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Accounting and Information
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May 28, 1999

The Honorable Bill Archer
Chairman
Committee on Ways and Means
House of Representatives

Subject: Budget Issues: Treasury's Interest Rate Calculation Changes

Dear Mr. Chairman:

The Secretary of the Treasury informed the Congress in a letter dated December 18, 1998, about Treasury's decision to change the calculation of the interest rates used since 1980 to determine the investment returns for a number of government trust funds, including Social Security and Medicare. You asked us to determine (1) how and why Treasury changed its rules for calculating interest rates in 1980 and 1998, (2) the effects of these changes on the unified budget and on the financial status of Social Security and Medicare trust funds, and (3) what other trust funds were affected by Treasury's decision. This report presents information, which was provided in a briefing to your office in April 1999. Also, as part of the audit of the Bureau of the Public Debt's fiscal year 1999 Schedule of Federal Debt, we will review whether Treasury's methods for calculating interest rates on certain trust funds are being applied correctly.

Background

Treasury sets the interest rate earned on trust fund balances for Social Security and Medicare using a statutory formula. The interest rate is to be equal, at the time of issue, to the average market yield on outstanding marketable government securities not due or redeemable for at least 4 years. Although the formula is set by statute, the law does not define the specific method to calculate the yield to be used, except that it must be based on market quotations.

The Federal Reserve Bank of New York provides the market quotations that Treasury uses to calculate market yields. The prevalent market practice for calculating yields takes into account whether Treasury securities are callable or noncallable–meaning whether or not Treasury may redeem the securities prior to their stated maturity date.

Market participants compute the yields of non-callable Treasury securities based on their maturity date.[1] Computing the yields of callable Treasury securities, on the other hand, is more complex because of the possibility that Treasury might call these securities before their maturity date.

Treasury can call the bonds that contained call provisions when they were issued 5 years prior to their stated maturity date ("callable bonds") and thereby pay the bonds' par value rather than the bond's current market price. The bond's par value is the amount Treasury agreed to repay by the maturity date. The Treasury has not issued callable bonds since November 1984. As of September 30, 1998, there were $3.3 trillion outstanding marketable Treasury securities, of which nearly $88 billion were callable bonds.

Table 1 describes how to select one of two alternative yield values for callable bonds. If the current market interest rate is higher than the coupon rate on the callable bonds, the price of a bond is below its par value. In such cases, Treasury would be unlikely to call the security at par value, so yield is computed based on the time to maturity of the bond. Treasury called no bonds between 1962 and 1992 because prevailing market rates were in general greater than coupon rates.

When current market rates are lower than the callable bond's coupon rate, which has generally been the case in the last 4 years, bond prices are higher than their par value. In this case, Treasury would likely call the bond at par value before its maturity date; thus, market participants would calculate yield based on the bond's call date or 5 years before maturity date. Since 1992, the Treasury has called every eligible issue that has moved into its call period.

Table 1: Rules for Calculating Yield-to-Call or Yield-to-Maturity

	If market yield is higher than coupon rate, then	**If market yield is lower than coupon rate, then**
Price of the bonds	Callable bonds trade below par. Treasury would be unlikely to call the security at par value.	Callable bonds trade above par. Treasury would likely call the security at par value.
Which yield is calculated?	Yield-to-maturity.	Yield-to-call.

[1]The yield-to-maturity is the rate of discount at which the market price of a Treasury security equals the present value of the semiannual interest payments and the par value paid upon maturity.

Table 2 illustrates the effect that callability has on bond prices and yields by comparing the April 15, 1999, market quotation and yield of two securities that mature on May 2005: one a callable Treasury bond and the other a noncallable Treasury note. Although the callable bond pays a higher coupon rate (8.25 percent) than the Treasury note (6.5 percent), the former has a lower price and lower yield. The Treasury note's bid was 106 19/32, or $106.59 per $100 of face value, while the Treasury bond's bid was 103 11/32, or $103.34 per $100 of face value.[2] The lower bid of the callable bond reflects the market participants' expectations that Treasury will call the bond at par value during May 2000, or 5 years earlier than its maturity date. Thus, the yield on the bond (5.02 percent) is the yield-to-call while the yield on the note (5.22 percent) is the yield-to-maturity.

Table 2: Treasury Securities, Market Quotations and Yields

	May 2005 Note	May 2000 – 2005 Bond
Coupon rate	6.5%	8.25%
Bid	106.19	103.11
Yield	5.22%	5.02%

Source: Yields provided by Treasury; coupon rate and bid reported by New York Times, April 16, 1999.

Treasury Changed Interest Rate Calculations in 1980 and 1998

Treasury made changes in 1980 and 1998 in the calculation of the interest rates used to determine the investment returns for a number of government trust funds. Before 1980, Treasury's manual calculations were based on the prevalent market practices described above. In 1980, when prices of callable bonds were below par, Treasury's computers were programmed to calculate yields on callable bonds based on yield-to-maturity only. Treasury lawyers described the 1980 change as a "programming shortcut that was made in the interest rate environment of the time." According to Treasury officials, they found no documentation on the 1980 change and nothing to indicate it was meant as a policy or methodology change.

The second change occurred in 1998, when Treasury officials discovered that the 1980 program for calculating interest rates did not conform to prevalent market practice. Treasury changed its method of calculating rates back to calculate yield-to-maturity when market prices are below par and to calculate yield-to-call when market prices are above par. Although estimates of computer programming and resource requirements to add the yield-to-call programming option in 1980 were unavailable,

[2]Bid is the price offered to buy securities. Prices are in units of 1/32 of 1 percent of par value. Par value is taken to be $100.

Treasury officials said that the change when made in 1998 required about 40 staff hours. Treasury informed the Congress and trust funds' trustees of the 1998 change.

In January 1999, the Treasury Assistant General Counsel for Banking and Finance was asked for a legal opinion on whether the Secretary of the Treasury has the authority to change the method of computing interest rates on intragovernmental borrowings linked to the "average market yield." Because "average market yield" is not defined by law, the Assistant General Counsel found that the Secretary of the Treasury has discretion to compute interest rates on either a yield-to-maturity or a yield-to-call basis. The Assistant General Counsel also found that if the Secretary of the Treasury decided to change Treasury's policy to compute interest rates on a yield-to-call basis, the Secretary of the Treasury has no obligation to apply the new policy retroactively.

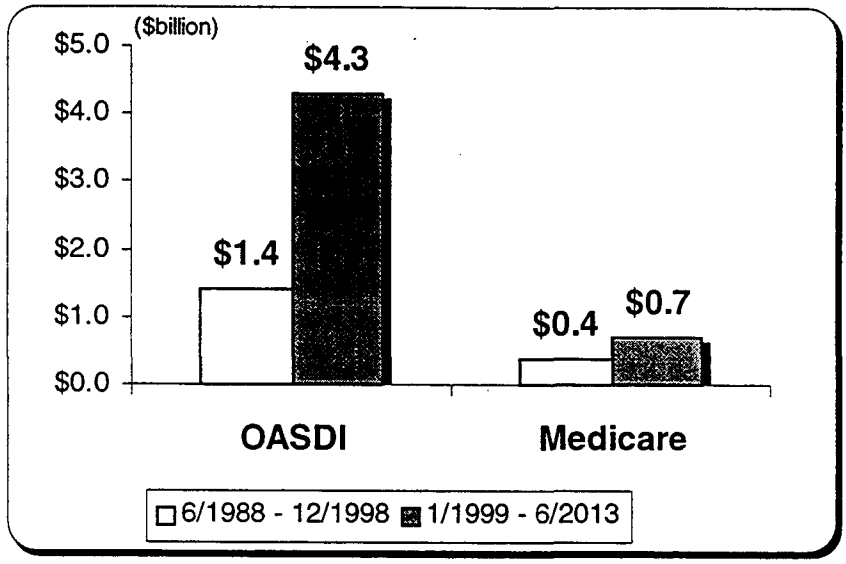
We agree with the conclusions of the Assistant General Counsel that the "average market yield" language of the statute provides the Secretary with discretion in computing interest rates, that computing interest rates on a yield-to-call basis is permissible, and that the Secretary may apply such a change prospectively

Effects of Treasury's 1980 Changes on Social Security and Medicare

According to Treasury, its 1980 change increased the rates for the trust funds of Social Security and Medicare in 1988, 1992, 1996, 1997 and 1998 by one-eighth of one percentage point over what it would have been had the yield-to-call method been used.[3] Treasury estimated the revenue difference (i.e., the increased revenue credited to the trust funds as a result of using yield-to-maturity for callable bonds traded above par) was $1.4 billion for Social Security and $0.4 billion for Medicare. (See figure 1.)

[3]The two Social Security trust funds are Old-Age and Survivors Insurance and Disability Insurance or OASDI; the two Medicare trust funds are Hospital Insurance (Part A) and Supplementary Medical Insurance (Part B).

Figure 1: Estimated Revenue Difference in Social Security (OASDI) and Medicare, June 1988 Through December 1998, and January 1999 Through June 2013



Source: Department of the Treasury.

According to Treasury officials, for outstanding Social Security and Medicare trust fund holdings as of December 1998, the 1980 change also results in higher future revenue in 1999 to 2013. The amounts are $4.3 billion for Social Security[4] and $0.7 billion for Medicare. (See figure 1.) For future investments after December 1998, Treasury believes the 1998 changes may produce a rate of interest one-eighth of one percent lower than the rates computed based only on yield-to-maturity.

Effect of Treasury's 1980 Change on the Unified Budget

Treasury's 1980 change increased the financial returns for 11 trust funds by one-eighth of one percentage point in 5 years in the period 1980 through 1998 over what it would have been had the yield-to-call method been used. The unified budget was not affected by the increases in 10 of the 11 trust funds because the higher interest credited was a transfer between federal and trust funds.[5] The only trust fund that

[4]The $4.3 billion difference shown for Social Security represents less than one-half of one percent of the total projected interest income for this 14 ½ -year period (as estimated by SSA in March 1999). This $4.3 billion over 14 ½ years can also be seen in the context of the fact that Social Security is expected to pay out $394 billion in 1999 alone.

[5]The unified budget is a comprehensive report that consolidates receipts and outlays from both federal and trust funds. Interfund transactions between the two fund groups are deducted to avoid double counting. Trust funds are any funds designated as such by law. All other receipt and expenditure funds are classified as federal funds.

affected the unified budget was the Thrift "G" Fund, the higher interest rate of which led to an increase in outlays.[6] As a result, the deficit increased (or the surplus fell) about $0.1 billion in the period June 1988 to December 1998.

Other Trust Funds Affected by Changes in Interest Rate Calculations

In addition to Social Security, Medicare and the Thrift "G" funds, Treasury's lawyers concluded that six other funds were affected because their interest rates are based on average market yields. These trust funds are Civil Service Retirement, Foreign Service Retirement and Disability, National Service Life, Serviceman's Group Life, U.S. Government Life, and Veteran's Reopened. Since the interest credited to these trust funds involved interfund transfers, none affected the unified budget. The reported differences, shown in table 3, ranged from $2.0 billion to less than $0.1 billion.

[6]The "G" Fund, which has been in operation since April 1987, is one of three investment funds available through the Thrift Savings Plan. This fund consists exclusively of investments in short-term nonmarketable U.S. Treasury securities specially issued to the Thrift Savings Plan for federal employees.

Table 3: Estimated Differences in Other Trust Funds

Trust fund and investment period	Difference
Civil Service Retirement	
6/1988 – 12/1998	$0.8 billion
1/1999 – 6/2013	$2.0 billion
Serviceman's Group Life	
6/1988 – 12/1998	Less than $0.1 billion
Foreign Service Retirement and Disability	
6/1988 – 6/2013	Less than $0.1 billion
National Service Life	
6/1988 – 6/2013	Less than $0.1 billion
U.S. Government Life	
6/1988 – 6/2013	Less than $0.1 billion
Veteran's Reopened	
6/1988 – 6/2013	Less than $0.1 billion

Source: Department of the Treasury.

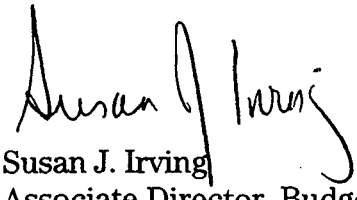
Scope and Methodology

To identify the changes Treasury made in interest rate calculations in 1980 and 1998 and their effects on the unified budget and trust funds, we interviewed Treasury officials and reviewed Treasury and budget documents. We included their estimates and did not examine, test, or recalculate the interest rate calculations generated by Treasury's computer program nor the amounts credited to the trust funds. To identify prevalent market practices for calculating bond yields, we reviewed Federal Reserve documents and the related financial literature. We performed our work between February and April 1999. We received comments on our briefing slides and provided a draft of this report for technical review to the Treasury's Office of Market Finance. We have incorporated its comments as appropriate.

We are sending copies of this report to The Honorable Charles B. Rangel, Ranking Minority Member of the Ways and Means Committee; The Honorable Robert E. Rubin, Secretary of the Treasury; The Honorable Jacob J. Lew, Director, Office of Management and Budget; other interested members of Congress and other interested parties. We will make copies available to others on request. Please call me

at (202) 512-9142 if you or your staff have any questions. This report was prepared under the direction of Denise Fantone, Assistant Director. Other major contributors were Jose Oyola and Chuck Roney (Attorney-Advisor).

Sincerely yours,



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