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The Current-Account Balance and the Dollar: 1977-78 and 1983-84

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1 INTRODUCTION

In the late 1970s, particularly during the dollar depreciation of 1977-78, there appeared to be a close connection between current-account statistics and the behavior of the U.S. dollar against other major currencies. The apparent importance of the current account was reinforced by the failure of other "fundamentals" to explain the violent exchange-rate movements of 1977-78.

In both 1977 and 1978 the dollar depreciated by more than 20 percent against the Japanese yen and Swiss franc, and by more than 10 percent against the German mark (Table 1). Yet the growth of the money supply was typically lower in the United States than in the other countries. This paradox was particularly marked in 1978; M1 growth was much less in the United States than in Germany, Japan, or Switzerland. Indeed, the currency against which the dollar depreciated the most (the Swiss franc) had the largest money-supply growth.[1] Real interest rates, measured *ex post*, appear to have been very similar in the United States and the countries against which the dollar depreciated, because in the United States the higher inflation was more or less offset by higher nominal short-term interest rates. It must also be remembered that a substantial part of the widening inflation differential was a consequence rather than a cause of dollar depreciation. The depreciation raised import prices in the United States and lowered them in the strong-currency countries.[2] Thus, it is not surprising that the current account moved to the forefront in popular and academic discussions.[3]

This study was partially written while I was a consultant for the Organization for Economic Cooperation and Development in 1984-85, but the views expressed are mine and should not be associated with the OECD. I would like to thank Dave Coe, Franek Rozwadowski, Jeffrey Shafer, Christian de Saint-Etienne, Anti Suvanto, and two referees for helpful comments, and Cathryn Carlson for efficient research assistance. Any remaining errors are my own. Research support from Swarthmore College is gratefully acknowledged.

[1] One might thus be led to believe that there is an inverse rather than direct relationship between relative U.S. money growth and depreciation of the dollar. For this period, however, it is incorrect to view the direction of causation as running exclusively from money supplies to exchange rates, because monetary policies responded to exchange-market developments. The very large money-supply rise in Switzerland in 1978 was attributable to unsterilized exchange-market intervention by the Swiss National Bank intended to hold down the appreciation of the Swiss franc. To a lesser extent, the same thing occurred in Germany and Japan.

[2] While imports from the United States are a relatively small share of total European and Japanese imports, a large share is invoiced in dollars (31 percent for Germany in 1976, 90 percent for Japan, according to data in Nakamura, 1980).

[3] See Shafer and Loopesko (1983) for a discussion of the interrelationship between theoretical exchange-rate models and the actual experience with flexible rates in the 1970s.

TABLE 1

PERCENTAGE CHANGE [a] IN THE U.S. DOLLAR EXCHANGE RATE IN RELATION TO THE "FUNDAMENTALS," 1977 AND 1978

	1977	1978
Exchange-rate changes: [b]		
German mark/dollar	12.3	15.1
Japanese yen/dollar	22.0	23.3
Swiss franc/dollar	22.5	23.5
FRB trade-weighted average dollar	8.0	10.6
M1 growth:		
Germany	11.2	13.2
Japan	8.2	13.4
Switzerland	4.1	22.6
U.S.	7.9	6.6
CPI inflation:		
Germany	3.5	2.4
Japan	4.8	3.5
Switzerland	1.1	0.7
U.S.	6.8	9.0
Short-term interest rate: [c]		
Germany	2.6	2.6
Japan	4.1	3.4
Switzerland	1.1	0.1
U.S.	6.1	9.3
Current-account balance: [d]		
Germany	4.1	9.0
Japan	10.9	16.5
Switzerland	3.4	4.4
U.S.	−14.5	−15.4

[a] End of year to end of year.

[b] Positive figures represent appreciation against the dollar.

[c] Treasury bill rates except for Switzerland, which is 3-month deposit rate.

[d] Billions of dollars.

SOURCES: *Main Economic Indicators, Economic Outlook*, OECD; *Bulletin*, Federal Reserve Board.

Market commentary frequently referred to this connection. On October 17, 1978, the *Wall Street Journal*'s foreign-exchange column noted:

> Analysts said a major factor in the dollar's steep plunge yesterday was Japan's announcement that its trade surplus with the U.S. widened in September . . . . (p. 2)

International economists have also noted this relationship. Frankel (1982a, p. 516) wrote:

> Coincident with the collapse in the explanatory power of the monetary model was the apparent emergence of the traditionally-noted correlation between current accounts and exchange rates. The dollar's fall in 1978 and its stabilization in 1979 coincided precisely with periods of large current-account deficit and balance, respectively.

Reviewing experience in the 1970s, Cooper (1982, p. 7) remarked:

> . . . the real effective exchange rate followed a classic pattern: it declined in relation to a deterioration in the current-account position of the United States, and it appreciated in response to an improvement in the current account. Whatever the exact channel of causation, the relationship was a close one.

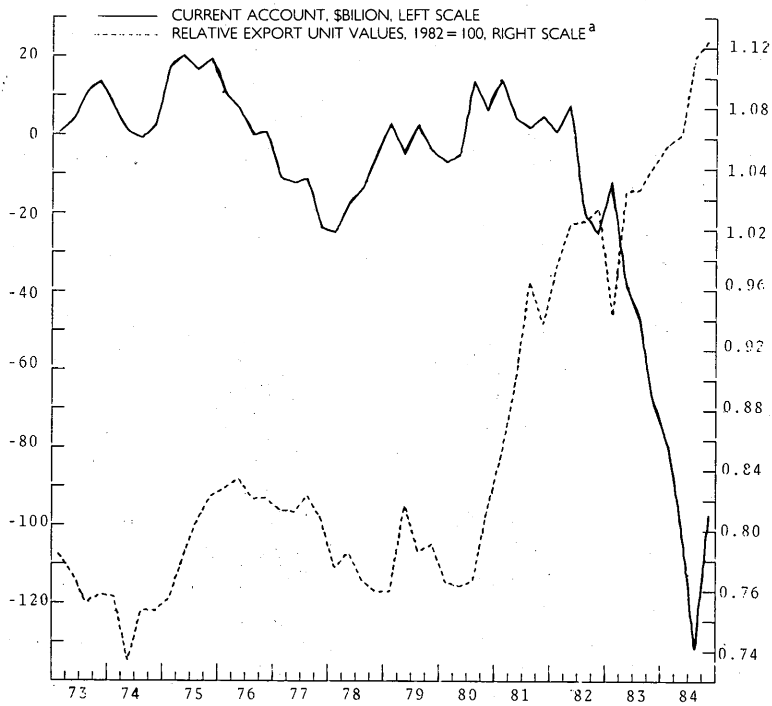
Cooper pointed to similar relationships for Germany and Japan.

As soon as economists had introduced current-account flows into asset-market models, however, the observed relationship collapsed, much as the monetary models had collapsed in 1978. The dollar appreciated in 1983-84 despite ballooning U.S. current-account deficits that dwarfed those of 1977-78 (Figure 1).[4] The U.S. current-account deficit exceeded $100 billion in both 1984 and 1985, compared with $15 billion in 1978. According to the U.S. Department of Commerce, the United States became a net debtor in 1985. Several studies published in 1985 predicted that, in the absence of a sharp decline in the dollar from its early 1985 level, the U.S. net debtor position could reach several trillion dollars over the next two decades (Krugman, 1985; Isard and Stekler, 1985; Marris, 1985). Krugman's simulations showed that the U.S. net foreign debt as a share of gross national product would reach levels similar to those of the most heavily indebted developing countries, even if the dollar depreciated gradually in real terms, as implicitly forecast by the interest-parity relationship. In view of these large prospective current-account deficits, Krugman, Marris, and others concluded that an abrupt rather than gradual decline of the dollar was very likely. As Krugman pointed out, the "hard landing" hypothesis was inconsistent with rational speculative behavior in the foreign-exchange market. Although the dollar belatedly depreciated sharply between March 1985 and May 1986, it is puzzling that the market re-

[4] Since 1981, the statistics have shown a large global current-account deficit, indicating that at least some countries are recording larger deficits or smaller surpluses than they are actually incurring. The global discrepancy increased from less than $5 billion annually in 1977-79 to $100 billion in 1982, and it remained in the $70-$90 billion range in 1983-84. Thus, it is possible that there are errors in the current-account statistics cited here, notably the U.S. deficits. However, the IMF *World Economic Outlook* (May 1984, p. 88) suggests that "the discrepancy does not appear to be so concentrated in the statistics of a particular group of countries as to throw doubt on the global pattern of current-account balances or on the principal changes in the pattern suggested by the recorded figures."

FIGURE 1

THE U.S. CURRENT ACCOUNT AND THE REAL DOLLAR EXCHANGE RATE



[a] An increase represents dollar appreciation.
SOURCE: OECD *Economic Outlook* and *Main Economic Indicators* data files.

mained oblivious to the informational content of the U.S. current-account deficits in 1983-84 after showing an acute and perhaps excessive awareness of U.S. current-account deficits in 1977-78.

This study examines the analytical and empirical relationships between current accounts and exchange rates. Chapter 2 uses the asset-market approach, which identifies two standard channels through which current-account balances are thought to influence exchange rates: the effects of wealth transfers on portfolio balance and the effects of current-account surprises on equilibrium exchange rates. Chapter 2 presents an illustrative portfolio-balance model and discusses the importance of the current account relative to other influences on asset-market equilibrium in the 1970s and early 1980s. Chapters 3 and 4 then turn to the relationship between the current account and the equilibrium exchange rate, in 1977-78 and 1983-84 respectively. The approach of this study is to focus on particular episodes of exchange-rate history, which may be helpful in view of the poor performance of structural econometric models of exchange-rate determination.[5] The central theme is that the analytical basis for linking current-account balances and exchange rates is much weaker than the experience of the 1970s suggested. This is important, because the conclusion that the large U.S. current-account deficits of the mid-1980s implied "overvaluation" of the dollar rested to some extent on past experience, especially in 1977 and 1978.

[5] The well-known study by Meese and Rogoff (1983) shows that the standard structural models do not outperform forward rates or random walks in out-of-sample forecasts, even when purged of forecasting errors in the explanatory variables.

2 THE CURRENT ACCOUNT, NATIONAL WEALTH, AND PORTFOLIO BALANCE

A Portfolio-Balance Model

A familiar starting point for exchange-rate analysis is the asset-market equilibrium condition that equates the interest-rate differential to the expected exchange-rate change adjusted for an exchange-risk premium, so that the risk-adjusted yields of holding assets denominated in alternative currencies are equalized.

Consider a two-country world, consisting of America (A) and Europe (E). Let i denote the nominal interest rate, e be the log of the exchange rate (the price of a mark in dollars), and a be the exchange-risk premium (the expected excess return on holding dollar assets). Let $\hat{e}$ be the expected exchange-rate change for the interval corresponding to the maturity of the interest rates. The asset-market equilibrium condition can be written

$$\hat{e} + a = i_A - i_E \, . \tag{1}$$

Equation (1) can be transformed into a relationship between the real-interest-rate differential and the expected change in the real exchange rate by adding the inflation-rate differential to both sides of the equation, but this adjustment is not important here, as my focus is on the current account rather than on monetary policy. In the following, the inflation-rate differential is assumed away, so that nominal and real exchange rates move together.

Exchange-rate expectations are assumed to be regressive toward an equilibrium exchange rate $\bar{e}$:

$$\hat{e} = k(\bar{e} - e), \quad (k > 0) \, . \tag{2}$$

Combining (1) and (2),

$$e = \bar{e} + (i_E - i_A + a)/k \, . \tag{3}$$

Equation (3) states that the actual exchange rate depends on the equilibrium exchange rate, the interest-rate differential, and the risk premium. For expositional simplicity, interest rates will be assumed constant in the remainder of this study. Endogenous interest rates could be introduced by disaggregating asset supplies into monetary and nonmonetary assets, as in the models of Tobin and de Macedo (1980) and Girton and Henderson (1977), but such models indicate that endogenous interest rates do not alter the qualitative pattern of the results illustrated here. In addition, this chapter holds the equilibrium exchange rate constant, although it will vary in the following chapters.

Current-account imbalances transfer wealth from deficit to surplus countries. This wealth transfer has implications for portfolio balance and hence the exchange-risk premium when interest-bearing assets are imperfect substitutes across currencies and asset preferences differ across countries. For example, if home-currency preference prevails, so that each country holds a relatively high proportion of its wealth in domestic-currency assets, a U.S. current-account deficit entails dollar depreciation. Wealth is transferred to regions having a lower preference for dollar assets than does the United States, requiring a rise in the risk premium on dollars (an increase in a). Models that feature the wealth-transfer effects of current-account balances include Kouri (1976, 1983), Branson (1977), Tobin and de Macedo (1980), Rodriguez (1980), Allen and Kenen (1980), and Golub (1983).

Although the focus of my model is on the risk premium, it is worth noting that there are other channels through which wealth transfers associated with current-account balances tend to result in depreciation of the deficit country's currency. The wealth transfers associated with current-account flows may alter relative demands for money, if those demands are functions of wealth, as in Frankel (1982b) and Obstfeld and Stockman (1984). A U.S. current-account deficit lowers U.S. wealth and U.S. money demand, and raises foreign wealth and foreign money demand, under the assumption that each country has a relative preference for its own money. In a monetary model of the exchange rate, the relative fall in U.S. money demand will depreciate the dollar by raising the U.S. price level or lowering the U.S. interest rate relative to the corresponding foreign variables.

Another mechanism whereby wealth transfers alter exchange rates occurs when domestic and foreign goods are imperfect substitutes, demands for goods are a function of wealth, and the exchange rate moves to reestablish the equilibrium relative price of goods. If each country has a relative preference for its domestic goods, the familiar connection of current-account deficits and depreciation obtains (Dornbusch and Fischer, 1980). A U.S. deficit entails a relative fall in U.S. wealth, a fall in global demand for U.S. goods, and a deterioration of U.S. terms of trade. If goods prices are sticky, the terms-of-trade change is brought about through dollar depreciation.

The remainder of this chapter analyzes the importance of the current account relative to other disturbances to portfolio equilibrium, including official intervention in the foreign-exchange market and changes in the stock of national wealth generated by capital formation, government budget deficits, and capital gains on existing assets. Obstfeld and Stockman (1984) point out that capital formation can swamp the current account's effect on wealth. Some empirical studies have recognized the roles of government debt issues and intervention (Dooley and Isard, 1983; Frankel, 1982a), but none to my knowledge has considered private-sector issues of bonds and equities, which may be much larger in practice than government debt issues. This omission is potentially significant because, as Blanchard and Dornbusch (1984, p. 106) note,

> Empirical studies of risk premia have established two facts. First, that in the international interest linkage there appears definitely a risk premium. International interest differentials do not differ from depreciation rates randomly. But it is also the case that attempts to explain the risk premium in terms of current accounts or wealth changes have not been very successful. This is perhaps not surprising when we bear in mind that in empirical work attention has focused on public debt and cumulative current accounts at the exclusion of the value of claims to real assets, and in particular the stock market. Of course, movements in the value of the stock market swamp the impact of budget deficits on wealth and even more so the impact of current accounts.

Difficult issues arise in the modeling of claims to real assets. As Tobin (1982) has pointed out, it is not clear that equities should be regarded as being denominated in any particular currency, because a company's earnings may be independent of the currency in which its shares are denominated. Furthermore, evidence provided by Blanchard and Summers (1984) indicates that debt and equities are imperfect substitutes. Nonetheless, it seems reasonable to regard equities as closer substitutes for domestic-currency assets than for foreign-currency assets. As Tobin (1982, p. 122) observes,

> The principal location and the legal and tax domicile of the business do entangle its earnings with the domestic and exchange value of the currency. For both foreigners and local investors, equity in the country's businesses may be a closer substitute for home debt than for foreign debt securities.

The implication of relaxing the assumption that bonds and equities are perfect substitutes when denominated in the same currency is discussed below.

In addition, country risk is ignored, making the location of the issues irrelevant; dollar-denominated bonds issued outside the United States are regarded as perfect substitutes for dollar-denominated bonds issued in the United States. To the extent that there is a close correspondence between the location of the issuer and the currency of denomination, this assumption is not essential. Such an assumption is made more tenable because the focus of the model is on outside assets, that is, assets that constitute part of net wealth. Financial intermediation, as in the Eurocurrency market, does not alter global net wealth, because assets and liabilities cancel.[1] The supply of outside

[1] This is not to say that the Eurocurrency market is irrelevant for exchange-rate determination. The growth of international financial intermediation undoubtedly makes asset demands more sensitive to yield differentials and thereby increases the volatility of exchange rates.

assets changes only with government deficits, capital accumulation, and capital gains on government debt and equities. It is possible, of course, for government deficits and capital accumulation to be financed by issuing foreign-currency debt, in which case the currency mix of outside assets differs from the geographical mix of issuers. Such foreign-currency outside-asset issues can be incorporated into the model, but few data are available, except on intervention in foreign-exchange markets.

The model developed here draws on Dooley and Isard (1983) and Frankel (1982a). It can be solved for the exchange-risk premium, defined in equation (1), as a function of asset supplies and demands. Interest-rate differentials and the equilibrium exchange rate are assumed to be invariant, as noted earlier.

The aggregate home-currency assets of the two countries, America (A) and Europe (E), are dollars (F) and marks (G) respectively. Each country holds both domestic and foreign-currency assets. Let f and g denote the shares of wealth (W) held in dollars and marks respectively. The exchange rate, e, is used to convert European asset demands and wealth into dollars (so that W_E denotes European wealth measured in dollars). The asset demands are assumed to depend solely on the yield differential between dollar and mark assets—the risk premium a.

Equilibrium in the asset market requires that asset supplies equal asset demands in the two markets, one of which is redundant by Walras's law. Consider the equilibrium in the market for dollar-denominated assets, expressed in dollars:

$$F = f_A(a) \cdot W_A + f_E(a) \cdot W_E \; . \tag{4}$$

Differentiating (4) and solving for the change in the risk premium,

$$da = \frac{dF - f_A dW_A - f_E dW_E}{f_A' W_A + f_E' W_E} \tag{5}$$

Since the denominator is positive, equation (5) states that the exchange-risk premium on dollar assets will rise when the supply of dollar assets rises relative to the demand. Given regressive expectations, as in equation (2), the dollar depreciates when there is a rise in the risk premium on dollar assets. Therefore, we obtain the standard result that the dollar depreciates when there is an excess supply of dollar assets. If dollar and mark assets are very close substitutes, however, the derivatives f_A' and f_E' are very high; small changes in the risk premium engender large changes in desired holdings of assets, and the risk premium will not vary much in response to changes in asset supplies and demands. An implausible implication of high substitutability is that portfolio shares are not anchored, since there is no basis for home-currency preference. But casual observation suggests that home-currency preference does hold in reality, although it may be diminishing as the internationalization of financial markets advances.[2]

Wealth changes as a result of new saving (S) and of capital gains on the existing stock of assets. Capital gains can arise from changes in home-currency prices and exchange rates. For simplicity, it is assumed that America's capital gains, other than those attributable to exchange-rate changes, are approximately equal to the capital gains on total dollar assets outstanding. A parallel assumption is made for Europe. This is realistic inasmuch as each country holds most of the assets denominated in its own currency. Let CG denote the capital gains on domestic assets. The changes in wealth, measured in dollars, can be written,

$$dW_A = S_A + CG_A + G_A de, \tag{6}$$

$$dW_E = S_E + CG_E + G_E de \,. \tag{6'}$$

The last term captures the capital gains on the dollar value of mark-asset holdings due to exchange-rate changes.[3]

Private domestic saving, in turn, is equal to the government budget deficit (D), net capital formation (C), and the current-account balance (B), by the standard national-income accounting. Because America's and Europe's current-account balances must sum to zero in a two-country world, we have

$$S_A = D_A + C_A + B \tag{7}$$

$$S_E = D_E + C_E - B \,. \tag{7'}$$

For simplicity, let $CG + C + D = H$ (changes in the "home" component of wealth). Then from equations (6), (6′), (7), and (7′) we obtain

$$dW_A = H_A + B + G_A de \,, \tag{8}$$

$$dW_E = H_E - B + G_E de \,. \tag{8'}$$

The change in the stock of dollar-denominated outside assets, dF, would be identical to America's domestic-asset accumulation, H_A, if each country issued assets denominated only in its home currency and there were no foreign-exchange market intervention. But issues of foreign-currency outside assets are equivalent to issues of mark bonds combined with sterilized intervention sales of dollars of an equal amount. Thus, we can represent the link

[2] In 1983, foreigners held only $97 billion in U.S. corporate stocks (*Survey of Current Business*, August 1984, p. 40), while outstanding U.S. corporate equities had a market value of over $2 trillion. Even if foreign holdings of U.S. equities are underreported, it is clear that home-currency preference prevails for equities.

[3] The capital gains due to exchange-rate changes can be written in this form because wealth can be written $W_A = F_A + eG_A$, and we take $e = 1$ initially.

between A's domestic-asset accumulation and the net increase in the supply of dollar assets by

$$dF = H_A - I , \tag{9}$$

where I is the intervention purchase of dollars, broadly defined.

Substituting equations (8), (8′) and (9) into equation (5) and rearranging,

$$da = [-(f_A - f_E)B - I + (1 - f_A)H_A - f_E H_E - (f_A G_A + f_E G_E)de]/\Delta , \tag{10}$$

where $\Delta > 0$ is the denominator of equation (5). Equation (10) illustrates the role of portfolio preferences f_A and f_E in determining the relative importance of current-account balances, intervention, and changes in asset stocks for exchange-rate determination in a portfolio-balance setting.

A U.S. current-account deficit involves a transfer of wealth from America to Europe that matters only insofar as $f_A \neq f_E$. The magnitude of the current-account effect depends on the extent of home-currency preference. Intervention, which alters F, has a greater dollar-for-dollar effect than a current-account imbalance, unless home-currency preference is absolute ($f_A = 1, f_E = 0$).

Government and private issues of debt and equities alter both asset stocks and wealths.[4] New U.S. corporate-debt issues, for example, raise F and W_A by equal amounts (assuming the issues are denominated in dollars). Therefore, they will alter the exchange rate only if home-currency preference is *not* absolute ($f_A \neq 1$). Asset-stock changes associated with wealth changes matter for exchange rates only if wealth owners desire portfolios diversified by currencies.

As will be seen below, current-account flows are usually small relative to changes in asset stocks, but this does not necessarily imply that the effects of asset creation dominate the effects of current-account flows, because—as equation (10) indicates—the weights differ. The weights attached to asset creation, $(1 - f_A)$ and f_E, are likely to be quite small if home-currency preference prevails. In the limiting case where $f_A = 1, f_E = 0$, asset creation is irrelevant for portfolio balance; only current-account balances and intervention matter, equally. Equation (10) collapses to

$$da = \frac{-I - B}{\Delta} . \tag{10′}$$

In a number of empirical models, such as the OECD's (Holtham, 1984), the risk premium is a function of the private sector's net foreign-asset position,

[4] The market value of the capital stock is equal to the market value of the securities that represent claims to the earnings, i.e., debt and equities.