

# Tracking Error in Equity Portfolios: What does it mean?

One important metric that Meeder follows in its equity portfolio management process is tracking error. The equity portion of Meeder accounts are allocated with this objective in mind, usually to jointly minimize tracking error and net capital gains. Depending on the strategy selected by the client, Meeder may pair these two objectives with additional client-directed overlays such as investment income, product involvement screening, company exclusions, tilts, or any combination of these.

## WHAT IS TRACKING ERROR?

In plain English, tracking error can be defined as how closely an investment portfolio's value replicates its benchmark over time. A high tracking error means that a portfolio moves very differently than its benchmark. A zero tracking error means that the portfolio moves exactly the same as the benchmark, holding the same securities at the same weights. Tracking error is a risk metric that communicates the likelihood that a portfolio's return will be different than its benchmark.

Tracking error is usually quoted in annual percentage terms and is the standard deviation of a portfolio's active returns versus its benchmark. Active return is the difference between annual return of the portfolio and the benchmark. The table below shows a simple example of how to calculate tracking error.

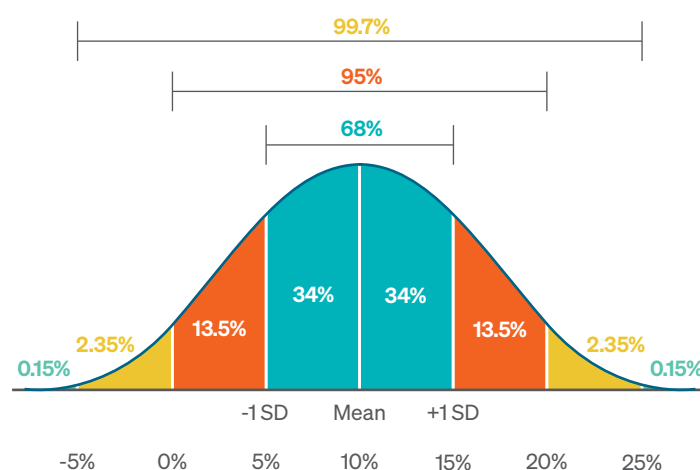
### TRACKING ERROR: SIMPLE EXAMPLE

PERIOD	BENCHMARK RETURN	PORTFOLIO RETURN	ACTIVE RETURN
Year 1	10.0%	15.0%	5.0%
Year 2	-5.0%	-5.0%	0.0%
Year 3	20.0%	15.0%	-5.0%

Average Active Return: 0.0%

Tracking Error: 5.0%

The example below illustrates an equity portfolio with a 5% annual tracking error to its benchmark. If the benchmark rises 10% the next year, then there's a 68% chance a portfolio's return will be within the range of 5.0% and 15.0% (one standard deviation from its benchmark, or one unit of tracking error). Extending that logic, there's a 95% chance the portfolio's return will be between 0.0% and 20.0% over the same period, and a 99% chance its between -5.0% and 25.0%<sup>1</sup>



## WHY IS TRACKING ERROR IMPORTANT?

Tracking error simplifies the detailed and complex comparison of a portfolio to a benchmark into one number. That number communicates a clear expectation of future account performance between advisors, clients, and investment managers. While no one can predict future performance with high precision, we can use tracking error to calibrate our expected range of performance outcomes in future periods. If a client has an annual tracking error of 0.50% today, we can reason that it is extremely unlikely their portfolio would return 3% less than its benchmark one year later (roughly a 1 in 1 billion chance).

Minimizing tracking error as a portfolio objective means that the target portfolio's returns will be very close to the benchmark. After an optimal level of tracking error is achieved in a portfolio, Meeder focuses on maintaining it within an acceptable range for the maximum level of tax losses harvested.

## TRACKING ERROR IN PRACTICE

Portfolio strategies are defined based on their tracking error to their benchmark. Diversified portfolios target a lower tracking error and combine that target with other portfolio objectives like tax efficiency, benchmark customization, and portfolio customization. Diversified portfolios typically invest in a much larger number of stocks than active portfolios, and they also track their benchmarks more closely. Active portfolios target a modest-to-high tracking error with the intention of outperforming their benchmarks by a healthy margin. Active portfolios intentionally create tracking error by overweighting, underweighting, or excluding a stock, sector, or style within their benchmark.

Meeder offers our clients the option to customize their portfolios through the selection of their investment strategy, any stock- or sector-level exclusions, directed holdings (ie. hold 2x benchmark weight of Apple, hold minimum equity portfolio weight of 5% for Caterpillar Inc.), and product involvement screens like “Do not buy tobacco companies”. As greater customization is added to the portfolio, the tracking error is expected to increase. After these objectives have been defined, Meeder seeks a low portfolio tracking error and minimum level of net realized capital gains that fit within those customized parameters.

---

## APPENDIX

1. This assumes that tracking error has a mean of zero and that active returns are normally distributed



6125 Memorial Drive, Dublin, Ohio 43017 | 1.866.633.3371 | meederinvestment.com

Investment advisory services provided by Meeder Advisory Services, Inc.