

# PUTTING TOGETHER A PORTFOLIO OF MUNICIPAL BOND INVESTMENTS

By Annette Thau

Unless you have a windfall, you seldom need to invest all the assets that comprise the fixed-income allocation of your portfolio all at once—and that generally results in a portfolio with some diversification of maturities. Any decision you make, however, regarding maturities will involve trade-offs between the amount of income generated by your portfolio and the risk to the value of principal.

This is the second article in a series of three dealing with municipal bonds. The first article (“What You Need to Know About Investing in Municipal Bonds,” October 2002 *AAII Journal*; available at [AAII.com](http://AAII.com)) discussed two topics: determining whether you would earn more by buying munis or by buying taxable bonds; and the meaning of credit quality ratings. The final article will discuss how to shop for munis: their pricing and markups, as well as sources of information on the Internet about prices and markups.

This article addresses a variety of topics:

- First, how to determine which maturities best fit your financial objectives;
- Second, comparing premium bonds, discount bonds, and zero-coupon bonds; and
- Third, some tax issues you should understand.

## WHAT MATURITIES SHOULD I BUY?

One of the first decisions to make when buying munis is which maturities to buy.

To decide on an appropriate strategy, you first have to ask yourself why you are investing in munis. Do you rely on the income generated by your bonds in order to meet ordinary expenses? Can you afford any loss of principal? Are you spending the interest income that is generated, or are you reinvesting coupons? Will you need any part of your principal in five years or less?

Any strategy will involve trade-offs between the amount of income generated by your portfolio and the risk to the value of principal. The typical yield curve in the municipal bond market is steeply upward sloping, which means that there is a significant pick-up in yield as maturities get longer. Short-term bonds yield significantly less than long-term bonds; but they have little interest rate risk, so that their principal value remains more stable when interest rates change. Long-term bonds carry the highest yields; but their interest rate risk is significant, and increases as maturities become longer. Buying the longest possible maturities exposes the buyer to maximum interest rate risk. If, for example, you buy 30-year bonds with 5% coupons, and interest rates climb just 100 basis points, to 6%, the market value of your bonds would decline by 15%. If interest rates were to climb to 7%, the market value of your bonds declines by as much as 25%.

That situation is not hypothetical. During the 1970s, for example, as interest rates climbed relentlessly, bonds were derisively called “certificates of confiscation.”

Of course, if you do not sell your bonds, there is no actual loss. And since bonds are redeemed at par, eventually, you recover the entire principal amount. But that may take many years. Also, there is an opportunity cost: You are earning rates far lower than those currently available in the market.

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A number of well-known strategies try to address some of these trade-offs.

### Laddering

The first is commonly known as “laddering.” When you buy a ladder, you buy bonds maturing in successive years. You might, for example, divide your purchases equally among three maturities: one year, three years, and five years. As each bond matures, you would replace it with a bond equal to the longest maturity in your ladder. In this example, when the one-year bond matures, you replace it with a five-year bond. When the three-year bond matures, you replace it with a five-year bond. Since each year brings each bond one year closer to maturity, the maturities in your ladder remain constant; and so does the average weighted maturity of the portfolio.

You can, of course, structure your ladders with other maturities than those in the previous example. To increase income, you would buy bonds with somewhat longer maturities—say, five, seven, 10, and 12 years.

Laddering is a very conservative strategy. Its primary goal is preservation of capital. Of course, you do not know the rates at which future bonds will be reinvested: They may be higher, or lower, than current rates. But income is much higher than it would be if you invested only in the shortest maturities, which is the most conservative way to preserve capital. Because you are redeeming the bonds when they mature, you never lose principal. And even if you had to sell some bonds before maturity, selling the shorter maturities would keep principal relatively intact.

### Barbells

A second strategy is called the barbell strategy. This involves dividing your portfolio equally between very short maturities (under two years); and very long maturities (20 to 30 years). Income from such

a portfolio will be lower than if you invest only in long and/or intermediate maturities.

This strategy is sometimes used by large institutional investors when they believe that long-term interest rates are about to decline. Its objective is to try to boost income generated by dividend income with capital gains. If they have guessed the direction of interest rates correctly, they can then sell the longest-term bonds and realize a profit. But you can also use a modified form of this strategy (say  $\frac{1}{3}$  short maturities;  $\frac{2}{3}$  long maturities) if you feel long rates may climb in the future; and you want to have some bonds to reinvest at a future date if those higher rates materialize. In fact, a well-known New York-based municipal bond firm (Lebenthal) is currently running radio ads featuring this approach. As the ad states, if interest rates rise, the short bond wins; if long-term rates decline, the long bond wins. Or, as their catchy ad puts it: “never all short, never all long, never all wrong.”

This strategy, however, can backfire. Imagine a future scenario where long-term rates rise. Then your long-term bonds lose value. And if, simultaneously, short-term rates decline, then you suffer a double whammy since you will also have to reinvest your bonds at lower rates.

### The “Bullet” Portfolio

This is a special case that might apply to only a part of your portfolio.

Suppose you are saving for a future known expense, such as investing for a child’s college education; or a goal closer in time, for example, a down payment for a house.

The solution is simple: You buy bonds whose maturity coincides with your future need. For example, say you want to buy a house in three years. You buy bonds maturing in three years. You will earn more than you would by leaving your money in a money market account; but

since you redeem your bonds at par, there is no risk of loss of principal.

You might think it makes more sense to buy bonds with longer maturities. Interest income would, after all, be higher. That is true, but you do not know what those bonds will be worth in three years time.

### Buying Primarily Long Maturities

Some of the firms that specialize in selling munis to individual investors aggressively recommend that investors purchase only bonds with the longest maturities (25 to 30 years).

The rationale given for this approach is that it will generate maximum income because bonds with the longest maturities earn the highest amount of interest. One series of articles advocating this approach supports this argument by showing tables and numbers demonstrating that for the past 20 years, this strategy would indeed have generated the highest income possible. This series also contrasts this approach (buying only the longest maturities) with the income produced by a typical ladder, which, as they point out, would have generated lower income over the last 20 years.

With the logic of hindsight, it is undeniable that for the last 20 years, that approach would indeed have generated maximum income. An important concern, however, is based on a comparison between interest rates 20 years ago, and current interest rate levels. In 1984, the 30-year Treasury yield was 15%. Today, it is under 5% and the shortest Treasury rates are at 1.25%, a 40-year low. Municipal rates have declined roughly in tandem with Treasury rates. So before you buy bonds with 30-year maturities, you need to pause and ask yourself where you think interest rates are going to be a few years from now—higher or lower than today?

My crystal ball is no better than yours, although at the current time, a plausible argument can be made

**TABLE 1. NATIONAL MUNI BOND YIELDS**

Triple-A Rated, Tax Exempt Insured Revenue Bonds  
Wed, 13 Nov 2002

Maturity	Yield (%)
2-year	1.78
5-year	2.80
7-year	3.30
10-year	3.80
15-year	4.51
20-year	4.91
30-year	4.97

Source: Bloomberg.com.

that over the next few years, interest rates are likely to rise significantly from current levels. If and when the economy recovers, interest rates will go up. There is also the U. S. Treasury deficit, which threatens to spin out of control. Ballooning government deficits could result in significantly higher interest rates. Moreover, proposed changes in the tax laws could also send municipal bond yields significantly higher. Clearly, buying only the longest-term bonds at the current time exposes the buyer to significant interest rate risk.

Note, also, one inconsistency. The same brokers who normally advocate buying the longest maturities in order to generate the highest possible income, generally also advocate buying bonds with the highest credit quality. After all, you cannot afford to take credit risk if you are buying the longest term bonds. But that also involves a trade-off: buying bonds with the highest credit quality also means somewhat lower income. You can generate income close to that of long-term AAA bonds by buying, say, A-rated bonds with intermediate maturities.

### The "Sweet Spot" on the Yield Curve: Intermediates

Another way of considering this question is to look at Table 1.

This is the first column of a table that appears daily on Bloomberg.com. It shows average

rates available for AAA tax-exempt insured revenue bonds on the previous day. This particular table appeared on November 14, 2002. Of course, the yields shown change daily, but this particular table illustrates a yield curve that is considered typical for the municipal market, with yields for long-term bonds much higher than those available for short-term bonds.

Note, however, the progression of yields. As of the date of this table, if you purchased bonds maturing in 10 to 15 years, you would earn between 3.8% and 4.5% for bonds with very high credit quality. If, on the other hand, you purchased bonds with 20- to 30-year maturities, you would earn up to 5%. For the additional ½%, you would be taking on enormous interest rate risk. Note also that there is virtually no pick-up in yields between bonds with a 20-year maturity and those maturing in 30 years.

Also, bear in mind that if you buy a bond with a 10-year maturity, in five years it has a maturity of five years, which moves its price much closer to par—regardless of where interest rates are going. On the other hand, even if you buy bonds maturing in 30 years, you are not locking in yields for 30 years, because most municipal bonds are callable 10 years after the issue date. But those call provisions do not reduce interest rate risk.

My own approach is loosely based on this strategy: In effect, buy a ladder consisting mainly of intermediate maturities, some shorter maturities thrown in. This will not generate the highest income possible, but it generates 85% to 90% of the income generated by buying only the longest maturities, with far less interest rate risk.

*One final point:* If you are investing in municipal bonds as part of a

long-term growth strategy, and not just for current income, you need to emphasize total return. Over long periods of time, the rates at which interest income is reinvested are as important, or perhaps more so, as the interest income generated by the bonds you buy. This is the concept of compounding. Over a 30- to 50-year investment horizon, the interest income generated by reinvesting coupons—known as interest on interest—can generate perhaps 50% to 80% of the total earnings of your portfolio. Very few brokers will discuss this with you, but the concept of compounding, while simple, is fundamental to investing.

### DISCOUNT vs PREMIUM BONDS

Your broker telephones. She has just gotten some terrific bonds in inventory: one a discount and the other a premium. Both yield 4½% to maturity. Which should you buy?

First, a brief review. Par is 100: that is, \$1,000 per bond. Bonds trading in the secondary market rarely sell at par. If interest rates have gone up since the bond was issued, the bond will sell at a discount to par (less than 100, that is, less than \$1,000 per bond) because it will have declined in price. But because it will be redeemed at par, the difference between the discounted price and par (the price at which it will be redeemed) is added to the yield to calculate the yield to maturity. That capital gain is taxable at capital gain rates when the bond is redeemed. If, on the other hand, interest rates have declined since the bond was issued, it will be trading at a price of 100+ (higher than \$1,000 per bond): prices will have gone up since the bond was issued. But the bond will be redeemed at par.

Well, you reason, I should buy the discount bond because if I buy the premium bond, at maturity, I will lose the amount of the premium over par for each bond.

Wrong, but a common misconception.

tion. If you are looking primarily for income—all other factors such as credit quality and maturity being equal—you should buy the premium bond. Premium bonds generally are a better value than discounts. Here's why.

It is a common error to think that one "loses" the difference in price between par and the amount of the premium. The yield quoted for the premium bond is based on the net price, *including* the premium. The premium is not lost. Even if the yield quoted for the premium and the discount bond are exactly the same, the discount bond yield includes anticipated capital gains. That capital gain is taxable when the bond is redeemed, whereas the entire dividend yield of the premium bond is tax free. Hence, the net yield of the discount bond will be lower than the quoted yield-to-maturity, whereas for the premium bond, it will be the same.

The yield advantage is amplified by several additional factors. First, the premium bond has higher coupons. This results in larger amounts to reinvest every year and, therefore, more interest-on-interest. More importantly, because many investors avoid premium bonds, they are usually offered with higher yields than comparable maturity discount bonds. Finally, premium bonds are less volatile than discount bonds of the same maturity, which protects principal in the event interest rates rise.

There is a helpful rule you can use to determine whether a premium bond is a good value. If the bond is callable, compare the yield-to-call to yields currently available for bonds that mature at the same time as the call date. The yield to the call date of the premium bond should be higher than yields for bonds maturing at the same date. If that is the case, you are looking at what brokers call a "cushion" bond: Even if the bond is called, you will have earned a higher yield than was available for bonds maturing on the call date.

Therefore, if your style of investing is to buy and hold, muni premium bonds have two advantages: higher yield and lower volatility.

On the other hand, if you are a trader, or want to speculate on interest rates, then you might want to consider discount bonds, since those will appreciate more quickly in response to a drop in interest rates.

### Municipal Zeros

Just as you can buy Treasury zeros, you can buy muni zeros. Like other zero-coupon bonds, muni "zeros" are issued at deep discounts from par. At maturity, they are redeemed at par. You do not receive any coupon income during the entire life of the zero. The difference between the issue price and par represents a specified compounded annual yield. Unlike other bond investments, the yield to maturity you are quoted at the time of purchase includes assumed reinvestment of coupons at the specified yield to maturity rate. You know exactly how much your investment will return when the bond matures. Moreover, because muni zeros are federally tax exempt, no tax needs to be paid annually on "phantom" interest.

Before buying muni zeros however, you need to be aware of a number of risks. First, the volatility of long-term zeros is extremely high—about 2½ times as high as that of other bonds with similar maturities. That means that if interest rates decline, zeros appreciate significantly more than coupon bonds, but when interest rates rise, the price of zeros declines significantly more than that of other bonds with similar maturities.

Also, unlike Treasury zeros, which have no credit risk, the credit quality of muni zeros varies with the issuer. For muni zeros, credit quality is critical because you do not receive any income from the zero until the final maturity date. If the zero defaults after several years, you would not have had the consolation

of even a single interest payment. (This is one instance where bond insurance would make a lot of sense.)

In addition, muni zeros are subject to call. Muni zeros are called at stipulated discounts from par, and not, as some investors assume, at par.

If you are investing for growth, and if you do not need the current income, muni zeros have a number of advantages. Because they are relatively illiquid, muni zeros generally sell at a higher yield than coupon munis with a similar maturity. In addition, because they sell at deep discounts from par, you can invest small sums. The quoted yield includes a guaranteed reinvestment rate: therefore, you know exactly what your return will be when the zero matures. All of these factors make zeros very attractive for a variety of situations. A perfect example would be to help fund college expenses for a grandchild: You can buy muni zeros targeted to mature for each year's tuition payment.

But again, because of their extreme volatility, consider muni zeros primarily if you plan to hold them to maturity, and if the yields are attractive. Also, because muni zeros are considered illiquid, markups can be high. Therefore, you need to shop around before buying. Finally, be aware that zeros are expensive to resell.

### A Special Case: Taxable Municipal Bonds

This is not a mistake: Some municipal bonds are taxable. Taxable bonds are issued by the same entities that issue the more familiar tax-exempt bonds. What determines whether the bonds are taxable is the purpose for which they are issued: Taxable munis are issued for so-called "private" purposes—that is, purposes not deemed essential for the public good. Those might include, for example, bonds issued to finance sports facilities, or certain types of

housing bonds.

This is a small segment of the market. But for individual investors, taxable municipal bonds may represent a very good opportunity. The yields of taxable munis are comparable to those of investment-grade corporate bonds and therefore higher than those available for Treasuries. The advantage is that taxable munis are far less difficult to analyze than corporates. Quite a few are general-obligation bonds, backed by the unlimited taxing power of the issuer. They are free of the major land mines found with corporates, such as event risk or tricky call provisions.

Taxable munis can be found in a range of maturities, from short to long. You can also find zero-coupon taxable munis. As one example, at the end of 1999, you could have purchased a zero-coupon taxable muni with a 16-year maturity, yielding approximately 7.6% at a time when 30-year Treasuries were yielding 6.3%. The price would have been somewhere in the neighborhood of \$250 for a \$1,000 par value bond.

Taxable munis can be useful for a variety of purposes. If you are retired, and not in a high tax bracket, you may earn more (net after tax) by buying taxable munis than you would by buying tax-exempt bonds. Taxable munis can also be used in tax-deferred accounts for the part of your portfolio that you want to allocate to bonds.

## TAXMATTERS

While the exemption of interest income from federal income taxes is the main tax feature of municipal bonds, there are a number of additional wrinkles in the tax law affecting municipals that you should know about.

### Alternative Minimum Tax (AMT)

One wrinkle you should be aware of is the alternative minimum tax (also known as the AMT). The Tax Reform Bill of 1986 provides for

direct federal taxation of certain categories of municipal bonds. Only bonds specifically designated as “nonessential” bonds, issued after August 7, 1986, are subject to this tax, and then only in the event that the individual investor’s tax bracket makes him subject to the alternative minimum tax.

Because there is the possibility that the bonds may be taxable, however, these bonds yield somewhat more than other municipal bonds. Therefore, for those individuals *not* subject to the alternative minimum tax (and that’s almost everyone), these bonds will result in a somewhat higher yield.

The AMT is of concern mainly to individuals with large incomes or very large municipal portfolios. If you are in that category, you need to calculate your tax bill two different ways. The first is the standard method. The second requires a number of adjustments to taxable income, and the addition of the amount of tax owed on the bonds subject to the AMT. The two tax bills are then compared. The higher tax is the one you pay. Whatever your tax bracket, you can avoid this issue by making sure that you do not purchase bonds subject to the AMT.

### De Minimus Tax

Another tax wrinkle is the “de minimus” tax. Again, this tax is of concern mainly to individuals in the highest tax brackets. This tax is complicated to explain, but it applies only to discount bonds. Briefly, this tax is levied on discount bonds that are bought below a specified value and subsequently rise in price, or are redeemed at par. That value is determined by multiplying the number of years outstanding until maturity by 0.25. For example, for a bond that matures in 10 years, that amount would be \$97.50 (that is, a price of \$975.00 for each \$1,000 par value amount). If you purchase that bond at a price below \$975.00, the difference between the purchase price and the

selling price is treated as ordinary income for tax purposes, and not as a capital gain. This creates a tax liability when the bond is sold and, obviously, the higher the tax bracket, the higher the liability. This tax liability lowers the real yield for the bond. The “de minimus” rule applies to any discount bond, whether it is an original issue discount bond, or a bond selling at a discount in the secondary market. Therefore, if you are in a high tax bracket, you might want to check with your accountant before buying tax-exempt bonds selling at a discount.

### Capital Gains and Losses

The interest income you receive from municipal bonds is federally tax-exempt. The sale of municipal bonds, however, is a taxable event. If you sell your municipal bonds for a higher price than the one you paid when you bought the bonds, then you realize a capital gain, which is taxable at capital gain rates. If, on the other hand, you sell the bonds for less than you paid, then you realize a capital loss, again, at capital gain rates.

### Harvesting Tax Losses: Swaps

Is there anything you can do to lower your losses if you buy long-term bonds, and if rising interest rates result in a serious loss of principal?

Investors last encountered this type of loss over a period lasting more than a decade during the 1970s, when rising interest rates devastated the value of municipal bond portfolios. Losses, at times, were 50% or more. Moreover, the income generated by those portfolios was puny compared to the higher rates available in the market.

To remedy this situation, many investors swapped their bonds. When you swap a bond, you trade a bond for a different bond, rather than for cash proceeds. The purpose of the swap is to generate a loss for income tax purposes. For many investors in the 1970s, this was an

annual ritual—a way, in the words of some brokers, to turn lemons into lemonade.

The main difficulty with swaps is evaluating the cost of the swap. The first and most obvious cost is the commission. That cost, however, remains hidden because of the way municipal bond prices are quoted, as we will see in the next article in this series. But there are other, less obvious costs. To evaluate a swap, you need to compare the total par value of the bonds that are being swapped, the annual interest income, the credit quality of the issues involved, and the maturity of the bonds. Suppose, for example, that you own a \$25,000 par value municipal bond, rated AA, with a 20-year maturity, and a 5% coupon. You receive annual interest income of \$1,250. Costs of the swap would include any of the following:

- You are offered a bond with a lower credit rating (say A);
- Coupon income declines by \$100 a year;
- The par value of the potential

swap is lower than the par value of the bond you own (say \$22,000 compared to \$25,000); and

- You are offered a swap that lengthens the maturity of the bond to 22 years.

Any of these represents a cost.

Note also that at the current time, tax rates are much lower than those that prevailed during the 1970s. Therefore, tax losses are less valuable than they were in the 1970s.

#### SUMMARY

This discussion has highlighted some of the choices you need to make when investing in municipal bonds.

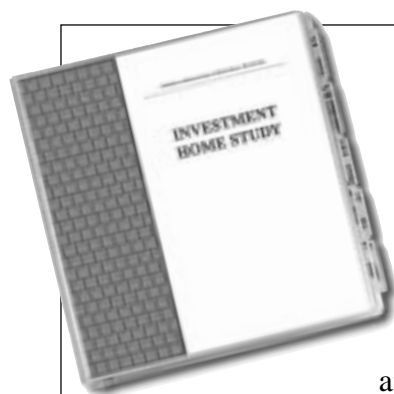
The first part of the discussion focused on what maturities to buy. In real life, unless you have a windfall, you seldom need to invest all the assets that comprise the fixed-income allocation of your portfolio all at once; and that by itself generally results in a portfolio with some diversification of maturities.

Any decision you make, however,

will of necessity involve trade-offs. Buying only the longest maturities in order to maximize income puts principal at maximum risk. A more flexible approach, centered on buying 10- to 15-year maturities, provides approximately 80% to 90% of the income generated by the longest maturities, with significantly lower risk to principal.

The second part of the discussion differentiated among premium, discount and zero-coupon bonds. In general, premium bonds provide somewhat higher income with lower volatility than discounts. Muni zeros are excellent investments for funding future known expenses such as a child's college education.

The concluding section briefly discussed a number of tax issues that arise in connection with the purchase of municipal bonds. If you are in a high tax bracket, if you own a large portfolio of municipal bonds, or if you trade bonds actively, then tax issues become more complex and may require you to consult a tax accountant. ♦



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