# TWRR

## Time-Weighted Rate of Return

## What Is It?

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

## What Is TWRR Used For?

Since a time-weighted rate of return is said to be "pure" and measures only the performance of your investment, 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 an Investment Advisor or managed product than just performance, comparing your portfolio's performance to that of an appropriate benchmark is a useful exercise for monitoring purposes, and can help you determine if your investment approach 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 you and your IA decide to buy and/or sell
- When these transactions are executed
- How the underlying market affects your securities over the course of the period measured

## Methodology

TWRR is calculated using trade-date valuations that include interest, dividend accruals, 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:

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

Where:

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

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

## Putting Your TWRR in Context

Your time-weighted rate of return reflects the mix of investments and risk level of your portfolio 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 Investment Advisor can help you choose the right elements for comparison, as well as answer any questions you might have about performance measurement.

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## Investment Performance Benchmarks

Investment benchmarks are also helpful for developing realistic expectations about returns your portfolio can generate over the long term.

Investment benchmarks usually provide a broad measure of the return generated by specific asset classes over a given period. They are often referred to as reference indices since the most common form of investment benchmark is an index – such as a stock or bond index. A benchmark must replicate the security or portfolio you are monitoring as closely as possible for the comparison to be meaningful. Examples of benchmarks would include the S&P/TSX for Canadian stocks, the DEX Universe for Canadian bonds and the S&P 500 for U.S. stocks. For a portfolio comprising securities from several different asset classes, the appropriate benchmark would be a blend of indices weighted according to the portfolio's asset mix.

## Frequently Asked Questions (FAQ)

| | Question | Answer |
|---|---|---|
| 1 | When will the performance calculation start? | The beginning of the first overall period measured will be January 1, 2016. The first *Performance Report* sent out in January 2017 will therefore cover the entire calendar year 2016. |
| 2 | Is the performance calculated by account, by root, or by client? | As required by the Regulators, the *Performance Report* will show rates of return on a per account basis. |
| 3 | What is included in the total account value used to calculate the performance? | Cash and all types of securities held in the account are included in the total account value, as well as accrued interest and dividends. |
| 4 | How is the performance calculated for accounts denominated in currencies other than Canadian dollar? | The performance is always calculated in the account's currency. All amounts displayed in the *Performance Report* will also be in the account's currency. |
| 5 | Is the Time-Weighted Rate of Return Calculation annualized? | Performances for periods longer than one year are annualized. |
| 6 | Will back-dated transactions be included in the performance calculation? | Back-dated transactions made after December 31 will not be included in the calculation. These back-dated transactions may have an impact on the next *Performance Report*. |
| 7 | Are the transactions impacting performance determined by Trade Date or on a Settlement Date basis? | The account return calculation is based on the trade date. |
| 8 | What happens to my rate of return when a price for a security is unknown? | Unknown or undetermined prices will be deemed to be $0 for the performance calculation. If the price was unknown and later becomes available, it will boost the account's performance artificially. The opposite is also true. If the price that was available becomes unknown at a later date, the performance will decrease. This can also happen in the case of a transaction back-dated to when a security code had not yet been created in our systems because the product was new. |
| 9 | What happens when a deposit to settle a purchase is made after the purchase's Trade Date? | Transactions are included in the *Performance Report* based on the Trade Date. |
| 10 | When will the *Performance Report* be shipped? | The *Performance Report* will be sent annually together with the December statement. The first mailing will be made in January 2017, and will cover the rates of return for calendar 2016. |

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