FRBSF Weekly Letter

March 15, 1985

# Budget Deficits, Interest Rates, and the Dollar

Last fall, short-term interest rates dropped about 3 percentage points, and long-term rates fell around 2 percentage points. With the rate of inflation staying low, this translated into equivalent declines in real, or inflation-adjusted, interest rates. A widely held view is that lower U.S. real interest rates should depress the real value of the U.S. dollar, but the real trade-weighted value of the dollar appreciated another 10 percent over the same period. Also puzzling is the fact that the decline in real interest rates occurred even though the U.S. federal budget deficit (on a cyclically adjusted basis) continued to grow. This *Letter* argues that the explanation for these two puzzles is to be found in the economy's longer-term adjustment to persistently large federal budget deficits.

**Interest rate differentials and the dollar**

A widely accepted view of exchange rate determination is the theory of interest parity which holds that the value of the dollar (or any other currency) is dominated by the effects of actual and potential flows of capital. In particular, the dollar's value will tend to be such that the total expected return on dollar-denominated assets just equals the total expected return on foreign-currency-denominated assets, plus or minus a premium to compensate for differences in risk. The expected returns include not only the pure interest returns, but also the expected capital gains or losses arising from anticipated changes in currency values.

The theory of interest parity thus implies that the value of the dollar should be bid to the point where its expected future depreciation or appreciation over any given period approximately equals the difference between the interest yields on U.S. and foreign investments with maturities of that same period. When this condition is met, the total expected return on investments at home will be approximately the same as that on investments abroad.

In influencing the exchange rate, the differential between domestic and foreign long-term interest rates should dominate. The difference between short-term rates matters only to the extent that it affects the differential between long-term rates. For example, if the interest rate on 1-year U.S. bonds goes up one percentage point and this increase is expected to be temporary, the interest rate on 10-year U.S. bonds should rise only one-tenth of one percentage point. Given foreign interest rates, the value of the dollar would then rise one percentage point to set up an expected depreciation of 1 percent over the following year, and thereby equalize total expected returns over all investment periods. However, if the increase in the 1-year U.S. interest rate is expected to last for 10 years, the interest rate on 10-year U.S. bonds would rise by 1 percentage point; and the value of the dollar would then rise 10 percent to equalize total expected returns.

It is easily shown that an identical relationship ought to hold between the expected future depreciation or appreciation in the real value of the dollar and the differential between real long-term interest rates.

Thus, *given an expected real value for the dollar in the future,* the dollar's current real value should move in the same direction as the differential between domestic and foreign real long-term interest rates. The difference between U.S. and foreign real long-term interest rates did track the real value of the dollar quite well up until the end of 1982, as shown in Chart 1. This suggests that the expected real value of the dollar was relatively stable until the beginning of 1983, when the relationship between the long-term interest rate differential and the dollar's value began to break down. The real long-term interest rate differential dropped sharply at that time, but the real value of the dollar soon reached new highs.

**Another element in the dollar's strength**

The continuing appreciation of the dollar, despite a declining real interest rate differential, suggests that the expected real value of the dollar began to rise significantly after 1982. This development constitutes a second stage in the adjustment of the economy to persistently large federal budget deficits.

From 1979 through early 1982, U.S. real interest rates rose because of the slowing in monetary growth required to bring inflation under control. But then, in late 1982 and 1983, real interest rates failed to return to normal levels primarily because of the tax cuts provided over a three year period by the Economic Recovery and Tax Act of 1981. These contributed to large budget deficits that put substantial upward pressure on U.S. credit markets and thus on real interest rates. During the first stage of adjustment to these large budget deficits, occurring roughly until mid-1983, high real interest rates bid the real value of the dollar high enough above its expected future level to make the implicit expected depreciation in the future offset the attraction of the high real interest returns here relative to those abroad.

In the second and current stage of adjustment, such a large dollar depreciation is no longer expected because the persistence of large federal budget deficits is leading to upward revisions in the market's expectation of the future real value of the dollar. The market has received new information indicating that the U.S. federal budget deficit will, at best, be reduced only gradually. Furthermore, international capital markets are quite efficient, and, as a result, most of the budget deficit has been financed either directly or indirectly by net capital inflows. Because the expenditure effects of the budget deficit are not generating an offsetting decrease in the trade balance, permanently larger net capital inflows must lead to an appreciation of the dollar that will create a larger volume of imports compared to exports, thereby balancing the supply and demand for dollars in the market for foreign exchange. Thus, the expectation that stronger net capital inflows will continue because of persistently large federal budget deficits is leading the market to raise its expectation of the real value of the dollar in the future.

Current indications are that a substantial increase in the market's expected real value of the dollar already has occurred. This change in expectations is one of the key elements in the second stage of the economy's adjustment to the shift in U.S. fiscal policy towards larger budget deficits. Even with lower U.S. real interest rates, the total anticipated return on U.S. assets is no lower than in the first stage because the dollar is now anticipated to depreciate less in the future.

Another factor adding strength to the dollar is indicated in Chart 2, which shows that at the same time that the U.S. budget was moving into deficit, government budgets in the other major OECD countries were moving toward surpluses. This sustained shift in foreign fiscal policies is generating permanently higher levels of national saving abroad, which also contribute to expectations of persistently higher net capital inflows into the United States, lending even more strength to the dollar.

**Implication for real interest rates**

The other key element in the economy's longer-run adjustment to budget deficits is the lag in the response of exports and imports to the real value of the dollar. As shown in Chart 3, during the first stage of adjustment in 1982 and 1983, the structural budget deficit grew faster than the excess of imports over exports. This, along with the recovery from the 1981-82 recession, kept real interest rates relatively high. At that stage, the dollar was strengthened mainly by a high real interest rate differential in favor of the United States that offset an expected dollar depreciation. But because it takes over a year for the exchange rate to make its full impact felt on net exports, there was relatively little drag on overall aggregate demand from a larger deficit in the foreign sector. The pressure on real interest rates from the budget deficits was therefore large in comparison to that occurring in the second stage of adjustment.

During the second stage, beginning in mid-1983, net exports fell faster than the structural budget deficit grew, as the stronger dollar took its full effect. The deterioration in the foreign sector contributed importantly to the slowdown in real economic growth during the last half of 1984, which, in turn, caused real interest rates to decline. Also, the value of the dollar at this stage came to be strengthened more by heightened expectations of the effects of continued budget deficits on international capital flows, than by high real interest rates.

**Conclusion**

In summary, so far there have been two distinct stages in the adjustment of the economy to persistently large federal budget deficits. During the first stage, up until around mid-1983, large budget deficits were perceived to be relatively

**Chart 1**

**Real Trade-Weighted Value of U.S. Dollar and Real Long-Term Interest Rate Differential***

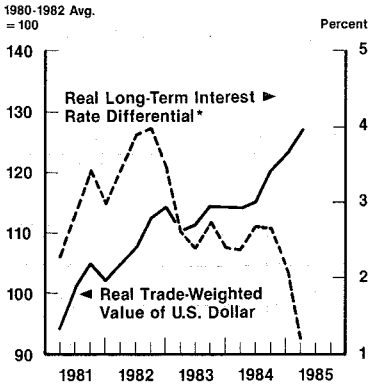


**Chart 2**

**Cyclically Adjusted General Government Budget Balances**

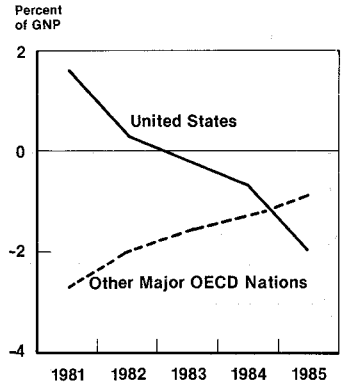


**Chart 3**

**Real High Employment Federal Budget Deficit and Real Net Exports**


* U.S. real rate minus trade-weighted foreign real rate.

temporary, and the dollar's strength at that time resulted mainly from higher real interest rates that counterbalanced an expected dollar depreciation. The economy could withstand these high real interest rates because their depressing effect on aggregate demand was being offset by the stimulus from the budget deficit itself, and also because the strong dollar had not yet fully affected net exports.

In the second stage, which we are still in, the dollar has remained strong despite a reduction in the differential between domestic and foreign real long-term interest rates because of an increased market perception that persistently large budget deficits at home and smaller ones abroad will generate permanently larger net capital inflows. These larger capital inflows will necessitate a stronger dollar to create an offsetting decline in net exports, thereby balancing the supply and demand for dollars. As the market's expectation of the real value of the dollar in the future rises, the current real value is pulled along. Also, as the effect of the strong dollar on net exports, and hence on overall aggregate demand, becomes more fully felt, real interest rates must decline.

Foreign investors eventually might come to feel relatively satiated with dollar-denominated investments and require a substantially higher real interest rate differential. As the perceived risk premium for investing in dollar assets rises, the differential in total returns (i.e., including the risk premium) would fall, thus tending to weaken the real value of the dollar and raise U.S. real interest rates. Such a development would constitute yet a third stage in the economy's adjustment to persistently large U.S. budget deficits. However, current indications are that this stage is at least several years off. In the meantime, there is good reason to believe that the dollar will remain strong despite substantially reduced levels of real interest rates.

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## BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

| **Selected Assets and Liabilities Large Commercial Banks** | Amount Outstanding 02/27/85 | Change from 02/20/85 | Change from 02/29/84 Dollar | Change from 02/29/84 Percent[7] |
|---|---|---|---|---|
| Loans, Leases and Investments[1] [2] | 188,322 | 145 | 10,517 | 5.9 |
| Loans and Leases[1] [6] | 170,622 | 578 | 13,011 | 8.2 |
| Commercial and Industrial | 52,760 | 311 | 5,805 | 12.3 |
| Real estate | 62,252 | 20 | 2,598 | 4.3 |
| Loans to Individuals | 32,716 | 174 | 5,683 | 21.0 |
| Leases | 5,275 | 6 | 268 | 5.3 |
| U.S. Treasury and Agency Securities[2] | 10,584 | − 426 | − 1,635 | − 13.4 |
| Other Securities[2] | 7,076 | − 7 | − 855 | − 10.7 |
| Total Deposits | 192,331 | −2,291 | 6,298 | 3.4 |
| Demand Deposits | 43,689 | −2,335 | − 526 | − 1.2 |
| Demand Deposits Adjusted[3] | 28,851 | 625 | 153 | .5 |
| Other Transaction Balances[4] | 12,755 | − 168 | 732 | 6.0 |
| Total Non-Transaction Balances[6] | 135,886 | 211 | 6,097 | 4.7 |
| Money Market Deposit Accounts—Total | 43,783 | 69 | 3,410 | 8.4 |
| Time Deposits in Amounts of $100,000 or more | 39,173 | − 207 | 1,012 | 2.6 |
| Other Liabilities for Borrowed Money[5] | 21,049 | 1,094 | 737 | 3.6 |

| **Two Week Averages of Daily Figures** | Period ended 02/25/85 | Period ended 02/11/85 |
|---|---|---|
| **Reserve Position, All Reporting Banks** | | |
| Excess Reserves (+)/Deficiency (−) | 111 | 31 |
| Borrowings | 84 | 21 |
| Net free reserves (+)/Net borrowed(−) | 27 | 10 |

[1] Includes loss reserves, unearned income, excludes interbank loans
[2] Excludes trading account securities
[3] Excludes U.S. government and depository institution deposits and cash items
[4] ATS, NOW, Super NOW and savings accounts with telephone transfers
[5] Includes borrowing via FRB, TT&L notes, Fed Funds, RPs and other sources
[6] Includes items not shown separately
[7] Annualized percent change