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Prerna Mathews,
Vice President,
ETF Product and Strategy

Excess return and tracking error

Active strategies are designed to outperform their respective benchmarks over the long run and use metrics such as Alpha, Sharpe ratio and information ratio to measure success. In contrast, index strategies are measured on how closely they track their underlying index using measures such as tracking difference and tracking error.

Excess return, also known as tracking difference, measures a product's performance versus its index over a stated period. It is calculated as a fund's NAV total return minus the index total return. Since a fund's NAV total return includes fund expenses, excess return is usually negative for index funds.

Tracking error measures the consistency of a product's excess return over the same period. This represents the annualized standard deviation of excess return for a stated period. This measure is used to assess the amount of variability in the fund's average excess return.

Excess return and tracking error can be valuable tools when measuring the performance of an index ETF. But what do these terms mean and how can they help you to make better investment choices?

Examining performance criteria in index investing

Tracking difference

Tracking difference measures the performance rather than the variability of the performance over time.

Majority of ETFs aim to track an index, trying to deliver the same returns. Thus, the tracking difference is the discrepency between the ETF and index respective performance.

Tracking difference is rarely nil as there are a number of factors preventing it from perfectly mimicking the index.

Tracking error

Tracking error measures variability rather than performance.

It is the annualized standard deviation of daily return differences between the total return performance of the fund and its index.

Overall, tracking error looks at the volatility in the difference of performance between the fund and its index.

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If the primary focus is on total return, then tracking difference is more important than tracking error in assessing ETFs. If performance consistency is an important consideration, then tracking error may be more relevant.

While index ETF portfolio managers attempt to match the index's performance as closely as possible, the tracking difference is rarely flat. There are several factors that can mean an ETF doesn't perfectly copy the performance of its index, including:

- **Fees:** Management expense ratios can be the best measure of future excess return (or tracking) differences. Even the lowest management fee can contribute to tracking difference.
- **Rebalancing and trading costs:** The trading costs associated with rebalancing exposures within an index ETF affects the excess return and tracking error of an ETF. Trading costs can vary across different markets and types of securities – some are more expensive than others. The timing of rebalancing trades made by the portfolio manager may also contribute to tracking error. Raising cash for distributions from the ETF can further contribute to trading costs.
- **Diversification rules:** For example, in the US, ETFs cannot hold more than 25% of a single stock, which can make it impossible to truly replicate certain indices.
- **Degree of replication:** Sometimes it may not be practical to invest in all securities within an index. Portfolio managers regularly consider the trade-offs between trade costs and the performance contribution of investing in all securities within the index.
- **Cash flow management:** An ETF's performance may be affected by cash. An ETF may receive dividends and/or coupons, which may or may not be reinvested immediately. There may also be residual cash as part of creation or redemption activity that occurs in the ETF.
- **Pricing and withholding tax differences:** There can be differences between the timing of spot rates and FX rates in an index versus in the ETF. There are also differences in withholding taxes rates used in the index versus the rates impacting the ETF.
- **Securities lending:** Some ETFs can lend securities to borrowers, who pay interest in return. This can create additional revenue for the ETF, ultimately reducing the costs within the ETF and improving tracking difference.

Comparisons among ETFs and the indexes they track can be problematic because of differences in indexing methodologies and data calculation approaches across various ETF providers and index providers.

- Using NAV pricing vs. market pricing of ETFs
- Fair value pricing of securities when foreign markets are closed
- Timing differences on exchange rates
- Closing prices using last recorded trade versus a midpoint between market bid and ask

Excess return and tracking error data should be evaluated over longer time periods. Data comparisons over shorter timer periods can be a challenge due to differences in index construction and data calculations that can exhibit more variant behavior in the short-term.

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