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Methodology for Computing After-Tax Returns

Parametric reports both pre- and after-tax returns for our portfolios and their benchmarks. This document describes our performance-reporting methodology, which is consistent with the prevailing industry methodology for after-tax performance calculations.

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Pretax performance

Portfolios

Parametric calculates pretax performance for a portfolio using a standard time-weighted total return methodology. We compute returns daily and link them geometrically to arrive at monthly total returns. Each asset flow (contribution or withdrawal) is thus weighted by the amount of time invested. This fairly compares the performance of the portfolio to its benchmark when there are asset flows.

Benchmarks

Parametric obtains pretax total returns for standard benchmarks from MSCI, Research Affiliates, Russell, Standard & Poor's, and Bloomberg. For nonconventional benchmarks with unpublished returns, we maintain the benchmarks as portfolios in internal systems and update them for regular corporate actions and M&A activities when appropriate. We compute pretax total returns for the benchmarks as we do for portfolios, using the daily linked time-weighted method.

After-tax performance

Portfolios

For after-tax performance reporting, we use a method consistent with the requirements outlined by the United States Investment Performance Committee, the prevailing industry methodology for after-tax performance calculations. These report "preliquidation" returns—taxes are computed only on transactions that create taxable events, and a future tax liability may still exist when there's an unrealized gain position.

The after-tax return is calculated as follows:

$$\frac{\textit{Preliquidation}}{\textit{After-Tax Return}} = \frac{\textit{Pretax}}{\textit{Return}} - \frac{\textit{Realized Taxes}}{\textit{Weighted Market Value}}$$

In this expression,

$$\textit{Weighted Market Value} = \textit{Start Value} + \textit{Sum of Day} - \textit{Weighted Asset Flows}$$

$$\textit{Realized Taxes} = (\textit{Realized Gains} \times \textit{Capital Gains Tax Rate}) + (\textit{Dividend Income} \times \textit{Dividend Tax Rate})$$

For the anticipated tax rate, we apply the maximum federal tax rates in effect at the time.¹ If investors or their advisors request otherwise, we apply the rates they specify.

¹ As of March 2019 the highest rates are 40.8% on net short-term realized capital gains and 23.8% on long-term capital gains and qualified dividend income, which includes 3.8% for investment income tax.

Benchmarks

After-tax benchmark performance computation is more complex than pretax and requires some approximations. We employ the concept of a “shadow benchmark,” which approximates the investor’s return from an investment in a passive vehicle such as a passive mutual fund or an exchange-traded fund indexed to the target benchmark. It shadows the investor’s actual investment flows, market value, tax rates, and taxes generated by the investment over time. With these we can calculate after-tax performance in the same manner that we do for portfolios.

Since each account may experience different taxable events, a unique shadow benchmark is maintained for each account. It models the evolution of a single-security investment but distinguishes between short-term and long-term tax lots. We model 13 tax lots—12 short-term (up to one year) and one long-term (over one year). The following sections describe how we compute the shadow benchmark’s capital gains and dividends.

Initial cost basis and market value of the shadow benchmark

At account inception we assign the shadow benchmark the same market value and cost basis as the actual portfolio. For a portfolio incepted from cash, the shadow benchmark’s cost basis and market value will be the same and will equal the inception cash amount. For a portfolio incepted with in-kind securities, the shadow benchmark is assigned the same cost basis and market value as these securities.² The initial portfolio is then rebalanced to its designated benchmark and in doing so may incur capital gains and losses.

Initial transition of in-kind securities in the shadow benchmark

When a portfolio is incepted with in-kind securities, gains may be realized to transition the assets to the selected benchmark. In many cases we transition the assets over time. This has the effect of reducing the initial tax cost but results in higher tracking error to the benchmark. Upon inception the shadow benchmark will experience the same gains and losses incurred by the portfolio. However, by construction it will show zero tracking error to the benchmark. This is a conservative approach because, while both the portfolio and shadow benchmark show the same tax cost, upon the initial transition trade the portfolio will show a higher tracking error to the benchmark compared with the shadow benchmark.

Ongoing simulation of the shadow benchmark

We update the cost basis and market value of each tax lot each month using the following steps:

1. We calculate a new market value for the shadow benchmark based on the pretax price return of the benchmark.
2. We realize capital gains in the shadow benchmark based on turnover estimates for the actual benchmark.
3. We advance the age of each tax lot by one month after adjustment of the cost basis and market value due to asset flows.
4. We create a new tax lot to account for the reinvestment of after-tax dividends and sale proceeds.

² This reflects the cost basis of the initial in-kind portfolio prior to Parametric’s rebalance to a benchmark-optimized portfolio.

Ongoing asset flows in the shadow benchmark

When the account experiences an asset flow (contribution, redemption, transfer of securities in or out of the portfolio), a similar flow is applied to the shadow benchmark. Cash flows and security flows are treated differently.

When the account experiences a cash flow, the cost basis and market value of the simulated benchmark are adjusted by the value of the cash contribution or redemption. In the case of a cash contribution, we increase the market value and cost basis of the current month's tax lot. In the case of cash redemption, a pro rata sell of the shadow benchmark's tax lots is assumed. As a result, the simulated benchmark realizes gains proportionately across the lots as a percentage of the redemption.

Security inflows and outflows are also treated differently. For security inflows we assign the cost basis and market value to the existing simulated tax lots. We model the security outflow as a combination of a cash redemption and a cost-basis adjustment. When an asset is transferred out of the portfolio, the shadow benchmark will experience a pro rata redemption that matches the market value of the asset flow. The redemption results in the appropriate change in market value and any tax liability associated with the pro rata liquidation of securities. To reflect the cost basis or unrealized gain transferred out of the portfolio, we reduce the amount of the unrealized gain (by increasing the cost basis) in the shadow benchmark by the amount of gains transferred out of the portfolio. This has the effect of decreasing the embedded tax liability of the shadow benchmark by the same amount that's decreased in the portfolio. This approach captures the positive benefit of deferring taxes on the initial transfer without penalizing the after-tax return of the benchmark in the future.

Often a portfolio rebalance is required when securities are transferred into or out of the portfolio. Upon rebalance, gains or losses may be realized in the portfolio. If net gains are realized, the cost basis and returns of the shadow benchmark are adjusted to reflect this.³

³ An in-kind transfer of securities into an existing portfolio typically requires a rebalance to the target benchmark. We assume the investor transfers in securities that have appreciated over time and therefore any gains realized during the rebalance are due to the addition of the highly appreciated securities. Similar to the treatment of the inception of an in-kind security account, gains realized upon rebalance in the portfolio are also applied to the shadow benchmark.

About

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