



TRACKING DIFFERENCE AND TRACKING ERROR

THE EQUITY COMPASS

EDITION
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Understand the return gap and how consistently a fund tracks its benchmark.

Imagine following a friend's car on a road trip.

At the destination, you check how far behind you finished. Along the journey, you also notice whether the distance between the two cars stayed steady or kept changing.

A steady gap and a changing gap tell you different things, even if you finish at a similar distance behind.

Tracking Difference measures the fund's return gap against its benchmark. **Tracking Error** measures how much the periodic return gap varies. Together, they help assess index funds and exchange traded funds (ETFs).



WHAT IS TRACKING DIFFERENCE

Tracking Difference (TD) is the **fund's return minus its benchmark's return** over the same period. It shows how much the fund outperformed or underperformed its benchmark.

Tracking Difference = Fund Return – Benchmark Return

ILLUSTRATIVE ONE YEAR RETURN	FUND	BENCHMARK
Return	11.60%	12.00%

TD = 11.60% – 12.00% = –0.40 percentage points, or –40 basis points. The fund earned 0.40 percentage points less than its benchmark.

With this formula, **negative TD means underperformance**, positive TD means outperformance and zero means equal returns. For multi-year comparisons, use annualised returns for both.



WHAT IS TRACKING ERROR

Tracking Error (TE) measures the **variability of the fund's return gaps**, usually using daily observations. A lower TE means the gaps are more stable; a higher TE means they fluctuate more.

Annualised TE = Standard deviation of daily return gaps × $\sqrt{252}$

Standard deviation measures how spread out the daily gaps are around their average. Here, 252 is the assumed number of trading days in a year; reporting conventions may vary.



A SIMPLE EXAMPLE OF TRACKING ERROR

The table shows each fund's daily return minus the benchmark's daily return.

DAILY RETURN GAP	FUND A	FUND B
Day 1	–0.02 pp	–0.08 pp
Day 2	–0.02 pp	+0.04 pp
Day 3	–0.02 pp	–0.06 pp
Day 4	–0.02 pp	+0.02 pp

For illustrative purpose only. pp = percentage points; 1 percentage point = 100 basis points.

Fund A has zero TE in this simplified example because its daily gap never changes, even though it lags every day. **Fund B has positive TE** because its gaps fluctuate. TE measures the variation in these daily gaps, not the total shortfall.



TRACKING DIFFERENCE AND TRACKING ERROR AT A GLANCE

POINT	TRACKING DIFFERENCE	TRACKING ERROR
Main question	How much did the fund's return differ from the benchmark?	How much did the periodic return gaps fluctuate?
What it measures	Size and direction of the return gap	Variability of the return gaps
Possible value	Positive, negative or zero	Zero or positive
What it cannot tell us alone	How steady the gaps were during the period	Whether the fund outperformed or underperformed



WHY DO THESE GAPS ARISE

- **Costs:** Fund expenses and transaction costs reduce returns. A steady cost can create a persistent shortfall without much variability.
- **Cash and timing:** Money awaiting investment, redemptions and the timing of dividend reinvestment can make fund returns differ from the index.
- **Portfolio differences:** Index changes, trading constraints or holding a representative sample of securities can create differences in holdings or weights.
- **Other income:** Income from securities lending, where applicable, may offset part of the costs. TD is therefore not necessarily equal to the expense ratio.



HOW TO READ BOTH IN MUTUAL FUNDS

- **Index funds and ETFs aim to track an index.** A TD close to zero indicates a small return gap; a low TE indicates stable periodic gaps. Read both together over comparable periods.
- **A low TE does not guarantee a small return shortfall.** A fund can lag by a fairly steady amount and still report low TE. Likewise, a small TD over one period can hide large fluctuations during that period.
- **Actively managed funds have a different objective.** Their managers may deliberately take positions away from the benchmark. Higher TE indicates more variable relative returns; it does not, by itself, establish skill or poor management.



IMPORTANT POINTS

- **Compare like with like:** Use the same benchmark, dates, return frequency and reporting method. For equity funds, use the appropriate Total Return Index (TRI), which includes dividends.
- **Check the sign convention and plan:** Some sources reverse the TD subtraction. Direct and Regular plans can have different return gaps because their expenses differ.
- **Use Net Asset Value (NAV) returns for fund tracking:** An ETF investor's return also depends on its exchange price versus NAV, the bid-ask spread (the gap between buying and selling quotes) and brokerage.
- **Low TE does not mean low investment risk:** A fund can closely track a falling index. Both measures describe past tracking and do not guarantee future results.

Tracking Difference tells us the return gap; Tracking Error tells us how much that gap varies.

Mutual Fund investments are subject to market risks, read all scheme related documents carefully.