Reporting After-Tax Performance
It’s What’s Left after Taxes That Counts

By Lee N. Price, PhD, CFA

For taxable clients—whether they’re corporations, nuclear decommissioning trusts, mutual funds, or individuals—true investment performance can be measured only after deducting the taxes eventually paid as a result of their managers’ investment decisions. Many investment advisors and mutual funds claim to be “tax aware,” but the proof is in the comparisons of pretax and after-tax results for the same portfolios. In 1994, the Association for Investment Management and Research (AIMR, now the CFA Institute) highlighted this issue by forming a subcommittee to develop presentation standards for after-tax performance. AIMR revisited the standards in 2003, before after-tax standards were included in the Global Investment Performance Standards (GIPS); after-tax standards are being updated again by the U.S. Investment Performance Committee (USIPC), effective January 1, 2011.¹ In 2000, the Securities and Exchange Commission (SEC) began requiring all mutual funds to report both pretax and after-tax performance. Fortunately, the SEC consulted the AIMR investment user group and adopted similar calculation conventions. Unfortunately, investment advisors—lacking an SEC directive—have been slow to follow suit. Investment consultants can better serve taxable clients by understanding required calculations, applying appropriate tax rates, creating after-tax composites with attendant disclosures, and using available software solutions.

Required Calculations
Three CFA Institute subcommittees and the SEC have agreed that investment performance after taxes can best be reported by allocating taxes to any taxable event in a portfolio at the time it occurs, regardless of when the tax eventually will be paid. This “realized” or “pre-liquidation” basis maximizes both the knowledge of tax implications to the ultimate client and properly incentivizes the manager to consider clients’ appropriate tax rates when making investment decisions, e.g., owning corporate bonds vs. municipals, a high-yield stock vs. one with a lower dividend but greater growth potential, and most importantly selling a security with a significant short-term capital gain. Given the variation of tax rates across clients and over time, such decisions will not be one-size-fits-all. A manager must consider the details of each portfolio’s tax situation. The SEC, faced with a need to adequately compare mutual funds with initial fees vs. those with exit fees, also requires such funds to calculate after-tax performance on a “post-liquidation” basis (e.g., after implicitly selling all securities at current market prices), but this results in penalizing manager performance for capital gains, even when well-performing stocks have not been sold. Post-liquidation performance, besides yielding an overly conservative result, cannot readily be linked across different time periods, and thus is not required or even recommended by the USIPC.

The required after-tax calculation can be accomplished via adjustments to either the modified Dietz model (commonly used by investment advisors) or the modified BAI model (commonly used by mutual funds and banks). The “modified” in both cases refers to a method to adjust for cash flows into or out of the portfolio on a daily-weighted basis and is the same for both pretax and after-tax performance. In both the Dietz and BAI models, the investment gain or loss in any given period is adjusted for all of the taxes applicable to events within that period. This requires the separate summation of corporate interest, Treasury interest, in-state municipal bond interest, out-of-state municipal bond interest, dividends, and short-term and long-term capital gains. During some periods, investors also have experienced an intermediate-term capital-gain rate or a different rate for qualified vs. nonqualified dividends.

The basic Dietz equation is:

\[
\text{After-tax Performance} = \frac{\text{End Value} - \text{Start Value} - \text{Cash Flows} - \text{Tax Burden}}{\text{Start Value} + \text{Daily-Weighted Cash Flows}}
\]

where: tax burden = the sum of all investment income times its appropriate tax rate, e.g., sum of dividend income times dividend tax rate plus sum of LT capital gains times LT capital gain tax rate, etc.²

Three other calculations were considered by the various user committees and rejected as too approximate and unverifiable. They are:

Cash basis. This calculation uses the client’s actual tax bill to determine the tax adjustment. It was judged unreliable because the tax bill likely would be affected by multiple events not within the control of the manager.

Estimated turnover. This calculation uses an estimated security-holding period and applies taxes to the estimated turnover percentage of total available gains. It was judged unreliable because the manager would have no

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As in the case of pretax composites, managers may opt to remove certain portfolios that experience large cash flows or otherwise become temporarily nondiscretionary. In addition to these GIPS requirements, a manager must decide how to allocate various taxable portfolios to composites. This can be a bit more complicated than in the case of the pretax composites. For example, in addition to selecting accounts according to asset class or risk level, after-tax portfolios may be selected according to client type (because different tax rates apply to different client types), according to high or low tax-rate states (if state taxes are being included), and even according to vintage year (because a higher proportion of capital gains is likely to be realized in older portfolios that have a higher level of embedded unrealized gains). All these segmentations are not required and may not make sense for a manager with a relatively small number of taxable portfolios, but they offer additional flexibility to the manager. As in the case of pretax composites, managers may opt to remove certain portfolios that experience large cash flows or otherwise become temporarily nondiscretionary. In addition, if a manager is directed by the client to take capital gains or to sell securities to accommodate a significant cash withdrawal, the guidelines allow for an adjustment to this portfolio’s performance (and its composite) to reduce the tax impact of such nondiscretionary withdrawals.

In addition to the normal disclosures required by GIPS (number of portfolios, asset size, the standard deviation across portfolios in the composite, etc.), reports of after-tax composites must also disclose the calculation method (Dietz or BAI), the tax method (maximum federal or anticipated and whether state taxes are included), the weighted average ordinary income tax rate, and the weighted average percentage of unrealized gains at the start of each period. Importantly each after-tax composite presentation must reference a pretax composite formed from the same portfolios so that the prospective client can compare directly the average tax impact on performance.

Incentive to sell high-cost lots first or take losses instead of gains.

True economic value. This calculation uses a method to include estimates of the future tax on embedded but unrealized capital gains, thereby providing a more conservative measure of total taxes. It was judged unreliable because the manager has too much flexibility in forecasting the future holding period, expected future return, and the eventual tax rate to be applied.3

The pre-liquidation calculation required by both the USIPC and the SEC requires no estimates other than the client’s current tax rate.

What Tax Rate to Use

After-tax calculations for corporations, nuclear decommissioning trusts (qualified or nonqualified), and mutual funds are quite straightforward because federal and state tax rates on investment income for such entities are relatively fixed, other than for very low-income corporations. Individuals, on the other hand, are subject to a sliding scale of tax rates, at least on ordinary income. This has given rise to two allowable methods for assigning tax rates to such portfolios. The first, using the maximum federal rates (or federal and state rates) for individuals, has the advantage of consistency across all managers and is also in keeping with the SEC treatment of mutual funds. The second, using an individual’s “anticipated tax rate,” has the advantage of being specific to that individual and of providing guidance to a fixed income manager, in particular, in his choice of investing in municipal bonds vs. Treasuries for that portfolio.4

All three CFA Institute user groups recognized these conflicting advantages and have allowed either method. However, whereas the second committee recommended using anticipated rates, the third committee is leaning toward maximum federal rates because that appears to be the method that practitioners use most often.

Calculating and Reporting Composites

The original AIMR Performance Presentation Standards, GIPS, and the USIPC focused on standardizing best practices for reporting manager performance. The goal was to make such reports truly representative and to discourage misleading practices such as cherry-picking portfolios, periods of time, or types of investments when presenting to consultants or prospective clients. There was and is no requirement that a manager create an after-tax composite for marketing purposes. The manager can simply compute after-tax performance for clients who wish to see it and, by following the USIPC After-Tax Guidelines, can claim that such performance was “calculated in accordance with the USIPC After-Tax Guidelines.” However, a manager who does decide to create one or more after-tax composites should follow all GIPS standards with regard to assuring that every tax-aware portfolio is in at least one composite (or can be demonstrably judged to be “nondiscretionary”), that the composite performance consists of the asset-weighted performance of all portfolios in the composite, and that composite performance is presented for the appropriate periods with all of the required disclosures.
Software Solutions
Several issues may have reduced the implementation rate of after-tax performance reporting by investment managers, whether they are investment advisors, banks, hedge funds, or brokers. For one, calculating after-tax performance requires a higher level of information than calculating pretax performance. Both require accurate holdings valuation and treatment of cash flows, but after-tax performance requires the manager to know the tax lots of each security, and the cost and purchase date when each is sold. The manager also must know the client’s state for tax purposes to include state taxes, have a system to separate taxable income into the various categories of Treasury interest, corporate interest, in-state and out-of-state municipal bond interest, qualified and nonqualified dividends, etc., and have a database of tax rates for each type of entity in order to apply either the federal (and possibly state) maximum or client-specific anticipated tax rates to the appropriate portfolios. Fortunately, a number of software providers have created software to track all this information. Unfortunately, most such vendors require that managers use the entire proprietary portfolio accounting system to take advantage of these capabilities. A few software providers offer Web-based software with interfaces to some of the major portfolio accounting systems such as Advent AXYS, Schwab Centerpiece, or CheckFree Security APL so that users of those systems can calculate after-tax performance without having to re-enter all the transactions of each portfolio. Such interfaces, however, add more steps to the monthly or quarterly performance reporting process.

The fact that after-tax performance almost always will be lower than pretax performance has a chilling effect on investment managers’ desire to advertise such composite results. However, USIPC After-Tax Guidelines allow for all losses to be credited immediately, even beyond the federal $3,000/year maximum, on the assumption that clients are likely to have more than one manager and that a manager should be given credit for taking losses, even if the client must wait a year to actually use them to reduce taxes. In this way it’s quite possible for after-tax performance to be higher than pretax. This was particularly true in 2003 when losses taken before May 6 received the benefit of a higher implied capital gain tax rate while long-term gains taken after that date were taxed at the new lower rate.

A final issue has been the lack of standardized after-tax benchmarks for the major market indexes. Although CFA Institute user committees have approached the major vendors—Standard & Poors, MSCI, Dow Jones, Russell—in the hope that they would undertake this project, it has not happened. In the past, performing the detailed calculations on each security in an index was an exhausting exercise. Using a proxy such as a popular index fund invested in the index was easier but created the potential of higher realized capital gains in any given year due to embedded capital gains in the fund. However, the relatively recent advent of index exchange-traded funds (ETFs) has simplified the process. Such ETFs pay dividends and segment the portions to be treated as qualified dividends, short-term capital gains, or long-term capital gains like any other security or closed-end mutual fund. So managers can compute their own individual indexes, even using clients’ tax rates, at least as far back as such ETF data exists.

Although the above ETF approach also can be used as an approximation for individual portfolio benchmarks, a more accurate method would be to account for the actual cost basis within the benchmark since the amount of capital gains realized in any given percentage of turnover within the benchmark will be dependent on its purchase cost. This can be approximated by the use of vintage year and even more precisely by the use of a customized shadow portfolio that replicates all of the individual portfolio cash flows and thus correctly reflects how they would have been invested in the benchmark rather than under the manager’s direction.

Summary
Many practitioners have studied and contributed to a standardized method of computing after-tax performance. Software solutions exist to simplify the ability of a manager to compute such performance for either individual clients or to create composites for purposes of attracting new tax-aware clients. The comparability issue is minimized via the use of maximum federal and state tax rates, and the benchmark problem has been minimized by the advent of index ETFs. It would be a tremendous service to the taxable investment community if consultants and managers were to make the effort to report results that reflect the impact of taxes. The SEC has required this after-tax reporting of all mutual funds. Now it is the buy-side’s opportunity to voluntarily undertake the same best practice.

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Endnotes
1 These three committees or “user-groups” included representation from investment advisors, consultants, software service providers, verifiers, and academics. The author chaired the first; Douglas Rogers chaired the second, and Jennifer Cahill chaired the third.
2 The equivalent BAI method requires the iterative solution for pretax return \( r \) of the equation below:

\[
0 = \text{Start Value} + \sum_{t=1}^{n} \frac{\text{CashFlow}_i}{(1 + r)^t} - \frac{\text{End Value}}{(1 + r)^n}
\]
Where $i$ is the time (percentage of period) of the $i$th cash flow and $N$ is the total time at the end of the $N$th period. The tax burden used to compute after-tax performance by the BAI method is the same. Both methods are approximations of the true time-weighted return since the only valuations used are the Start Value and End Value and performance is assumed to be constant within the period.

The calculation of true time-weighted performance would require revaluation at the time of each cash flow, perhaps daily, and then solving the equation:

$$\text{After-tax Performance} = \sum_{i=1}^{N} \frac{\text{End of Day Value}_i}{\text{Start of Day Value}_i} - 1$$

Where the End and Start of Day Values for each day I have been adjusted for cash flows and taxes occurring that day.


5 The calculation of this adjustment is beyond the scope of this article but is presented in Lee N. Price, Maximizing and Reporting a Portfolio’s After-Tax Performance, *Trusts & Estates* 136, no. 3 (February 1997): 55–59.

6 AXYS is a trademark of Advent Corporation. Centerpiece is a trademark of Charles Schwab, Inc.


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