, Venezuela, and Argentina.

Higher U.S. Profitability

The safe haven argument fails because it explains an increased *demand* for dollar assets, whereas the observed pattern of higher real interest rates and a strong dollar requires an increase in the *supply* of dollar assets. The easy fiscal policy explanation fits this pattern, particularly in conjunction with tight monetary policy in 1979–82, but so does the hypothesis that there was an autonomous increase in the profitability of U.S. private investment in the 1980s as compared to the 1970s. The chief proponents of this explanation, Blanchard and Summers (1984), argue that only this explanation can explain why high real interest rates were accompanied by a strong stock market and relatively strong investment after 1982 rather than a weak stock market and weak investment. A reduction in gross saving caused by fiscal deficits, as in Table 4, would be consistent with a decline in the prices of both bonds and stocks, as would a pure tight money explanation.

The first point about the profitability hypothesis is that it is not incompatible with the fiscal explanation, since a major component of the 1981 tax reduction package took the form of business tax incentives that raised the after-tax profitability of investment. In this sense the two explanation go hand in hand. Any independent life to the profitability explanation, beyond the role of fiscal incentives, might come from the emerging weakness of the U.S. labor movement reflected in low wage increases during the post-1982 economic recovery (Mitchell, 1985). But, as with a pure fiscal policy explanation, a pure profitability explanation flounders on timing. The most convincing profitability series, for the ratio of corporate domestic profits after tax to corporate domestic income, with adjustments for inventory valuation and capital consumption, was depressed until late 1982 and did not exceed its previous level for prosperous years in the 1970s until late 1983. The following exhibits this profit ratio for selected peak periods in the past and for the recent recovery:

Previous Peaks	Profit Ratio (Percent)
1966 : 1	13.4
1973 : 1	8.2
1977 : 3	9.5

Recent Recovery	1983	1984	1985
Quarter 1	6.5	9.1	9.9
Quarter 2	7.5	9.6	9.7
Quarter 3	8.1	9.7	—
Quarter 4	8.9	9.9	—

Further, unlike the fiscal explanation, where some astute investors might have calculated

in early 1981 that a large high employment deficit would emerge in 1983, there is no reason to suppose that investors anticipated the 1983–84 profit boom before it occurred. And the main Blanchard-Summers argument to support the role of the profitability hypothesis in explaining the behavior of the real interest rate, that is, the post-1982 strength of the U.S. stock market, is dubious as well. What is remarkable about the U.S. stock market is not how strong it was after 1982, since in 1983–84 the price-earnings ratio was still well below its 1970 value, but rather how weak it was between 1974 and 1982.

VI. *Conclusions*

Causes of the Payments Imbalance

This paper set out to examine the links between U.S. budget deficits and the current world "imbalance of payments," with large current account deficits in the U.S. set against large current account surplusses for Japan, Germany, and many other nations. The primary questions of concern are whether this payments imbalance must be eliminated, whether an end to U.S. fiscal deficits is necessary for a long-run balance of payments equilibrium to emerge, and, if not, what other measures can be taken to end the payments imbalance should the U.S. Congress and Administration refuse to achieve a balanced fiscal budget. The payments imbalance is no mystery given the real appreciation of the dollar since 1980, and so the main focus of the paper is on the strong dollar during the 1980s, and the related phenomenon of a real interest rate differential in favor of the U.S.

Two analytical criteria, *supply-demand* and *timing*, can be used to sort through the leading hypotheses that have been proposed to explain the high real U.S. interest rate differential and the strong dollar, including (1) U.S. fiscal deficits, (2) U.S. monetary policy, (3) foreign fiscal contraction, (4) the safe haven argument, and (5) high profitability on U.S. investment. The supply-demand criterion asks whether a particular hypothesis creates the increase in the net supply of U.S. bonds or decrease in the net supply of foreign bonds required to explain the interest rate differential. The U.S. fiscal and profitability hypotheses generate the required increase in the net supply of bonds, while tight U.S. monetary policy generates the required reduction in demand (increase in net supply), from restrictive open-market operations that involve bond sales. Foreign fiscal contraction is a complementary explanation by decreasing the net supply of foreign bonds. Only the safe haven argument can be rejected by the supply-demand criterion, since a portfolio shift toward U.S. dollar-denominated assets should raise the demand for U.S. bonds and reduce the U.S. real interest rate differential.

Thus the supply-demand criterion leaves four of the five hypotheses in the running. But the second criterion, timing, acts as a fine-edged sword to slice the 1981–85 period into two sub-intervals in which different sets of factors seem to have been operating. The emergence of a real interest rate differential in favor of the U.S., both short-term and long-term, can be dated to late 1980, as can the beginning of the dollar's upward surge. For the period between then and the autumn of 1982, when the short-term interest rate differential was at its peak and when half of the 1980–85 dollar appreciation occurred, only the monetary policy explanation has any credibility. For during 1980–82 there was no hint of revived U.S. profitability, foreign fiscal policy was easing rather than tightening, and the U.S. high

employment fiscal deficit neither existed nor was anticipated by the best commercial forecasters. After 1982 there was a distinct easing of monetary policy, reflected in the decline in the *short-term* real interest rate differential, leaving to U.S. and foreign fiscal policy, together with profitability, the explanation of the continued large *long-term* real interest rate differential.

The audience of academic papers has a great fondness for unique or "monocausal" explanations of complex phenomena. Yet the international economic imbalance of the 1980s is nothing new in requiring two sets of explanations, one for the first 1980–82 stage and another for the second 1982–85 stage. The same need arises in explaining the American Great Contraction of 1929–33, where, in the words of J. R. Hicks (1974), there was a "double slump," with primarily nonmonetary factors responsible for the initial 1929–31 decline, and primarily monetary factors responsible after the autumn of 1931 for converting a deep recession into a deep depression.[18]

Scenarios for Ending the Imbalance

Most international economists, agreeing that the mid-1985 level of the dollar is not sustainable, foresee a sharp decline in the dollar over the next few years that will bring with it a correction of the payments imbalance. This consensus view finds implausible the implications of a continuation of the strong dollar and associated payments imbalance, especially a huge foreign debt amounting in the early 21st century to as much as half the current value of U.S. GNP.

Scenario A: The simplest scenario to project is a decline in the dollar accompanied by a decline in the U.S. fiscal deficit. In this case there is no major aggregate demand problem in the U.S., since the stimulus of the depreciation is offset by the contractionary fiscal shift, and foreign countries with appreciating currencies are given a "window" to pursue expansionary monetary policies with a smaller than usual inflation response. The result would be a reversal of almost everything that has occurred since 1980, with foreign economies reviving more rapidly than the U.S., and with increased foreign growth prospects raising foreign profitability and reducing or eliminating the long-term real interest rate differential in favor of the U.S.

Scenario B: A more difficult set of projections is required by a dollar depreciation that is *not* accompanied by a U.S. "fiscal fix." The problem is the obdurate national income accounting identity, equation (5) above, which is rewritten here for convenience, and is assumed to apply at a constant natural rate of unemployment:

$$(5) \qquad G-T \equiv S(r)-I^D(r)-X(e).$$

A decline in the dollar sufficient to reduce X to zero, with no change at all in the natural-employment fiscal deficit, requires an offsetting increase in $S-I^D$, which in turn would require an increase in the real interest rate. To see the orders of magnitude involved, compare the values of the elements in (5) in the first half of 1985 (from Table 4 expressed as percentages of GNP) with hypothetical values that would occur if X fell to zero, $G-T$ remained unchanged, and the full brunt of the adjustment was taken up by I^D:

[18] The "double slump" interpretation is supported in detail in Gordon and Wilcox (1981).

	$G-T$	S	I^D	X
1985: I	−3.6	17.8	16.8	−3.0
Hypothetical	−3.6	17.8	13.8	0.0

As in Table 4, the columns do not add due to the omitted statistical discrepancy, and the comparison is made assuming a continuation of a constant unemployment rate at the level of 1985:I. The required decline in investment brings the percentage share of I^D down to the cyclical low points of 1958, 1975, and 1982, yet in an economy that is hypothetically operating at a 1985-like level of unemployment and capacity utilization.

To "crowd out" this much investment, monetary policy would have to allow a much higher level of U.S. interest rates than it is likely to be tolerable or than financial markets now expect. In addition to adverse consequences for the future growth of the U.S. capital stock and output, higher interest rates would aggravate the interest burden of the LDC international debt overhang. Foreign monetary authorities would face a double deflationary force, the first coming from their own exchange rate appreciations, and the second coming from restrictive U.S. monetary policy. This is the Marris (1985) "hard landing" scenario.

Scenario C: What is the alternative? If the Federal Reserve refuses to accept a major increase in interest rates, then the stimulus to aggregate demand coming from its actions combined with the stimulus of a shrinking trade deficit would circumvent the corset of equation (5), which assumes a fixed unemployment rate, by boosting the level of capacity utilization and reducing unemployment. Much of the required adjustment in (5) will then come from a reduction in the actual budget deficit relative to the constant-unemployment deficit, and an increase in private saving (mainly corporate profits). High utilization, combined with a depreciating dollar, will substantially increase the U.S. inflation rate, from the 3 percent area of late 1985 to perhaps 5 percent. The Fed will be faced with a stark choice between investment and inflation, and there will be a strong incentive for Congress to repeal tax rate and bracket indexation in order to bring back deficit-eroding "bracket creep."

Scenario D: The basic presumption of the preceding three scenarios is that foreign asset holders will not tolerate an endless buildup of U.S. overseas indebtedness and will dump dollars, causing a decline in the dollar to or below its 1980 effective exchange rate, thus eliminating the trade imbalance. However, foreign asset holders may be more tolerant than this. International portfolio diversification and financial deregulation in countries like Japan may allow substantial U.S. capital inflows to persist into the 1990s. Further, foreign central banks may be unwilling to tolerate the deflationary pressure imposed on their economies by a collapse of the dollar, while foreign fiscal authorities show little willingness to engage in decisive budget easing, leaving open the possibility that foreign monetary expansion will delay or avert the widely anticipated U.S. depreciation. If this occurs, the trade imbalance will persist, making likely U.S. adoption of substantial protectionist measures.

To review, Scenario A is "dollar depreciation with fiscal fix," B is "hard landing," C is "dollar depreciation with worldwide expansion," and D is "more of the same." B, C, and D share in common the realistic assumption that Congress and the President will continue in a fiscal stalemate, and that the new Gramm-Rudman budget-balancing legislation will be ineffective. As more expansionist-minded Governors join the Federal Reserve, the betting increases on Scenario C as compared to B. And a contrarian, who instinctively

becomes nervous in the face of a consensus among any group, particularly international monetary economosts, might do well to set at least a 50 percent probability on Scenario D.

The final consideration, which does not fit neatly within the framework of the four scenarios, is that, even leaving aside the burden of interest payments on external debt, a return in the exchange rate to 1980 levels may not suffice to achieve balance in the U.S. and Japanese current accounts. First, in 1984 U.S. exports to Latin America were one-third lower than in 1981, mainly because of demand restriction in Latin America rather than price substitution towards imports from Japan or Europe. Second, foreign producers of industrial products have fattened profit margins as the dollar has risen, and can allow those margins to be squeezed during a period of depreciation without losing market share. Third, and most important, much of the deterioration of the U.S. trade balance is accounted for by Japan, where the yen depreciated against the dollar by just 3.8 percent between the end of 1979 and the middle of 1985, and by other Asian countries that peg their currencies to the dollar. Overall, more than 85 percent of the trade deficit in the last two years was with countries where there was little or no appreciation of the dollar, or where the appreciation played no role in trade (Karczmar, 1985). The real solution to the U.S. trade deficit may lie not in a sharp depreciation, but rather in faster economic growth in Europe and Japan, where relatively low inflation rates, large balance-of-payments surplusses, and much reduced fiscal deficits have eroded the standard alibis of governments to avoid the obvious need for policies to stimulate aggregate demand.

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