

MEASURING PERFORMANCE

Dollar-Weighted and Time-Weighted Returns

Measuring Performance: Dollar-Weighted and Time-Weighted Returns

It may be confusing as an investor, particularly in the markets of today, to get a clear idea of how a portfolio of investments is performing. With multiple ways to calculate performance, it is difficult to know which method of calculation should be used, or which will provide the most accurate assessment of whether or not the investments are achieving a stated goal. Some investors may have a hard time reconciling in their mind what is happening in the portfolio if the performance reported by a portfolio manager does not directly translate to the number of dollars in the account.

There are two prominent investment performance calculation methods to be highlighted: Time-Weighted returns and Dollar-Weighted returns. Although it is possible for each calculation to result in different values for the same portfolio, it is important to realize that both are relevant methods, meant to measure different aspects of the portfolio.

Time Weighted Rate of Return

A time-weighted rate of return is designed to measure the performance of a portfolio or fund manager and is a result of a need for industry consistency in reporting returns that are independent of investors' actions. Contributions and withdrawals made by investors are not under the control of the portfolio manager, and therefore the measure is designed to isolate the manager's specific performance from the magnitude and timing of cash activity in the portfolio.

For the investors' purposes, time-weighted returns measure how the combination of investment choices, including any changes to the investment mix, performed relative to other choices or a benchmark over a certain period of time. If a portfolio has positive time-weighted performance, then the manager made overall positive stock selection choices for the time period being measured.

Dollar Weighted Rate of Return

A dollar-weighted rate of return, also known as the internal rate of return, measures the performance of a portfolio including the effect of contributions and withdrawals. It measures the size and timing of cash flows, as well as the investment performance of the investment mix. Since dollar-weighted returns illustrate how the dollars perform, periods in which more monies are invested contribute more heavily to the overall return. Investors are rewarded for depositing monies prior to times of appreciation and penalized for depositing monies prior to periods of decline (and vice versa).

For the investors' purposes, dollar-weighted returns measure when cash flow decisions are adding to or detracting from performance. In addition, the measure can be used to determine if the return for the portfolio is above or below a long term objective.

Describing Investment Returns

Consider a \$100,000 portfolio that returned 15% in year one. The investor added \$20,000 to the portfolio, which subsequently lost 5% in year two, resulting in an ending value of \$128,250.

	Beginning Value	Investment Return	Contribution/(Withdrawal)	Ending Value	
Year One	\$100,000	\$15,000 (15%)	-	\$115,000	Dollar-Weighted = 9.25%
Year Two	\$115,000	-\$5,750 (-5%)	-	\$109,250	Time-Weighted = 9.25%

With no contributions or withdrawals, the dollar-weighted and time-weighted returns are equal.

	Beginning Value	Investment Return	Contribution/(Withdrawal)	Ending Value	
Year One	\$100,000	\$15,000 (15%)	\$20,000	\$135,000	Dollar-Weighted = 7.51%
Year Two	\$135,000	-\$6,750 (-5%)	-	\$128,250	Time-Weighted = 9.25%

The addition of \$20,000 prior to the market decline negatively impacted dollar-weighted returns relative to time-weighted returns. The investor was more heavily exposed to a poor market.

Performance for the Individual Investor

The question is not which performance measurement is right for an investor, but rather what it is that needs to be measured. Time-weighted returns demonstrate how the assets have performed over a period of time with no regard to cash activity in the account. Retail investors may prefer a dollar-weighted rate of return, since it gives a clearer definition of how the actual dollars in the account have been working. It is important for investors to know not only whether the portfolio managers are making good investment decisions, but also how the size and timing of cash activity in the portfolio has influenced performance. To determine if cash activity has contributed positively for a certain time period, the dollar-weighted return can be compared to the time-weighted return.

- If there are no deposits or withdrawals in the account, the two rates of return will be equal.
- If the dollar-weighted return is greater, the investor knows the size and timing of the cash activity during that period contributed favorably to the portfolio.
- However, the contribution and withdrawal decisions can also detract from the performance of the portfolio if the timing is not advantageous.

Potential Resolutions

Financial Advisors are available to offer advice about how investing in a well-diversified portfolio, systematically rebalancing the portfolio, and dollar-cost averaging into the market may help to reduce volatility among the performance returns.

Determining the risk and return objectives and selecting a model that fits those objectives is very important for developing performance expectations. A well-diversified portfolio includes multiple asset classes that when combined, are expected to lower the volatility of the returns. As time goes on, the percentage of the portfolio dedicated to each asset class may diverge from the original allocation due to performance in the market. As allocations in the asset classes move away from original levels, the performance and volatility expectations change for the portfolio. Systematically rebalancing the portfolio back to the appropriate asset allocations helps to maintain the expectations.

During instances of high volatility in the market, the size and timing of cash flows have potentially the greatest impact on the dollar-weighted performance of a portfolio. If an investor has a large contribution to make to the portfolio, trying to time the market can be detrimental to the dollar-weighted performance, if the decision to invest is ill timed. Rather, investors may benefit from managing the contributions by dollar-cost averaging into the market over an extended period of time. Dollar-cost averaging is a systematic investment of a fixed dollar amount on a regular schedule, regardless of the price of the investment. More shares are purchased when prices are low, and fewer shares are purchased when prices are high. The desired result is a smoothing out of cost basis for the investments, which may be beneficial during periods of uncertainty in the market. Smaller and more regular increments of cash activity will result in less of a discrepancy among the two performance returns. It is important to realize that if dollar-cost averaging is employed to systematically enter into the market during a strong bull market, then performance will lag compared to a scenario where a lump sum is deposited (particularly for a large deposit). In that instance, the dollar-weighted return will be less than the time-weighted return for the portfolio during that time period.

Conclusion

Dollar-weighted and time-weighted returns are intended to measure different aspects of the performance of a portfolio. Each measurement provides insight into its own facet of the portfolio, whether it is the decisions of the portfolio manager through the selection of investments or those of the investor through the timing of cash activity. Ultimately, the combination of the two may provide a deeper understanding of how the portfolio is achieving the goal.

All investing involves risk and you may incur a profit or a loss. Diversification does not ensure a profit or protect against a loss.

Resources

“Comparison of Time-Weighted & Dollar-Weighted Rate of Return Calculation Methods.” DailyVest, Inc. www.dailyvest.com

“Dollar-Cost Averaging.” Investopedia.com

Krantz, Matt. “You Asked for It: More than you wanted to know about tracking performance” USA Today.com June 28, 2006

“Personal Rate of Return: Dollar Weighted or Time Weighted.” The Finance Buff. July 27, 2007

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