By Gary Gastineau

# The Anatomy of Tax Efficiency

## Capital Gains Overhang

Few investors fully appreciate the significance of the tax efficiency that the exchange-traded fund (ETF) structure provides. Figure 1 offers an arresting comparison of the capital gains tax status of the Vanguard 500 Index Fund (Vanguard 500) and the Standard and Poor's Depository Receipts Trust ETF (SPDR), two funds tracking the S&P 500 Index that have existed for a number of years—over 12 years for the SPDR and over 25 years for the Vanguard 500. Both funds have had high rates of asset growth in a generally rising equity market. To make the comparisons as clear as possible, the relationships in Figure 1 are stated as percentages, with each fund's net assets set at 100 percent.

*Editor's Note:*
From the forthcoming book, *Someone Will Make Money on Your Funds – Why Not You? – A Better Way to Select Mutual and Exchange-Traded Funds,* John Wiley & Sons, available in September 2005.

The dates of the latest available annual reports for the two funds are different—September 30, 2004, for the SPDR and December 31, 2004, for the Vanguard 500. To make the tax positions comparable, I adjusted the relevant realized and unrealized loss figures for the SPDR forward to 12/31/04.[1] In making this adjustment, I assumed that the SPDR had no losses or gains during that quarter other than an increase in net assets and unrealized appreciation from the rising market in the final quarter of 2004. The appropriate columns for the capital gains overhang comparison, then, are the adjusted SPDR column for December 31, 2004, and the Vanguard 500 column for the same date. The striking difference between the funds is that the SPDR investor is protected from a capital gains distribution by unrealized losses while the Vanguard 500 shareholder eventually faces capital gains distributions if accumulated gains have to be realized.

**Figure 1**

Capital Gains Overhang/(Underhang), Vanguard 500 vs. SPDR

| Date of Fund Report | 9/30/2004 | Adjusted to 12/31/2004* | 12/31/2004 |
|---|---|---|---|
| Fund | SPDR | SPDR | Vanguard |
| Net Assets | 100.00% | 100.00% | 100.00% |
| Unrealized Gains (Losses) | (20.73%) | (11.04%) | 27.32% |
| Accumulated Net Realized Losses** | (7.29%) | (6.70%) | (4.17%) |

**Adjusted for appreciation in the S&P 500 from 9/30/2004 through 12/31/2004. This adjustment reduces realized and unrealized losses as a percent of adjusted net assets for the SPDR. The adjusted net assets for the SPDR as of 12/31/2004 would have been $49.7 billion.*

*** Realized losses in a fund may be carried forward for up to eight years.*

Vanguard's response to the vaunted tax efficiency of ETFs has been that conventional funds have the ability to realize losses in the fund to offset gains that might be realized on stocks sold at a profit. In fact, the accumulated net realized losses as a percent of the fund's projected 2004 year-end net asset value were greater in the SPDR (6.70 percent) than in the Vanguard 500 (4.17 percent). Vanguard also notes that mutual funds can redeem fund shares in kind, just as ETFs do. Vanguard did succeed in redeeming shares in-kind to "shelter" an impressive $372 million in capital gains during 2004. However, this amount pales in comparison to the $2.6 billion in unrealized gains that the much smaller SPDR "redeemed out" in its 2004 fiscal year.

The most important difference between the two funds is in the level of unrealized gains or losses. The Vanguard 500 had unrealized gains of 27.32 percent of net asset value on December 31, 2004, whereas the SPDR had 11.04 precent of net assets in unrealized losses after adjusting the September 30, 2004 portfolio forward to December 31, 2004. The SPDR's accumulated book losses provide a cushion against any possible capital gains distribution. To use standard terminology, the Vanguard 500 had a capital gains overhang of 23.16 percent at the end of 2004, while the SPDR had a capital loss overhang (or a capital gains "underhang") projected at 17.74 percent of net assets as of that date.[3]

Vanguard has done an excellent job of managing the Vanguard 500 to defer the realization and distribution of capital gains. They have been helped by a steady stream of new assets that has kept the average cost basis of the fund's holdings from falling too far behind a generally rising market. However, asset growth is not likely to be as dependable in the future for the Vanguard 500. Dollar inflows equal to the inflows the Vanguard 500 has experienced in the past will have a smaller impact as the fund grows. Moreover, the historic growth rate of the fund seems unsustainable at its current size and in an increasingly competitive fund environment. Fidelity's challenge to Vanguard with its 10 basis point expense ratios on S&P 500, Total (U.S.) Market and Extended Market mutual funds will draw tax-deferred accounts away from the Vanguard 500, as some 401(k) providers replace Vanguard index mutual funds with lower fee Fidelity funds. Furthermore, the clear long-term tax advantages of the two available S&P 500 ETFs (the SPDR and the iShares S&P 500 Index Fund)[2] seem likely to reduce the Vanguard 500's growth rate by attracting taxable investors to ETFs. In its fiscal 2004, for example, the SPDR added a net $5.3 billion in assets from shares purchased, compared to the Vanguard 500's net purchases of $4.7 billion for calendar 2004. The increase in SPDR net assets in the fourth calendar quarter of 2004 suggests that the SPDR took in an additional $5 billion to $6 billion in that quarter alone. The Vanguard 500 is a much larger fund, making the recent growth rate in the SPDR even more significant. Vanguard responded to the Fidelity and ETF challenges by sharply reducing the expense ratios on its broad market VIPERs ETF share classes. These fee cuts will also tend to cannibalize the Vanguard 500. I discuss the effect of this price competition in the last section of this column.

The Vanguard 500's use of the S&P 500 as a benchmark index may increase the fund's vulnerability. A few investors may respond to my argument that the S&P 500 is an inefficient, overused index,[4] and may choose funds based on more efficient index templates. When merger and acquisition activity in the United States brings turnover in the S&P 500 back to historic levels in rising markets, capital gains distributions in the 500 fund will be even harder for Vanguard to avoid.[5]

SPDR shareholders need not worry that their fund will accumulate meaningful unrealized gains. In-kind redemption opportunities are plentiful for the SPDR. Even with the fund's strong growth in net assets, SPDR redemptions in fiscal 2004 were equal to about half of end-of-year net assets.

It is not appropriate to extrapolate the relative security of SPDR shareholders from capital gains distributions to all ETFs. The SPDR has been very actively traded, and the rate of SPDR redemptions relative to fund size has been higher than the rate experienced by most other ETFs. Nonetheless, it is clear that there is a substantially greater likelihood of a capital gains distribution in most conventional funds than in comparable ETFs. Dependable long-term capital gains tax deferral in taxable accounts is much more likely if you own equity ETFs than if you own conventional equity funds.

As Figure 1 suggests, a mature ETF can grow in tax efficiency over time. This point is important enough to merit at least a brief discussion. When fund assets are growing in a generally rising market and changes in portfolio composition are modest, avoiding capital gains distributions is easy for both ETFs and traditional mutual funds. If growth stops, however, or if the fund faces net redemptions (as most funds do at some time in their life cycle), avoiding capital gains distributions is much easier for ETFs.

An ETF's lowest cost tax lots in each of the securities it holds are the first positions delivered to redeeming shareholders. Securities that can be sold at a loss are sold inside the fund with losses to be offset against possible gains. The fund's average tax basis on remaining portfolio securities rises as fund assets decline. In the case of the SPDR, net redemptions would increase realized and unrealized losses as a percent of assets under most scenarios. The opposite is usually true of mutual funds. The portfolio and tax management processes in a conventional fund are likely to become more and more constrained over time as low cost basis positions reduce the portfolio manager's flexibility. Rising stock prices, significant portfolio changes and periods of net fund share redemptions are likely to lead to substantial capital gains distributions in a conventional mutual fund.

Neither the SPDR nor the Vanguard 500 is likely to distribute capital gains in 2005 or 2006. However, any investor looking for tax efficiency beyond, say, 2010 will find the SPDR to be the obvious choice of the pair. The Vanguard 500's first capital gains distribution after a number of "tax-efficient" years will highlight that fund's tax vulnerability, as taxable investors look at what will eventually be a formidable capital gains overhang.[6]

Any investor who is concerned about tax efficiency should look carefully at a fund's capital gains overhang.

Capital gains overhang is far more useful than the SEC after-tax return calculation in predicting a fund's long-term tax efficiency. A conventional mutual fund with accumulated capital losses may have some significant portfolio management shortcomings, but "book" losses at an ETF usually reflect appropriate tax management. Capital gains overhang (or underhang) is easy enough to calculate from a fund's financial statements, but it is not emphasized by fund advisory services.[7]

**Price Competition**

In March 2005, Vanguard made a dramatic change in its ETF pricing strategy. In response to Fidelity's decision to become the low-cost provider of conventional mutual funds tracking broad market indexes, and in recognition that the Vanguard VIPERs structure was not attracting taxable investors in large numbers, Vanguard apparently decided to become the low-cost provider of broad market index ETF share classes. The VIPERs now have expense ratios at least as low as the expense ratios of any comparable ETF or conventional fund share class. Since there is not—and probably never will be—an ETF share class of the Vanguard 500, this move will not make that fund any more attractive to taxable investors. In fact, all this price-cutting is likely to sharply reduce new share sales of the Vanguard 500. The effect on ETF cash flows will also be interesting to watch.

In an earlier evaluation of the VIPERs, I argued that a small ETF share class of a fund dominated by conventional mutual fund shares is unlikely to do much to make the overall fund more tax efficient. In this journal (Q1, 2004),[8] I pointed out that any tax benefits of the ETF share redemption process are shared proportionately by all Vanguard fund share classes. If the ETF share class is inconsequential, the key ETF advantages of shareholder protection and tax efficiency will not be available to either conventional or ETF shareholders in these hybrid funds.

My argument was based on the fact that the VIPERs structure offered little or no incentive to taxable investors to favor the hybrid VIPERs over pure ETFs. Growth in these share classes to date charitably can be characterized as "modest." Vanguard's new ETF share class pricing policy will change my conclusion for some of the Vanguard funds. One thing has definitely changed: Some of the VIPERs will appeal to tax-deferred accounts, like 401(k)s and IRAs, on the basis of their low expense ratios.[9] I still believe that most taxable investors should be cautious, but investors with tax-deferred portfolios should compare the total costs of buying and holding VIPERs with the economics of competitive ETFs and conventional funds. The fee-saving possibilities from choosing a VIPER product over the best alternative range from zero to as much as 45 basis points, depending on how one defines a comparable fund. A 10-basis-point expense reduction on a $100,000 fund position is worth $100 per year, but this is simply an illustrative cost calculation to put possible savings in perspective. The economics of choosing a VIPER product versus an alternative fund or share class vary greatly across the fund spectrum and involve more than just an annual fee comparison.

Vanguard has used some aggressive cost accounting in setting the new VIPERs expense ratios. Admiral Shares cost Vanguard about the same amount to support as VIPERs. Most of the new VIPERs expense ratios are very close to comparable Admiral Share expense ratios, reflecting this cost comparability. However, the Large Cap Index Admiral Shares have an expense ratio of 12 basis points versus seven basis points for the VIPERs version under Vanguard's new fee schedule. Similarly, the Extended Market Index Admiral Shares have an expense ratio of 15 basis points versus just eight basis points for the VIPERs shares. While these discrepancies may reflect an effort by Vanguard to encourage holders of Admiral Shares to convert to VIPERs, a reduction in Admiral Shares expense ratios to match the VIPERs seems both appropriate and likely in the relatively near future. Even if expense ratios for the Admiral Shares are more than a basis point or two above the VIPERs, there seems to be no reason to make a change unless the fee difference seems likely to persist for a long period (highly unlikely) and an investor has no plans to sell the shares for at least several years. Admiral Shares can be sold at net asset value, whereas a seller of the VIPERs will pay some transaction costs.

Large holders of Investor Shares in Vanguard's index funds who plan to hold their positions for a number of years might reduce their annual costs by paying Vanguard's $50 conversion fee to exchange their conventional shares for VIPERs.[10] These new VIPERs shareholders are unlikely to improve a fund's tax efficiency, however, because one premise behind the conversion is the absence of an intention to redeem the shares anytime soon. Anyone who plans to be a seller/redeemer over the next few years should stay in the conventional Investor Shares.

Major increases in VIPERs shares outstanding will have to come from new investors. The question then becomes: How do VIPERs look to new investors now, relative to other funds? There are three issues to consider:

- Permanence of the fee reductions
- Expected fund performance and
- Tax efficiency.

Fidelity's late 2004 expense ratio cuts originally led to concern over the permanence of the fee reductions. Fidelity responded by making most of the cuts "permanent." A few of the recently lowered VIPERs fees might rise slightly if the VIPERs do not attract substantial new assets, but any increase is likely to be small. Investors can safely assume that these fee cuts will be permanent, too.[11]

From the perspective of performance, Vanguard has generally done a better job of managing index funds for retail investors than its ETF competitors.[12] Vanguard also generally uses more efficient indexes than its competitors. The MSCI indexes that Vanguard uses for the VIPERs have a slightly larger cap bias than the offerings of some other index publishers, so comparing performance will not be easy in future years. One result of Vanguard's adoption of the MSCI indexes will be to reduce its relative portfolio management, trading and even printing costs, because most of its funds will hold fewer stock positions with larger average capitalizations than most funds that use Dow Jones or Russell indexes. An exception to this pattern will be sector VIPERs which hold more positions in small cap stocks than other sector funds and which will continue to have a hard time competing with the Sector SPDRs.[13] Investors and their advisors should understand the likely effect of this capitalization bias on performance and focus on tracking error as the best measure of a fund manager's performance. On balance, tax-deferred accounts that can hold ETFs will probably choose broad market index VIPERs over other broad market ETFs or conventional funds.

Taxable investors will probably want to proceed with caution until the VIPERs share classes hold a substantial fraction of the Vanguard index funds' assets. For investors who cannot wait, the Total Stock Market VIPERs and, to a lesser extent, the Extended Market VIPERs offer the best prospects for asset growth, ETF share class dominance—and corresponding tax efficiency.

## Endnotes

1 The adjustment does not incorporate new money invested in the SPDR in the last quarter of 2004 or the effect of redemptions during that quarter.

2 The iShares S&P 500 Fund's most recent annual report when this was written was dated 3/31/2004, making such an adjustment to calendar year-end 2004 tenuous for that relatively younger fund. The iShares annual report also does not include some of the supplementary data available for the SPDR and the Vanguard 500. As a result, the fund was not included in the analysis.

3 Morningstar reports a figure that it calls "Potential Capital Gains Exposure" as a secondary measure of tax exposure under the "Tax Analysis" tab of its basic fund reports, accessible by entering the fund's ticker symbol into the Morningstar Web site and clicking on "Quotes/Reports." This figure is defined as "the percentage of a fund's total assets that would be subject to taxation if the fund were to liquidate today." This is identical to the definition of "Capital Gains Overhang." In the third quarter of 2004, Morningstar reported this as "0" as of the 12/31/03 statement for the Vanguard 500 Investor Shares and Admiral Shares, in contrast to the correct figure of 17.76 percent. Email messages pointing out this error did not persuade Morningstar to make an appropriate correction. In February 2005, before the data was updated for the 12/31/04 Vanguard annual report, Morningstar showed the Vanguard 500's Potential Capital Gains Exposure as three percent. In March, after updating for Vanguard's 12/31/04 annual report, Morningstar reported potential capital gains exposure as four percent for the Vanguard 500. At press time, the error remains.

4 See Gastineau (2002).

5 Cross border mergers, which seem more likely in the future than in the past, could also increase S&P 500 turnover.

6 Barclay, Pearson and Weisbach (1998) offer evidence that fund managers intentionally realize and distribute some capital gains to avoid a capital gains overhang that will exceed 30–40 percent and discourage new investment by taxable investors. The Vanguard 500 could support a higher capital gains overhang than 30 – 40 percent, at least temporarily. In contrast to the estimates by Barclay, Pearson and Weisbach, Vanguard will probably attempt to defer capital gains distributions for as long as possible.

7 See Note 3 with respect to Morningstar's tax evaluation. Lipper's tax efficiency ratings are also based on the SEC after-tax return calculation. See Lipper (2002).

8 See Gastineau (2004a).

9 Few 401(k) accounts can use ETFs shares today, but that is changing and will continue to change gradually over time.

10 This conversion can go only one way. You cannot convert back to conventional shares. The prospectus indicates that the conversion is not taxable except for any sale of fractional shares which cannot be converted to VIPERs.

11 The only candidates for a fee increase are the funds with higher fees for Admiral Shares. Vanguard's intentions on Admiral Shares fees should be clear within a few months.

12 I would expect the Fidelity index funds to be managed about as well as Vanguard's.

13 See Gastineau (2004b).

## Bibliography


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