

Research Department
Federal Reserve
Bank of
San Francisco

May 7, 1982

Financing the Deficit

According to Congressional Budget Office estimates, Federal budget deficits in fiscal years 1982 and 1983 could reach \$119 billion and \$182 billion, respectively—several times the size of any previous budget deficit—in the absence of any revenue or expenditure changes. These deficits must be financed by Treasury sales of bills, notes and bonds. Some of this new debt will be purchased by the Federal Reserve System, but the vast amount—perhaps 95 percent on the basis of the last two years' experience—will be purchased by private investors.

Also, in view of the increased strength of the dollar, foreign official institutions probably will not purchase as much of the new debt as they formerly did, when they were able to purchase Treasury securities with funds obtained from buying cheap dollars in the exchange markets. For example, foreign purchases of new privately-held public debt dropped from 29.2 to 19.8 percent between the June 1976-June 1980 period, when the dollar was weak, and the June 1980-June 1981 period, when the dollar was much stronger. This means that the burden of a larger deficit will affect domestic financial markets more than it did previously.

Large Treasury financing needs coupled with high interest rates portend high interest costs for the Treasury. These interest costs have more than doubled in recent years, from \$29.1 billion in 1977 to \$73.3 billion in 1981. As a percentage of total Federal expenditures, interest payments thus rose from 7 percent to more than 10 percent over that period (Figure 1). In light of President Reagan's call for reducing the cost of government, the question of how to minimize the interest cost of the new debt becomes especially important.

Minimizing cost

The Treasury could attempt to minimize costs by affecting either the supply of or the de-

mand for its securities. The amount of cash needed by the Treasury in any fiscal year is given by the size of the deficit, so the Treasury cannot choose the total supply of securities it will issue. It can, however, vary the composition and maturity distribution of its supply of bills, notes, and bonds, and this choice could affect the current and future interest costs of the new debt. Alternatively, the Treasury could minimize costs by increasing the demand for its securities, specifically by issuing more attractive types of securities.

On the supply side, the Treasury could limit the transaction costs that arise every time it issues new debt. For example, it could issue longer-term debt that would require fewer refinancings. More importantly, it could try to minimize interest costs. This can be done specifically by "playing the term structure." That is, the Treasury could issue debt based on what it believes to be the future course of short- and long-term interest rates, and minimize its interest costs according to these expectations.

Most theoretical work on the term structure of interest rates follows the expectations hypothesis, which states that in a world of certainty the yield on a multi-period security (where the number of periods equals "n") equals the yield that could be attained by holding a series of one-period securities over "n" periods. The term structure of interest rates therefore would provide predictions of the future course of shorter-term interest rates. For example, a positively-sloped term structure—with long rates higher than short rates—would imply an expectation of a future rise in short-term rates.

According to the expectations hypothesis, securities of different maturities are highly substitutable by both sides of the debt contract. Given such substitutability in an efficient capital market, the term structure should not, in the long run, be greatly affected

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by an increase in the supply of bonds of any particular maturity. If, over time, long-term rates approximated the average of current and *realized* future short-term rates, the maturity distribution of new Treasury debt makes little difference in cost. One could argue that the government faced a rule analogous to the "Modigliani-Miller theorem" — that the average cost of long-term financing to a firm is independent of the debt-equity mix. One might then argue that, with efficient capital markets, the government has no optimal long-term/short-term debt mixture. In the short run, however, this need not necessarily be so. By appropriately altering the supply of debt of different maturities, the Treasury could potentially reduce its costs, just as private corporations do by funding short-term when long-term interest rates rise above what appear to be suitable levels.

Increasing demand

The Treasury could also reduce interest costs by increasing the demand for Treasury securities. It might be able to do this by issuing a new, more attractive type of security rather than by relying on the traditional bills, notes, and bonds. In 1941, George L. Bach and Richard A. Musgrave proposed just such an innovation—a bond redeemable not for a constant amount of *dollars*, but for an amount of dollars representing a constant amount of *purchasing power*. The coupon on this bond would be similarly adjusted. The real value of a "constant purchasing power" bond would not be affected by inflation, as traditional security prices are.

This type of bond has several advantages. It would eliminate the inflation-uncertainty premium which some economists claim is the cause of high real interest rates, since inflation would not reduce the value of the bond. This approach would immediately reduce the nominal interest cost of the new debt. Such a bond would place the inflation risk on the borrower rather than (as at present) on the lender, much as variable-rate mortgages do.

A constant-purchasing-power bond would induce lenders who fear inflation to purchase the Treasury securities rather than real assets such as gold. Furthermore, such a bond would restore the role of Treasury securities as "riskless assets," since both default and inflation risk would be absent. Given the enormous new supply of Treasury securities overhanging the markets in the next two years, this increased demand would be welcome. Finally, tying the interest cost of the debt to the inflation rate would force the Federal government to take stronger measures to reduce the inflation rate. Issuing a constant-purchasing-power bond would appear to be a positive step toward reducing the nominal interest cost, especially if inflation were to decelerate faster than expected by private investors.

Recent Treasury behavior

With a large deficit, Treasury financing operations can exert a severe impact on the financial markets. By issuing securities with a broad range of maturities, the Treasury could minimize its distortion of the term structure of interest rates determined by the market—although as discussed earlier, there may be little distortion in any event. Most empirical work indicates that Treasury financing operations only temporarily affect the structure of interest rates, with the effect largely disappearing within a month's time.

In recent years, the Treasury has issued debt in various maturities, generally emphasizing consistency rather than innovation. Recently, therefore, it has issued no new types of securities. Also, the Treasury has issued securities of particular maturities on regular schedules, apparently with the aim of increasing the overall maturity of its debt outstanding (Figure 2). As a result, the average maturity of private holdings of marketable interest-bearing public debt increased from two years seven months in June 1976 to four years in September 1981.

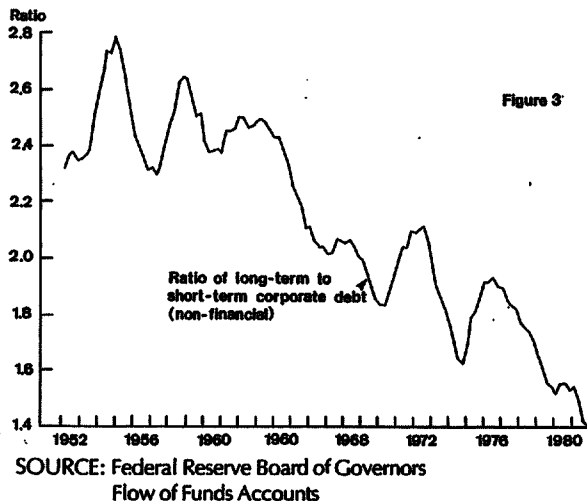
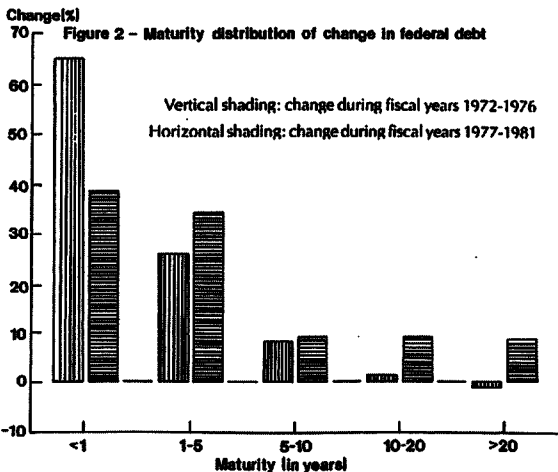
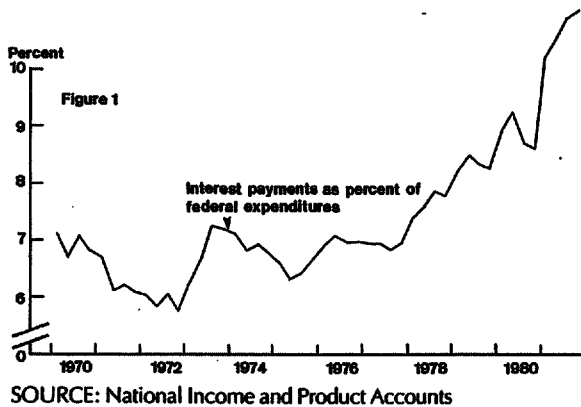
Again, there is no overwhelming evidence that the Treasury's actions affect the general

level of interest rates. To some extent, however, the Treasury may be "crowding out" long-term corporate financing. The debt structure of corporations increasingly has become skewed toward short-term obligations (Figure 3). Many corporations would like to correct this imbalance, but do not want to pay the current high long-term rates. If the Treasury wanted to minimize the impact of its financing operations on corporate operations, it might not issue long-term debt. Instead, it could leave that segment of the financial market to corporations, thereby permitting them to restructure their balance sheets and finance more investment. Why, then, has the Treasury been lengthening the overall maturity of its debt? Perhaps the idea

is to reduce transaction costs by decreasing the number of times required to refinance its debt. Still, given the high interest costs associated with this strategy, the approach may cost the Treasury more than it saves.

Treasury debt management has not been a "hot" issue lately in academic discussions, possibly because of a belief that Treasury actions do not affect the term structure of interest rates. However, the government's financing requirements will be very large for at least the next few years, and will thus impose a heavy burden on domestic financial markets. Given this fact, the issue of Treasury debt management deserves more attention.

Joseph Bisignano and Brian Dvorak



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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT
(Dollar amounts in millions)

Selected Assets and Liabilities	Amount Outstanding 4/21/82	Change from 4/14/82	Change from year ago	
			Dollar	Percent
Large Commercial Banks				
Loans (gross, adjusted) and investments*	159,230	1,079	11,970	8.1
Loans (gross, adjusted) — total #	137,881	821	13,008	10.4
Commercial and industrial	42,489	98	5,732	15.6
Real estate	57,159	479	5,252	10.1
Loans to individuals	23,427	126	577	2.5
Securities loans	2,143	117	623	41.0
U.S. Treasury securities*	6,366	34	238	3.6
Other securities*	14,983	224	779	4.9
Demand deposits — total#	39,572	1,425	2,422	5.8
Demand deposits — adjusted	28,082	297	1,913	6.4
Savings deposits — total	31,395	277	357	1.2
Time deposits — total#	90,754	469	14,271	18.7
Individuals, part. & corp.	81,419	569	13,814	20.4
(Large negotiable CD's)	33,047	141	3,390	11.4
Weekly Averages of Daily Figures	Week ended 4/21/82	Week ended 4/14/82	Comparable year-ago period	
Member Bank Reserve Position				
Excess Reserves (+)/Deficiency (-)	35	81		17
Borrowings	198	31		225
Net free reserves (+)/Net borrowed(-)	163	50		208

* Excludes trading account securities.

Includes items not shown separately.

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