

TWRR Time-Weighted Rate of Return

What Is It?

A time-weighted rate of return (TWRR) is a calculation designed to measure the performance of the account over the time period invested, and to exclude extraneous elements not usually under a Portfolio Manager's control – specifically, deposits to and withdrawals from an account, as well as transfers in or out. By definition, market indices do not take into account such personal cash flows, so their performance is always expressed using TWRR. Also, TWRR is the performance measurement standard required by the *Chartered Financial Analyst Institute* for managed investment products.

What Is TWRR Used For?

As a time-weighted rate of return is said to be “pure” and measures only the performance of your managed account, its main purpose is to enable comparisons to be made. Your TWRR can be compared to the performance of:

- A benchmark
- A particular index or a blend of indices
- A mutual fund or other managed product
- Another portfolio – providing you use its TWRR for the comparison

While there is more to evaluating a Portfolio Manager or managed product than just performance, comparing your account's performance to that of an appropriate benchmark is a useful exercise for monitoring purposes. It may also help you determine if your investment strategy is delivering the desired results, or whether changes might be called for.

Factors Significantly Impacting Your Time-weighted Performance

The only factors impacting your TWRR are:

- Which securities your PM decides to buy and/or sell
- When these transactions are executed in your account
- How the underlying market affects your securities over the course of the time period measured

Methodology

TWRR is calculated using trade-date valuations that include interest, dividends, any distributions, and fees. To eliminate the impact of deposits, withdrawals and transfers, the total time period being measured is divided into contiguous sub-periods, each beginning at a point within the total period where there has been an external cash flow. The returns for each sub-period are then linked geometrically. If there are no external cash flows, a TWRR calculation would only involve one single period.

How to Calculate TWRR

The performance for each sub-period is calculated using the following formula:

$$R_d = \left[\frac{(TVE - CF) - TVB}{TVB} \right]$$

Where:

R_d = Return for the sub-period

TVE = Total account value at the end of the sub-period

CF = Cash flows (deposits, withdrawals, and transfers in or out. Where the transfers involve securities, their market value on the day of the transfer is used.)

TVB = Total account value at the beginning of the sub-period

Performances for sub-periods are linked together using the formula below to determine the total period's return:

$$R_{tp} = [(1 + R_1)(1 + R_2)(1 + R_3)...(1 + R_n)] - 1$$

Where:

R_{tp} = Return for the total period being measured

R_1 to R_n = Returns for each sub-period 1 through n

Source: National Bank Financial

Putting Your TWRR in Context

Your time-weighted rate of return reflects the mix of investments and risk level of your account based on your personal investor profile. If you are using comparisons to evaluate your strategy, be sure to use appropriate benchmarks, indices or products – otherwise you will be comparing apples to oranges. Your Portfolio Manager can help you choose the right elements for comparison, as well as answer any questions you might have about performance measurement, in general.