

# What Professionals Must Know to Tax-Manage Bonds

by Ravi Agrawal, AAMS

## Executive Summary

- Bond tax swaps can be an effective way of enhancing returns over a buy-and-hold strategy, but a comprehensive understanding of newer tax laws is essential to the outcome.
- Harvesting the capital gains of bonds has a high success rate, while harvesting the losses has a moderate success rate. Gain harvesting works best when interest rates have fallen sharply, the remaining maturities are short to intermediate, the premiums are high, and the issues are taxable. Loss harvesting is more successful when interest rates have risen sharply, the remaining maturities are long, the discounts are large, and the issues are municipals.
- Higher income tax rates and lower capital gains rates favor gain harvesting and diminish the benefits of loss harvesting.
- Harvesting capital losses is a common practice when interest rates rise. But this technique can be counterproductive, especially with shorter maturities, as additional taxes are often payable following a tax swap.
- The method of accounting for premiums and discounts is also important to success. Premiums of taxable bonds should be amortized annually and deducted against interest. Market discounts that are taxed are better deferred until maturity.
- Unbeknownst to some, all bonds bought at market discounts to issue price owe ordinary income taxes, even municipals.
- Under optimum accounting methods, discount taxable bonds have an after-tax edge over premium taxable bonds, and premium tax-exempt bonds have an edge over discount tax-exempt bonds.

*Ravi Agrawal, AAMS, is the president of RSA Asset Management LLC in Richmond, Indiana.*

Investors generally view the volatility of interest rates and bond prices as an unfortunate but inevitable aspect to fixed-income investing. A comprehensive grasp of newer tax laws can leverage the ability of an investment manager to harvest the unrealized fluctuations in bond prices and enhance the after-tax returns of bond portfolios without creating undesirable tax consequences in the process. Realizing long-term capital gains and losses are both beneficial techniques, and their success will depend on the particular circumstances. This article discusses the practice of tax-harvesting bonds and how the professional may identify the optimal environments for savings.

## Rates Are Low, So Harvest Gains

Why would anyone harvest capital *gains*?!

Many investment professionals use only tax-loss harvesting to enhance returns through tax savings. Tax-gain harvesting is a twist on this technique, and it is one that can be very successful. Tax-gain harvesting offers value to investors by capitalizing on the difference between income tax and long-term capital gains tax rates. Swapping bonds with this technique will convert future income taxes into current capital gains taxes. As you will see, the tax savings will significantly compensate for the opportunity cost of paying taxes early.

While numerous studies have shown the relative superiority of tax-exempt debt in taxable accounts for investors in higher tax brackets, that is not the focus of this article. In reality, many investors hold some taxable debt in taxable accounts; an average brokerage account may have an assortment of corporates mixed in with municipals; an average bank account may have some bank certificates of deposit from the same bank; risk-averse investors may prefer Treasuries or agency notes for their direct and indirect guarantees of payment.

Here's the scenario: Ted bought some long-term bonds back in the early '90s. Interest rates have fallen to new lows, and many of his bonds have now increased in value by as much as 50 percent. Ted is sitting tight on his bonds, as he doesn't need the money until maturity, when he plans on putting a down payment on a retirement home. Despite the capital gains tax and regardless of his investment goals, however, Ted should perform a bond swap to save himself some money (taxes) in the long run.

Here's the method: Ted's largest position is 100 Treasury bonds due August 2020, with a \$1,000 face value, an 8.75 percent coupon rate, and bought at par in 1990. He bought them for \$100,000 and now their market value is \$147,000 at a 4.5 percent yield-to-maturity. Ted sells these bonds and incurs a capital gain of \$47,000 on his 2004 tax return, at his long-term capital gains rate of 15 percent. That will be \$7,050 in taxes.<sup>1</sup> Ted then completes his "tax swap" by reinvesting the \$147,000 into a separate issue, also at an 8.75 percent coupon rate, due in May 2020.<sup>2</sup> The prices and yields for these issues are essentially identical.<sup>3</sup> In terms of his investment, nothing material has changed from this transaction—the same coupons, the same face value, and an almost identical maturity. The key difference: he has now bought "premium bonds." Internal Revenue Service rules allow Ted to amortize the premium each year and deduct this amount against interest income.<sup>4</sup> The \$47,000 premium divided evenly over 16 years is \$2,938 a year, which we deduct on Ted's tax return.<sup>5</sup> The result is \$1,028 tax savings a year for the 35 percent federal income tax bracket. Over the next 16 years, Ted saves a grand total of \$16,450, or about \$9,350 more than the capital gains he paid in 2004.

Using a standard time-value-of-money formula, we can convert these future streams of tax savings into today's dollars for a more accurate comparison. The present value of the tax savings, discounted to the current after-tax yield-to-maturity of the same bond (3.2 percent) is \$13,081, which is a \$5,950 net savings over the taxes paid in 2004.<sup>6</sup> Looked at another way, the tax swap adds a 6 percent return to Ted's initial investment, without changing any material aspects to his investment or adding any additional risk. Looked at a third way, Ted is using his existing investments to invest \$7,050 in a Treasury-based annuity for 16 years with a 14.6 percent after-tax annual payout and a 12.3 percent after-tax internal rate of return, with the full faith and credit of the U.S. government. Now that's a successful tax swap.

Going from the specific to the general requires considering a variety of conditions to determine if this strategy will work on a consistent basis. Table 1 presents a variety of simulated scenarios you may encounter, sorted by the remaining time until maturity and the prevailing interest rates, as measured by the current yield-to-maturity (YTM).<sup>7</sup> The original investment is assumed to be a 30-year bond with a 9 percent semiannual coupon, although the original maturity is not relevant for the calculations. Each of the final three columns presents a different measurement of the relative success of each scenario.<sup>8</sup> All future cash flows are discounted to the after-tax yield-to-maturity of the same simulation, as before. Calculating an internal rate of return (IRR) requires entering the capital gains tax paid as the initial cash outflow and the series of tax savings as cash inflows. This value represents the rate of return on the initial tax paid in the year of the swap.

**TABLE 1**

**Tax-Gain Harvesting in Falling-Rate Environment: Estimated Savings**

Simulated Semiannual Coupon Bonds at Various Interest Rates and Maturities

Original Purchase \$100,000 Par 9% YTM

Premium Amortized Annually

	Remaining Time	Current YTM	Market Value	Net Tax Savings (PV)	Net Savings as a % of Market Value	IRR
Treasuries	20 yrs	6%	\$134,672	\$2,522	1.87%	7.9%
	20 yrs	5%	\$150,200	\$4,595	3.06%	8.1%
	20 yrs	4%	\$168,389	\$7,613	4.52%	8.4%
	10 yrs	6%	\$122,316	\$2,902	2.37%	17.2%
	10 yrs	5%	\$131,178	\$4,395	3.35%	17.5%
	10 yrs	3%	\$151,506	\$8,432	5.57%	18.2%
	5 yrs	4%	\$122,456	\$3,899	3.18%	35.7%
	5 yrs	2%	\$133,150	\$6,186	4.65%	36.3%

**Assumptions All Tables**

- Federal income tax rate 35%; LT capital gains 15%
- Future cash flows are in present dollars
- Discount rate is the after tax yield to maturity of same simulation
- Swaps with identical bonds
- Bond swaps and tax payments occur at year-end

## Works in Many Scenarios

All measures indicate that capital-gain harvesting is successful across a wide range of conditions.

Notice that all scenarios have a net tax savings, which is in present-day dollars, and a positive IRR. In general, the scenarios with shorter remaining maturities and lower interest rates are the most successful. The shortest-maturity Treasury issue with five years remaining and a 2 percent YTM returns a respectable 4.65 percent on the current value of the bond and a 36.3 percent IRR on the tax paid. The net savings in today's dollars comes to about \$6,200; over the five years, this added value delivers the equivalent of about a 1.4 percent pre-tax enhancement on the annual yield (not depicted).

Any increase in income tax rates will bring about a pronounced increase in the success of gain harvesting. Higher income taxes translate to more taxes avoided by gain harvesting.

Conversely, any increase in long-term capital gain rates will reduce the success of capital gain harvesting. If you are considering harvesting, you may wish to act now, while the rates are very low, to lock in the rate.<sup>9</sup>

Note that some accountants and many investors may take the easy road and not amortize the premium. Without amortizing the premium, investors may only take a capital loss at maturity, thus eliminating all of the benefits of capital gain harvesting. Some clients may not have the time or knowledge to compute an amortization schedule; fortunately, many brokerages will provide these for them at no additional charge.

Although the IRS requires amortizing the premiums of tax-exempt municipal bonds over the life of the bond, there is no accompanying tax deduction for the premium against interest income. Consequently, tax-gain harvesting a municipal bond would incur an additional capital gains tax without generating any income tax relief to profit from it. Gain harvesting works only with taxable bonds.

## Harvest Capital Losses When the Savings Are Positive

Tax-loss harvesting with debt instruments is a relatively common strategy in rising interest rate environments. The method involves selling a taxable or tax-free bond that has lost value, taking the tax loss to offset other gains, and buying a similar bond of comparable maturity, credit quality, and yield. The capital losses may reduce capital gains taxes otherwise incurred on other investments. On the surface, this popular strategy appears to be

infallible, as the client appears to have nearly the same investment but with additional tax savings. In many cases, however, professionals and investors alike fail to account for the tax implications of buying the new bond.

Under typical settings, investors will swap their current discount bond for another discount bond with similar characteristics. As such, this discussion initially focuses on buying bonds with similar discounts. The results, however, are not limited to buying discount bonds. This article will also incorporate the purchase of par and premium bonds.

**Taxable bonds** bought at market discounts have special tax rules.<sup>10</sup> The IRS requires investors to take the amount of the discount and pay income taxes on it. This should come as no surprise—it is essentially the reciprocal of deducting premiums against interest income. This additional future tax liability will frequently eliminate the intended savings of the tax swap. Loss-harvesting taxable bonds will save capital gains taxes initially but will also convert this loss into future interest income. The good news is that this tax may be amortized over the life of the bond or even deferred until maturity. The bad news is that even with this deferral, in many cases you will still end up with a negative tax savings for the life of the investment.

An example may help illustrate the disadvantages of loss harvesting. John buys intermediate Treasury bonds in 2004 at par for \$100,000. Interest rates rise quickly over the next several years, and in 2007 his investment has lost \$25,000 in value. What happens when he performs a tax swap for a nearly identical Treasury? There are seven years remaining and the current YTM is 9 percent. If he swaps the bond, he realizes a loss of \$25,000, which can offset an equal amount from other investments. The savings will total \$3,750 at his 15 percent long-term capital gains rate. Now, however, he must record the discount of the new bond and pay income taxes on it. If John chooses to defer the tax until maturity, which will be more beneficial than paying some each year, he will owe \$8,750 in 2014. Discounted to the after-tax rate of return of the Treasury, he would have paid out \$5,900 in 2007 dollars, for a net loss of \$2,100. The initial savings are not worth the future income taxes.

Table 2 presents a variety of simulated bond swap scenarios exhibiting the performance of tax-loss harvesting under a variety of market conditions. Both amortization and deferral accounting options are presented. The original investment for all scenarios is a bond bought at par for \$100,000 with a 5 percent YTM. As before, all future cash flows are discounted to present values for better comparison.

TABLE 2					
Loss-Harvesting Taxable Bonds					
Original Purchase		\$100,000 Par	5% YTM		
Discount Accreted and Taxed Annually					
	Remaining Time	YTM	Market Value	Net Tax Savings (PV)	Net Savings as a % of Market Value
Treasuries	20 yrs	10%	\$57,102	(\$345)	-0.60%
	20 yrs	7%	\$78,645	(\$1,175)	-1.49%
	10 yrs	10%	\$68,844	(\$2,781)	-4.04%
	10 yrs	7%	\$85,788	(\$1,697)	-1.98%
	5 yrs	13%	\$71,245	(\$3,469)	-4.87%
	5 yrs	10%	\$80,696	(\$2,651)	-3.29%
Discount Taxed at Maturity					
	Remaining Time	YTM	Market Value	Net Tax Savings (PV)	Net Savings as a % of Market Value
Treasuries	20 yrs	10%	\$57,102	\$2,174	3.81%
	20 yrs	7%	\$78,645	\$134	0.17%
	10 yrs	10%	\$68,844	(\$1,136)	-1.65%
	10 yrs	7%	\$85,788	(\$1,056)	-1.23%
	5 yrs	13%	\$71,245	(\$2,395)	-3.36%
	5 yrs	10%	\$80,696	(\$2,035)	-2.52%

All of the scenarios turn out negative net savings when you amortize the discount over the life of the bond and pay the accreted taxes annually. You should quickly discard amortization as an acceptable accounting method.

Some clients may squirm at the idea of paying a large tax bill in the final year. For these clients it makes sense to avoid loss-harvesting taxable bonds, as amortizing the discount eliminates the benefits of the tax loss in all scenarios.

When the taxes are deferred until maturity, the savings are better in every case. This makes perfect sense, as the longer you wait to pay taxes, the greater the amount of interest you can earn in the meantime. Even so, deferring taxes often produces negative results. Many of the scenarios end up with lost value including all of the short- and intermediate-maturity bonds. The worst loss is with the Treasury issue with five years remaining and a 13 percent YTM. The net loss is \$2,395, or 3.4 percent, of the bond's market value. The swaps with longer maturities, in contrast, can produce positive savings, although one is essentially a wash. The first Treasury simulation with 20 years remaining and a current YTM of 10 percent exhibits a savings of 3.8 percent of after-tax market value. High interest rates and a long remaining maturity favor success for tax-loss harvesting. Keep in mind that even for longer maturities, if your client disposes of the bond earlier than maturity, the savings may be eliminated. In addition, as mentioned later, transaction costs only further reduce any potential savings.

It is worth noting that any change in tax rates will have the opposite effect on loss harvesting relative to gain harvesting. Lower income tax rates and higher capital gains tax rates favor greater success in loss harvesting.

**Avoiding the discount.** You might be quick to consider that a better strategy might be to avoid buying discount bonds. One may find higher coupon bonds in the secondary market or new issues in the primary market that are selling at par or above par. This does little to improve your tax liability, unfortunately. Even though you may avoid a tax on a discount, the new bonds will have a higher coupon, with a proportionately higher tax due each year, but without the opportunity to defer taxes. The savings would be more similar to the amortized results discussed above. You would create a more unfavorable outcome than by buying the discount and deferring until maturity. Note that taxable bonds with similar credit quality and maturity often sell at similar YTM's, regardless of whether they are selling at premiums or discounts (after accounting for differences in duration). But if you defer paying taxes on the discount bond, you effectively raise the after-tax yields of these investments (see "The Coupon Effect" later in this article). Buying par bonds does not improve the results of tax-loss-harvesting taxable bonds. Tax-exempt bonds, however, have different tax rules, and involve a different set of considerations.

## Loss-Harvesting Municipals

Many investors believe that municipals generally do not incur federal income taxes. This is true for any bond bought at issue price and held to maturity. But the IRS has ruled that if an investor buys a tax-exempt bond at a market discount to par after May 1, 1993, the investor must pay ordinary income tax on the value of the discount, just as if it were a taxable bond. So if you swap a municipal that has fallen in price for a similar bond that has also fallen in price, you may take a deduction for the capital loss that may be used immediately, but you will owe income taxes on the discount amount of the new bond. As with taxable bonds, an investor can elect to defer this tax over the life of this municipal.

A separate type of discount bond, the original-issue discount (OID) bond, carries unique and fairly complex rules of its own. When an issuer issues a bond below par, the entire discount is considered tax-exempt. The IRS considers this an issuer-based discount, as opposed to a market-based discount. A common example of this is the zero-coupon municipal. OID bonds are thus an alternative to market-discount bonds that do not carry income taxes, if bought at issue. OIDs in the secondary market will often develop market discounts after interest rates rise. More complex arrangements such as these are beyond the scope of this article.

The ruling from the IRS on market discounts is a bit unfair, as there is no reciprocal income tax deduction for such bonds when bought at premium prices. It does seem unusual that the original owner may only take a capital loss deduction for the loss in value, yet the second owner must pay ordinary income taxes on the same amount. Nonetheless, the tax law has relevant implications in the practice of tax-swapping these bonds.

Professionals who pay more attention to the yield-to-maturity of municipal bonds and who do not actively consider the tax treatment of market discounts may be doing a disservice to their clients. For two tax-free bonds with the same yield, the premium bond will always produce a higher after-tax return relative to the discount bond.

Table 3 presents scenarios similar to Table 2, except the present value formulas take into account the higher after-tax yields of these investments. Similar conclusions arise. Loss harvesting produces negative savings whenever the remaining time is shorter—in the five- to ten-year range. One should definitely consider tax-loss harvesting a tax-exempt bond if it is still a relatively long bond—in the 20-year range—and selling at a substantial discount. Higher interest rates and larger discounts favor better measurements of success. As with taxable bonds, investors should elect to defer income tax until maturity; the election often doubles the benefits.

TABLE 3					
Loss-Harvesting Municipals					
Original Purchase		\$100,000 Par	5% YTM		
Discount Amortized Constant Yield Method					
	Remaining Time	YTM	Market Value	Net Tax Savings (PV)	Net Savings as a % of Market Value
Municipals	20 yrs	10%	\$57,102	\$1,701	3.0%
	20 yrs	7%	\$78,645	(\$196)	-0.2%
	10 yrs	10%	\$68,844	(\$1,536)	-2.2%
	10 yrs	7%	\$85,788	(\$1,231)	-1.4%
	5 yrs	13%	\$71,245	(\$2,548)	-3.6%
	5 yrs	10%	\$80,696	(\$2,132)	-2.6%
Discount Taxed at Maturity					
	Remaining Time	YTM	Market Value	Net Tax Savings (PV)	Net Savings as a % of Market Value
Municipals	20 yrs	10%	\$57,102	\$3,821	6.7%
	20 yrs	7%	\$78,645	\$941	1.2%
	10 yrs	10%	\$68,844	(\$252)	-0.4%
	10 yrs	7%	\$85,788	(\$831)	-1.0%
	5 yrs	13%	\$71,245	(\$2,086)	-2.9%
	5 yrs	10%	\$80,696	(\$2,018)	-2.5%

**Swapping for premium bonds.** A better approach when harvesting losses in municipals may be to restrict reinvestment to municipals selling at par or at premium to par, thereby circumventing the tax rules on discount bonds. If one can get the same YTM on a premium bond, the higher coupons do not generate a higher tax bill, as is the case with taxables. In this way, one may enjoy the entire tax loss with no taxes and no dilution of savings. But there are a couple of issues to be aware of.

Proponents of efficient market theory will be quick to point to out that if municipal market participants are equally informed and rational, then they will price into the market the relatively less desirable tax treatment of market-discount bonds. If this is the case, then tax swapping from a discount to a par bond should include a separate "tax"—a lower price for the discount bond relative to its "true price" based on yield, credit quality, maturity, and other material factors. When you sell your discounted bond, you may get less for the bond to compensate the next investor for the income taxes he or she will have to pay. The implication for investors is that one way or another, the tax rules do impose a tax on bonds falling into discount. Though difficult to prove decisively, many traders will tell you that the yields for many discount municipals are higher than their premium counterparts.

Bonds fall in price for two main reasons: rising interest rates or falling credit ratings. In times of very high interest rates, it will be difficult to find premium or par bonds in the secondary market, as most bonds will be falling into discount prices. This phenomenon is seen now in reverse: we have experienced a time of falling interest rates, so most bonds are now at premiums. During times of interest rate peaks, we will find most bonds in the secondary market selling at discounts to par. Ironically, the very market that provides the opportunity to harvest tax losses will also be eliminating available prospects with which to swap. Depending on supply, the primary market may be the best source for par bonds.

## Caveats

There are some caveats to this analysis. In each simulated scenario, the swapping occurs with identical bonds to eliminate other variables and isolate only the tax savings. In practice, you may want to change the maturity or coupon to comply with the IRS's wash-sale rule. But in the case of tax-gain harvesting, since you are not taking a loss, buying and selling the same investment may not necessarily trigger the wash-sale rule. You should consult a tax expert if in doubt.

In addition, the savings of each scenario amongdo not include an estimation of transaction costs. Actual transactions may include dealer mark-ups, markdowns, and commissions. Such costs vary widely. The spreads on Treasuries are generally very low due to their high demand and liquidity, often less than 0.25 percent of market value. Highly liquid corporate issues also may have low costs. Municipals and corporates without a high-volume market may have significant costs that could wipe out the savings of tax harvesting. Bid-ask spreads can be in the neighborhood of 2–7 percent for municipals, depending on a variety of factors including maturity, size of purchase, liquidity, and inventory. For brokerage-based advisors, the costs may be a source of additional income. For fee-only independents, high spreads should raise a red flag. One should consider the cost benefits of swapping in light of the losses incurred on the original investment. Some larger fee-only firms save on transaction costs by swapping *among* clients, thus avoiding the spreads. Note that this does not affect the tax consequences discussed earlier.

This study also assumes that long-term losses will offset long-term gains; this is generally the case, but not always. The option to offset up to \$3,000 of ordinary income or unlimited short-term gains will improve the success of tax-loss harvesting. This option is not available, however, when there are long-term gains elsewhere in the client's investments. Long-term losses must first offset long-term gains, followed by short-term gains, and then ordinary income. In addition, if losses occur within the first year, harvesting short-term losses may be more beneficial if there are short-term gains elsewhere in the portfolio.

Although this article focuses primarily on scenarios where bonds are held until maturity, the results are similar for bonds sold before maturity. But the length of time the bond is held is the most important determinant of success. If a bond investor is planning on selling a bond in five years that is due in ten years, he or she may consider this a five-year maturity bond with an uncertain redemption value. The result would be similar to the scenario with the five-year bond held to maturity, although the precise numbers cannot be predicted without knowing the future market price of the bond.

## The Coupon Effect

Table 4 summarizes the various tax treatments of premium and discount bonds and illustrates the advantages of paying attention to both the coupon and the accounting method. These are the main points:

- Premium municipal bonds have an after-tax edge over discount municipal bonds.
- Amortization raises the return of premium taxable bonds but lowers the return of discount taxable bonds.
- Under optimum accounting, discount taxable bonds have an after-tax edge over premium bonds.

TABLE 4

## Coupon Effects on After-Tax Yields

Bond	Price	YTM	Coupon	Accounting	Tax Treatment	After-Tax YTM
Treasury	Discount	10%	5%	Deferral	Ordinary	6.8%
	Discount	10%	5%	Amortization	Ordinary	6.5%
	Par	10%	10%	N/A		6.5%
	Premium	10%	15%	Amortization	Ordinary	6.5%
	Premium	10%	15%	Deferral	Capital Loss	5.9%
Municipal	Discount	10%	5%	Deferral	Ordinary	9.1%
	Discount	10%	5%	Amortization	Ordinary	8.7%
	Par	10%	10%	N/A		10.0%
	Premium	10%	15%	Any Method	N/A	10.0%

## Assumptions

- Ten-Year Bonds
- Semi-Annual Coupon Bonds
- Income Tax Rate 30%; Capital Gains Rate 15%
- Market Discounts and Market Premiums

## Summary

Broken down into its elements, the bond tax-swap functions by capitalizing on tax rate differentials and the time value of money. Tax-gain harvesting creates long-term tax savings by converting future income taxes into current capital gains taxes. So long as Congress maintains a more favorable capital gains tax rate, this technique should continue to provide tax benefits. Of course, it is very possible that sometime in the future, new tax law may render this strategy obsolete. For the moment, though, gain harvesting provides that rare gold nugget the financial professional seeks: the free lunch. Admittedly, it's a hard sell. It's not easy to explain to your clients why they are better off paying taxes earlier. Ideally, you've already won their confidence and they trust your judgment. If you're still earning this position, you may wish to show them the results of Table 1. Incidentally, the tax savings will be even higher if income tax rates rise in the near future, which many economists believe is inevitable.

If you have capital losses in your clients' bonds, spend some time considering the benefits and disadvantages of harvesting. With taxable debt, generally the swap will do more harm than good. The benefits of the loss will not outweigh the higher tax liability. If you are able to offset some ordinary income or short-term capital gains, on the other hand, your results may be positive. Keep in mind that a longer remaining time until maturity and very high interest rates will generally create a more favorable outcome. But you should be committed to deferring the extra taxes until the full maturity of the bond.

Before swapping municipal bonds, you may want to familiarize yourself with the tax laws and aggressively shop for the lowest spreads on bonds. If you swap one market-discount bond for another market discount bond, you will pay income taxes. For these transactions, narrow your consideration to the long-term bonds. If you buy at par or above, you may get a lower yield for a bond issue with similar characteristics. But if you can find a broker offering a fair yield, you can enhance returns for both long and short term bonds.

There is often a fair amount of press regarding tax-harvesting bonds in a rising-interest-rate environment. Contrary to popular opinion, this is not a simple strategy with a guaranteed payoff. Prudent investors and managers must conduct due diligence and analyze the many consequences of swapping bonds that have a fallen value. Freebies are so rare; this is a gift horse you must look squarely in the mouth. Tax-gain harvesting, on the other hand, deserves more attention. With interest rates and capital gain rates running at historical lows, now may be the best time in history to take action.

## Endnotes

1. Unless Ted has capital-loss carry-forwards, in which case his tax liability may be zero.
2. For gain-harvesting scenarios, there is an assumption of the reinvestment of pretax proceeds, which is consistent with the standard practice of loss harvesting. In other words, for gain harvesting, the investor

pays the initial tax from other cash or investments. For loss harvesting, the investor will have initial tax savings that are not used to buy more bonds. Rarely will an investor use post-tax proceeds for loss harvesting, as this implies buying more bonds in anticipation of the tax savings. In gain harvesting, if an investor desires to use post-tax proceeds, perhaps due to lack of funds to pay the initial tax, the same qualitative conclusions apply, although the quantitative savings are marginally reduced.

3. The \$50 difference in price and .04 percent difference in yield are negligible for this computation.
4. For premiums, one can defer and take a capital loss, though this will eliminate the savings.
5. For any bond bought after April 30, 1985, investors must amortize via the constant-yield-to-maturity method (CYM). For illustration purposes, the scenario with Ted used the straight-line method, as it is the simpler to illustrate. All scenarios in the tables use the CYM method. There is an additional option for discount bonds called the ratable method, but this article ignores this option, as it further reduces after-tax returns.
6. A fair discount rate is a matter of contention. This article uses the after-tax return on the same bond, which represents a yield available to the investor in that particular scenario, and one he is already earning.
7. YTM calculations include an inherent assumption that the coupon reinvestment yields will be at the same rate. While the actual future rates will likely be different, this fact is irrelevant to the calculation of the success of tax harvesting. Because the original bond and the new bond are essentially identical, the reinvestment yields are unchanged by the swap.
8. See Appendix.
9. Unfortunately, there is no convenient measurement for the breakpoint difference between tax rates that would determine the success of tax harvesting. The breakeven points change for each simulation based on several variables including yields, coupons, interest rate changes, and the tax rates themselves.
10. This article uses IRS Publication 550 as source material for the treatment of market discount bonds. There may be secondary sources that have not been updated to reflect current IRS guidelines.

## References

IRS Publication 550.

## Appendix

### Sample Calculations for Table 1, Row 1

The Net Tax Savings is the present value of the new cash flows from the swaps. The initial tax paid is initial cash outflow at time zero ( $CF_0$ ), and the subsequent tax savings are the cash inflows from each of next 20 years,  $CF_1 - CF_{20}$ . The initial capital gains tax paid is \$5,201, or 15 percent of the capital gain (\$134,672 - \$100,000). Future tax savings are amortized via the CYM amortization method, beginning with \$327 in year 1 and ending with \$1,005 in year 20. The discount rate for all calculations is the after-tax yield of the same bond, or in this case, 3.9 percent. Net Tax Savings as Percent of Market Value is (\$2,522/\$134,672). The IRR is computed by Excel worksheet function IRR, with initial outflow of -\$5,201, and subsequent inflows from \$327 to \$1,005.