INVESTING IN U.S. TREASURIES AND
THE TREASURY DIRECT PROGRAM

By Annette Thau

Treasuries have a number of features that make them extremely attractive to individual investors. While they are not formally “insured,” they are a direct obligation of the U.S. government and safer than insured bank accounts. And if you buy through Treasury Direct, you eliminate all commission costs as well as any cost for maintaining an account.

U.S. Treasuries are debt instruments that are direct obligations of the U.S. government. They are issued periodically by the Treasury and sold through auctions run by the Federal Reserve. Individual investors can buy Treasuries directly at these auctions, along with large institutional investors. The minimum amount for direct purchase is $1,000; additional increments must be in multiples of $1,000.

Currently, Treasuries are issued with maturities ranging from three months to 10 years. Treasuries maturing in one year or less are known as Treasury bills (or “T-bills”). Those maturing in two to 10 years are called Treasury notes. Any Treasury with a maturity longer than 10 years is called a Treasury bond. Let’s look at each in turn.

TREASURY BILLS

Treasury bills mature in a year or less. They differ from other bonds in that, when you purchase a T-bill, you do not receive interest in the form of a coupon. Instead, the T-bill is sold at a discount from par (par, you will remember, is always $1,000). When the T-bill matures, the Treasury redeems the T-bill at par. The difference between the discounted price paid and the face value of the bill when it is redeemed is its interest. For example, you might buy a T-bill at a price of $975. When the bill is redeemed at par at maturity, you will receive $1,000. The $25 difference is the interest you receive.

T-bills are currently issued in three-month, six-month, and one-year maturities. T-bills are issued in book-entry form only, which means you will not receive a certificate. Instead, you will get a written confirmation.

Like other Treasuries, T-bills can be purchased directly at the Federal Reserve’s weekly auctions. But you can also purchase T-bills that are trading in the secondary market for any desired maturity—from a few days to one year—at a small fee from banks or brokerage firms. T-bills may be resold any time. They are the most liquid of all instruments.

The financial pages of major daily newspapers include a brief table of T-bill yields available in the secondary market the previous day, either at the top or at the bottom of the Table of Bills, Notes and Bonds. Below is an example of one line of a T-bill listing, which you would have seen on March 14, 2002.

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Days to Maturity</th>
<th>Bid</th>
<th>Asked</th>
<th>Change</th>
<th>Asked</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 25, 02</td>
<td>42</td>
<td>1.74</td>
<td>1.73</td>
<td>-0.01</td>
<td>1.76</td>
<td></td>
</tr>
</tbody>
</table>

Reading from left to right, the listing shows:
• The maturity date of the T-bill,
• The number of days to maturity,
• The bid and asked prices,

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• The change in price from the previous day, and
• The bond equivalent yield (based on the asked price), sometimes just listed as yield.

Here’s an explanation of what those terms actually mean.

While it may seem confusing to someone not familiar with bond lingo, yield and price are really two sides of the same coin. T-bill prices are always quoted as yields, and that is what is shown in the table.

The difference between the “bid” price and the “asked” price represents the commission to the dealer selling the bonds. If you buy the bond, expect to receive the lower of the two yields, that is, 1.73%.

The change in price is the change from the previous day, in basis points (a basis point is 0.01%).

To confuse matters further, you will find yield for the asked price quoted as two different numbers—in the example above it is 1.73% and 1.76%. The former (1.73%) is the yield based on the discount from par. The latter (1.76%) is the so-called “bond equivalent yield,” an annualized rate calculated according to a somewhat complex formula, which enables traders to compare the yield on a T-bill to that of coupon-bearing bonds. It is usually higher, by a few basis points, than the simple discounted yield. These very minute price differences matter to bond dealers and traders because trades in the billions of dollars are not uncommon among dealers. To an individual investor, what matters is that the yields listed in the table give a very precise idea of where yields are on very short-term maturity securities. Note, also, that the yield of T-bills determines the yield of money market funds and very short-term bank CDs. Current rates on T-bills, which are below 2%, are at the low end of historical yields. Over the past decade, T-bill yields have varied between a high of 8% and the current low. The most often seen rates have hovered between 4% and 5%.

Without a doubt, T-bills are the safest instruments that you can buy: • They have zero credit risk, and • Their maturity is so short that individual investors can safely ignore interest rate risk (the risk that when interest rates rise, the prices of existing bonds fall). In fact, the yield on T-bills with three-month maturities is used by investment professionals as a proxy for a risk-free rate of return.

Note, however, that while T-bills are perfect as a parking place for cash, they are not appropriate as long-term investments. Over multi-year holding periods, their total return is usually lower than for riskier investments. In addition, reinvestment risk (that is, the risk that interest and return of principal payments will have to be reinvested at a lower rate) is very high, as the current low yields demonstrate.

**TREASURY NOTES**

Treasury notes mature in two to 10 years. Currently, the Treasury is selling the following maturities at auction:
• Two-year,
• Five-year, and
• 10-year.

The price of notes fluctuates more than the price of T-bills in response to interest rate changes, as you would expect given their longer maturities. Consequently, if you need to resell a note before it matures, its price may be higher than you paid or lower than you paid. Price changes are directly tied to maturity length. The smallest price changes would occur for two-year notes. Price changes increase gradually as maturity lengths. Interest rate risk becomes significant at the seven-year mark, and is highest for the longest maturities.

Treasury notes are extremely attractive securities. They yield more than T-bills, typically by 50 to 150 basis points, depending on current interest rates. (Currently, for example, yields on five-year notes are above 4% and close to 5% as you approach the 10-year mark.) If you buy and hold to maturity, you are guaranteed to get back 100% of principal.

Also, if you think you are giving up return by purchasing notes rather than longer-term instruments, think again. One authoritative study (the Yearbook published annually by Ibbotson Associates), has shown that since 1926, notes have consistently either had slightly higher total returns than long-term bonds, or at worst, about the same. The most recent edition of the Yearbook (year 2001) shows that between 1926 and 2000, average annual total return for Treasury notes was 5.3%, compared to 5.3% for long-dated governments and, incidentally, 3.8% for T-bills.

The higher total return of intermediate Treasuries compared to longer-term Treasuries is due to their lower price volatility in response to interest rate changes. The higher total return compared to shorter-term Treasuries is due to the fact that this maturity sector typically yields more than Treasury bills.

**TREASURY BONDS**

In 2001, the U.S. Treasury caused a seismic shift in the credit market when it announced that it would no longer issue 30-year Treasury bonds. The 30-year bond (colloquially known as the “long bond”), which had been issued between 1975 and 2001, was the most widely traded bond in the world, and widely considered the bellwether for long-term bonds worldwide. The 10-year bonds is now the bond with the longest maturity issued directly by the Treasury, and is now considered the bellwether bond. However, Treasuries with maturities longer than 10 years can still be purchased in the secondary markets, from banks or from brokerage firms.

The highest yields for Treasuries are usually found somewhere around the 20-year mark. That is due to the fact that these maturities are traded less often by institutional traders.
than either the 10- or the 30-year bonds and, therefore, demand for them is lower, resulting in higher yields. (You can consult the Table of Bills, Notes, and Bonds in your daily paper to see where you can currently find the highest yields.) Note also that Treasuries enjoy generous call protection: they are not callable for 25 years.

**INFLATION-LINKED TREASURIES**

Inflation-linked Treasuries are an entirely new type of Treasury bond, first introduced in January of 1997. These bonds have a unique feature: The value of the principal (that is, the par value of the bond) is adjusted daily based on the U.S. Consumer Price Index for all urban consumers published by the Bureau of Labor Statistics (also known as the CPI-U). As a result, the value of the bond increases at the rate of inflation. Therefore, money invested in these bonds should retain its purchasing power up until the time the bonds mature.

These bonds are like other Treasuries in many respects:
- They are backed by the full faith and credit of the United States government and therefore have the highest credit quality.
- They are sold at Treasury auctions, on a quarterly basis.
- As with other Treasury securities, interest is paid twice a year.
- The interest rate on inflation-linked Treasuries is set at the time the bonds are sold at auction. That rate remains in force until the bond matures. But because the value of the principal is adjusted daily at the rate of inflation, interest income rises with inflation: The interest income is calculated based on a constantly higher base. Since the time these bonds were introduced, interest rates at auction have varied from a low of 3½% to a high of 4¼%.

Suppose, for example, that you invest $10,000 in inflation-linked bonds and the interest rate is set at auction at 3%. The first interest payment will be ½ of 3% multiplied by $10,000, or $150.00. Now suppose that the CPI rises by 3% in the first six months. The value of the principal will now rise by 3%, and the bonds will now be worth $10,150. The second interest payment will be based on the increased value of the bonds, and will therefore be ½ of 3% multiplied by the new value of the bond: $10,150, or $152.25.

You may look at these numbers and think: “Big deal. A 3% interest rate, and minute adjustments in the amount of the coupon don’t amount to very much.” But actually, if you estimate the numbers for a bond with a 10-year maturity, the numbers begin to look a lot more attractive. Assume, for example, that inflation averages out to 3% a year. Over that 10-year period, the value of the principal would rise to approximately $13,440. When the bond matures, therefore, instead of the $10,000 you invested, you would redeem the bond at its face value at that time—that is, $13,440. In addition, interest income would rise gradually until, during the 10th year, coupon payments would have increased to about $201.50 twice a year (or $403.00 annually). The nominal rate of return would be equivalent to somewhere between 6½% and 7%.

In effect, what this accomplishes is that the interest rate becomes a real rate of return. Historically, the real rate of return on Treasuries has averaged about 3% above the rate of inflation. The structure of these bonds guarantees a return equivalent to that amount. Moreover, the structure of these bonds guarantees that the purchasing power of the principal will not erode due to inflation. Finally, as an additional layer of protection, the Treasury guarantees that in the unlikely event deflation occurs, the final value of the bond will not be less than par, or the initial price paid for the bond. There are, however, a couple of wrinkles to be aware of. In a number of respects, inflation-linked Treasuries resemble zero-coupon bonds. While the value of principal is adjusted daily, any adjustment in the price is not paid until the bond actually matures. The tax treatment of that adjustment is also similar to that of zero-coupon bonds: While you do not receive any inflation adjustments to the value of principal until the bond matures, or any interest, you will be taxed annually on that amount (sometimes called a tax on “phantom income”). You will also be taxed on the interest you receive. If you are in a high tax bracket, the tax treatment might make these bonds more suitable for tax-deferred or tax-advantaged accounts. For investors in low income tax brackets, however, these bonds may be a very good deal.

At the current time, inflation-linked bonds are sold only in the 10-year maturity. That may change. Future interest rates may differ from those of the past two years: they will be reset at each auction.

An important point to bear in mind is that while the structure of these bonds is designed to protect the value of your principal, this does not eliminate market risk. An increase in interest rates may cause the price of bonds trading in the secondary market to decline. So can a lack of demand.

Initial reaction to inflation-indexed Treasuries was less than enthusiastic. The price of the bonds actually declined in the first year. That may be due to the fact that since 1997, inflation has seemed benign. It may also be due to a lack of understanding of how these bonds actually work—an interest rate of 3% may have seemed paltry. But interest in these bonds has gradually picked up and total returns have improved.

**TREASURY DIRECT**

Treasuries can be purchased or sold through banks and brokerage firms. Fees are modest, typically $25 or $50 per transaction, regardless of the amount purchased. Nonetheless, if you buy Treasuries regularly, over
the course of a year, those small amounts can add up. Also, the smaller the face amount of the securities purchased, the higher those fees are as a percentage of the face amount. Fifty dollars represents ½ of 1% of a $10,000 purchase; but 5% of a $1,000 purchase.

The simplest and most economical way for individuals to purchase Treasuries is to buy them directly at auction, through the Treasury Direct program. Individual investors can buy securities for as little as $1,000, with additional increments of $1,000. This is attractive for a number of reasons. First of all, all commission costs are eliminated. Also, individual investors are able to consolidate all of their Treasury securities in one account. And finally, individual investors receive the same yields as institutional investors.

When you open an account through Treasury Direct, you are banking directly with the Federal Reserve Bank, colloquially known as the Fed. The advent of the Internet has enabled the Fed to make this process extremely simple. Information and any necessary forms can all be downloaded directly from the Treasury Direct Internet site (www.treasurydirect.gov). However, if you do not have access to the Internet, forms necessary to open an account can be obtained from any of the 12 Federal Reserve Banks or from any of their branches. (The phone numbers of these banks can be obtained from your local bank; or from the reference desk of your local public library. Forms can also be obtained by telephoning the Treasury Direct Office in Washington: 800/722-2678).

However you obtain the forms, establishing an account is simple. To open an account, you fill out a one-page form. In addition to your address and Social Security number, you need to provide the number of an account that you hold either with a commercial bank or with a major brokerage firm (such as a cash management account). When you place an order for a bond, the Fed will automatically debit that account for the exact price of the securities you have purchased at the auction. The Fed will also wire interest payments and matured principal payments directly to that account. The friendly Fed will also notify you when a security matures and ask you whether you want to roll over your maturing Treasury into a new one, or to redeem principal. Finally, the Fed will send written confirmations for any transactions that have occurred in your account. In short, the Fed will be your friendly banker. Moreover, the Fed will not charge you for any of this unless your account has over $100,000 in securities. If you have more than that amount, you will be charged a fee of $25.00 a year.

Once you have opened an account, you can participate in any auction held by the Fed. To purchase a security, you submit a very brief form called a non-competitive tender, whereby you agree to purchase the maturity you select at the average yield of the auction—that is, the average of all the competitive tenders submitted by dealers purchasing billions of dollars worth of securities. Tenders may be submitted directly on the Internet, by phone, or by mail. Bids submitted by phone or via the Internet must be received by the published cutoff time, generally 12:00 noon Eastern Standard Time of the day of the auction. Bids submitted by mail must be postmarked by the day prior to the auction. Finally, tenders may also be submitted in person at any of the 12 Federal Reserve banks until noon on the day of any auction. All securities are sold in book-entry form only.

Treasury Direct is a highly efficient operation:
- Interest payments are automatically wired to the account that you designate, as is matured principal.
- You can choose to automatically reinvest, or to withdraw cash periodically.
- No matter how many different securities are in your account, in whatever combination of maturities you desire, all are held in one central account with one account number.
- You may access information about your account via the Internet, or by phone.

The Treasury Direct program is primarily intended for individuals who intend to buy securities and hold them to maturity. But the Fed has now added a feature called Sell Direct, which enables you to sell securities before they mature. If you direct the Fed to sell securities, the Fed will obtain quotes from several brokers and sell at the highest quote obtained. Proceeds from the sale will be deposited automatically into the bank account you have designated. The Fed charges a modest fee for this service (currently $34.00).

Would you like to know the probable yield before you purchase at auction? You can come fairly close by checking the Table of Bills, Notes, and Bonds a few days before the auction for the maturities that interest you. Also, dealers actually begin trading these securities a few days before the auction on a so-called “when issued” basis—that is, in anticipation of the interest rate they will bear when issued. The “when issued” yield is often mentioned in the “credit markets” column of either the New York Times or the Wall Street Journal on the days preceding the auction. Exact information about the time and date of upcoming auctions is usually listed in the major financial dailies.

A Treasury Direct account enables you to purchase any Treasury security, including inflation-linked bonds, in any maturity you desire, from three months to 10 years, and to put together a portfolio that is totally tailored to your needs.

Your best source of information concerning auctions, and the Treasury Direct program are the Web sites maintained by the government: www.treasurydirect.gov or
CONCLUSION

Treasuries have a number of features that make them extremely attractive to individual investors. While they are not formally “insured,” since Treasuries are a direct obligation of the U.S. government, which is itself the ultimate insurer, Treasuries are (if one can rate safety among issues backed by the U.S. government) safer than insured bank accounts. In addition, if you buy Treasuries through Treasury Direct, you eliminate all commission costs as well as any cost for maintaining an account.

Note also that, although Treasuries are taxable at the federal level, they are not taxable at the state level. In states with high tax rates, this feature adds about 50 to 60 basis points (approximately ½ of 1% or slightly more) to the yield.

While you may receive a somewhat lower rate of interest on Treasury securities compared to riskier bonds such as corporates, that is due to the higher credit quality of Treasuries. Therefore, before buying any other fixed-income security, you should check out the yield of a Treasury with a comparable maturity. Professionals do—every single debt instrument is priced by professionals off Treasuries. Never buy a security with a maturity comparable to a Treasury unless the additional yield (the spread to the Treasury yield) is large enough to compensate for the additional credit risk of the other security. The greater the risk, the wider the spread should be.

Inflation-indexed Treasuries offer a further measure of safety, since any money invested in these bonds retains its purchasing power up until the time the bonds mature, ensuring that you receive a real rate of return. This eliminates one big risk facing most other kinds of fixed-income investments.

If you are risk averse or don’t have much time to devote to the management of your finances, then Treasuries are for you. Even if you have a lot of time, or a very large portfolio, Treasuries may still be one of your best options for that part of your total portfolio that you want to put in totally safe instruments.

The only real decision that has to be made when buying a Treasury is the maturity you select. That will dictate how much interest rate risk you take on. All bonds, including Treasuries, are subject to interest rate risk: The longer the maturity of the bond, the more the price of the bond will go up and down in response to interest rate changes. However, if you limit your purchases to Treasuries with maturities of five years or less and hold your Treasuries until they mature, you can put together a portfolio that has both safety of principal and predictable returns.

What is surprising is that, in spite of their high quality, Treasuries often outperform other debt instruments on a total return basis. The main reason for this is that whenever any financial market becomes turbulent, investors sell other financial assets—stocks, for example—and put their money in Treasuries. This is referred to as a “flight to quality buying.”

A final point will underline why buying individual Treasuries is such an attractive option. One often reads the advice in the financial press that in order to put together a safe portfolio of bonds, individuals should buy a bond fund. The rationale behind this is that bond funds are safer than individual bonds because they are diversified and professionally managed. That advice does not apply to Treasuries. A portfolio of one Treasury bond is totally safe in that it has zero credit risk. Also, if you limit your purchases to Treasuries with fairly short maturities (say, two to five years), and hold them to maturity, you can be certain that when you redeem your bonds, you will redeem your principal in full. That is not the case for bond funds. When you buy a bond fund, you cannot predict its price at any time in the future because the price of the fund (its net asset value, or NAV) will go up and down as interest rates go up and down. Therefore, you cannot be sure that you will be able to redeem a bond fund (and that includes bond funds that invest in Treasuries) at the price you paid. In addition, if you buy individual Treasuries through Treasury Direct, you eliminate the management costs incurred by all bond funds, and that also raises your total return.