



Personal (Money-Weighted) Rate of Return

A new standard for measuring investment returns

Understanding how to measure investment performance is critical and there's more than one way to do it. For investors, it's important to know they are on track to meet their financial goals. In 2017, investors will receive their performance figures based on a different methodology than the current and long-time industry standard. The new measure is known as the Personal Rate of Return or Money-Weighted Rate of Return (MWRR). It will provide a more nuanced and personalized picture of how an investor's portfolio is performing.

The change to MWRR is part of Canada's securities regulators' Client Relationship Model Phase 2, or CRM2, which is designed to give investors a clearer picture of how much it's costing them to hold their investments, and how these investments are performing.



To better understand the MWRR and its impact,
let's first examine how the current methodology works.

Time-Weighted Rate of Return

The performance data investors currently receive is known as Time-Weighted Rate of Return (TWRR).

It's important to emphasize that the TWRR conveys important information in addition to a MWRR.

TWRR measures the investment performance of an investor's portfolio by taking each investment and measuring its growth or loss at the end of a time period. It does not include the effects of deposits or withdrawals on the account, so investors can make a direct comparison of fund managers.

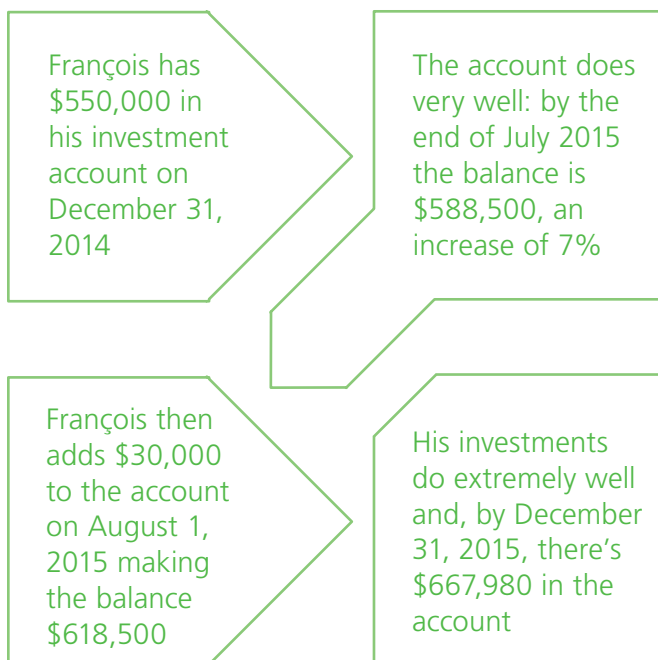
To illustrate how investor behaviour can impact rates of return, consider the following example.

Investor A and Investor B both buy \$5,000 worth of the same Canadian Balanced Fund on January 1, 2016. Because of the fund manager's sound security selection decisions, in May the fund goes up 7%, and by year-end it goes up another 2%. One week prior to the 7% upswing in May 2016, Investor A added \$1,000 to his position in the fund, while Investor B redeemed half of her investment in the fund.

Without performing any calculations, it's clear that Investor A's decision to add \$1,000 made the fund more profitable for him. Conversely, Investor B profited less from the fund than she would have had she not withdrawn half of her investment in the fund. The TWRR is the same for both investors because it strips out the impact of their actions.

By providing TWRR, current statements provide a better measure of a fund manager's performance against a benchmark.

Now that we have a general understanding of what the TWRR is designed to tell us, let's look at a specific example of how this metric can be applied at the investment account level.



To calculate TWRR, the first step is to perform a separate valuation of the account's performance for each sub-period within the year, where sub-periods are marked off by deposits or withdrawals.

In François' case, there are two sub-periods in 2015: January 1 through July 31, and August 1 through December 31, 2015.

For the January 1 to July 31 period, his return, as noted, is 7%. François did not add or take out any money from his investments. For the August 1 to December 31, 2015 period, we take the account balance as of August 1—after the \$30,000 deposit—as our starting point for calculating the performance through December 31, 2015. In this sub-period, François' account increased \$49,480, which is 8% of the \$618,500 starting balance.

Now we need to combine the rates of return for both sub-periods. To do so, we use what's called geometric linking. The calculation looks like this:

$$\begin{aligned} & (1 + \text{Sub-Period 1 Return}) \\ & \times \\ & (1 + \text{Sub-Period 2 Return}) - 1 \\ \\ & \text{SO:} \\ & 1.07 \times 1.08 = 1.1556 \\ \\ & \text{THEN:} \\ & 1.1556 - 1 = 0.1556, \text{ or } 15.56\% \end{aligned}$$

Illustrative Purposes Only

By resetting the performance-tracking clock after each deposit or withdrawal, TWRR controls for investor behaviour. Note that TWRR makes no adjustments for the fact that François' first sub-period is seven months of the year, while the second sub-period is five months. In cases where there are more deposits or withdrawals, there will be more sub-periods to incorporate into the calculation. For instance, if François made a withdrawal two weeks after his August 1, 2015 deposit, it would have been necessary to perform a separate account valuation for that two-week period, resulting in three, rather than two sub-periods for 2015.

TWRR is a good way for investors and their advisors to assess fund managers' performance. However, by filtering out the impact of the investors' decisions, TWRR can skew their perceptions—often significantly—of whether they are on track to meet their financial goals.

MWRR is designed to overcome this deficiency by providing a rate of return that captures the impact of both the fund manager's and the investor's decisions.

Money-Weighted Rate of Return

MWRR is best understood as an investor's personal rate of return. It takes into account the fact that, while many investors hold the same mutual fund or stock, rarely will any two investors hold them in exactly the same way. Some will buy more units at the perfect time, while others will sell at the worst possible time, and vice versa. These decisions have a real-world impact on the investor's progress toward

his or her financial goals, like funding a retirement, purchasing real estate, paying for a child's education and philanthropy. Accordingly, MWRR accounts for all contributions and withdrawals that an investor makes, as well as fund manager performance and the timing of these trades.

The MWRR calculation is considerably more complex than that used for TWRR:

$$NPV = \sum_{n=0}^N \frac{C_n}{(1+r)^n} = 0$$

Where:

NPV = net present value

N = number of periods

n = period

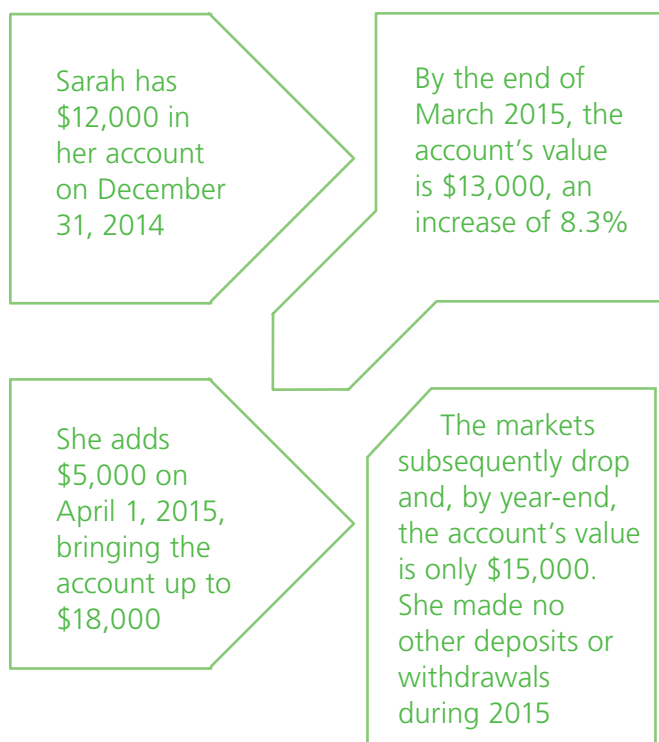
C = external cash flow

r = internal rate of return

Source: Investment Funds Institute of Canada (IFIC)

Performing this calculation requires customized software (although MWRR calculators are available online for advanced investors). Applying the formula to François' example, his MWRR turns out to be 15.7%, which is only one-tenth of a percent higher than his TWRR. But the differences aren't always so small – you may see greater differences between the two return calculations.

Let's look at an example where TWRR and MWRR differ significantly.



Let's first look at Sarah's TWRR. Since Sarah made one deposit, there are two sub-periods for the year.

For sub-period one, ending March 31, Sarah had a \$1,000, or 8.3%, return on her \$12,000 initial balance.

The second sub-period has an \$18,000 starting balance; the closing balance of \$15,000 equates to a loss of 16.7% for the sub-period. Now plugging the numbers into the TWRR formula:

$$(1 + \text{Sub-Period 1 Return}) \times (1 + \text{Sub-Period 2 Return}) - 1$$

SO:

$$1.0833 \times 0.8334 = 0.902$$

THEN:

$$0.902 - 1 = -0.098 \text{ or } -9.8\%$$

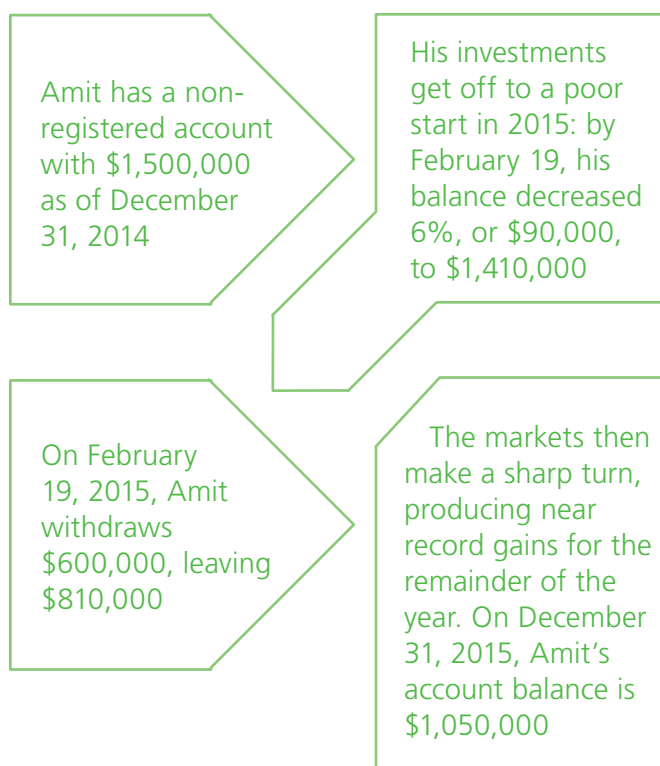
Illustrative Purposes Only

Overall, the fund that Sarah invested in experienced weak performance this past year. And, as can happen sometimes, she made her investment when the markets were about to move lower—something neither she nor her advisor could have foreseen. Importantly, over the long term the funds she added to her portfolio of investments will be a net positive, provided she stays invested and market conditions are favourable.

So, Sarah's TWRR is a loss of 9.8%. Sarah's MWRR paints a significantly different picture: a loss of 12.7%.

TWRR: -9.8%
MWRR: -12.7%

Let's look at one more example. In this case, we'll show how a withdrawal can create a significant difference between the TWRR and the MWRR.



Since Amit made one withdrawal and no deposits, there are two sub-periods for the year. For sub-period one, ending February 19, 2015, Amit had a \$90,000, or 6%, loss on his initial balance of \$1,500,000.

Factoring in the \$600,000 withdrawal, the second sub-period has an \$810,000 starting balance; the closing balance of \$1,050,000 equates to a gain of \$240,000, or 29.63%, for the sub-period. Now plugging the numbers into the TWRR formula:

$$(1 + \text{Sub-Period 1 Return}) \times (1 + \text{Sub-Period 2 Return}) - 1$$

SO:

$$0.94 \times 1.2963 = 1.2185$$

THEN:

$$1.2185 - 1 = 0.2185 \text{ or } 21.85\%$$

Illustrative Purposes Only

So, Amit's TWRR is a gain of 21.85%. However, his MWRR is a gain of 15.19%.

TWRR: 21.85%
MWRR: 15.19%

A more personal rate of return

In 2017, investors will receive performance reports that provide a more nuanced and personalized picture of how they're progressing towards their financial goals.

Investment performance will be calculated using the Money-Weighted Rate of Return (MWRR), which replaces the Time-Weighted Rate of Return (TWRR) as the regulator-mandated standard. The table below outlines their key differences:

	WHAT IT DOES	HOW IT WORKS	BENEFITS
TIME-WEIGHTED RATE OF RETURN	Measures the performance of an investment during a given period in a way that reflects only the decisions of the fund manager	Filters out the impact of investor decisions (deposits and withdrawals) on investment performance	Enables investors and advisors to isolate and assess the performance of fund managers
PERSONAL (MONEY-WEIGHTED) RATE OF RETURN	Measures the performance of an investment during a given period in a way that considers the impact of both portfolio manager and investor decisions These investor decisions are comprised of two factors that can positively or negatively impact value: 1. The size of the contribution and/or withdrawal during the given period 2. The timing of the contribution and/or withdrawal during the given period	Calculation factors in the amount and timing of investor deposits and withdrawals, as well as fund manager performance	Provides a more nuanced picture of how the investor is progressing towards his or her financial goals based on the impact of both fund manager and investor actions



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