



# Time-Weighted & Money-Weighted Rates of Return

Although measuring the return of an investment portfolio would seem like a simple matter, this isn't exactly the case. Not only can the math be a bit intimidating, but there is actually more than one way of measuring it. And, in many situations, the results will not be the same, depending on the method chosen. Confused? We don't blame you. But read on. Hopefully we can clear up this confusion and help you understand which approach is the best, depending on the use to which you intend to put the result.

## Two Methods – For Two Distinct Purposes



The two main ways of calculating investment performance are Time-Weighted Rate of Return (TWRR) and Money-Weighted Return (MWRR). The only significant difference between the two is how they treat amounts added to or taken out of the portfolio – TWRR excludes them from the rate of return calculation whereas MWRR includes them.

	PROS	CONS
 TWRR	<ul style="list-style-type: none"> <li>• Results can be directly compared with benchmarks, indices, mutual funds and other managed products</li> <li>• The only measure to use to evaluate the relative performance of Investment Advisors who have comparable mandates</li> </ul>	<ul style="list-style-type: none"> <li>• The result may not give an exact measure of how your portfolio has evolved in value</li> <li>• The actual calculation is simple, but it could be lengthy if there are frequent cash flows in/out of the portfolio</li> </ul>
 MWRR	<ul style="list-style-type: none"> <li>• A measure of your unique investment experience</li> <li>• The measurement to use when comparing your results with a targeted rate of return to reach a personal financial objective</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot be compared to benchmarks or indices – MWRR is unique to a particular portfolio</li> <li>• Not useful for evaluating the merits of a managed product or the advice given to you by your Investment Advisor</li> </ul>

## Two Useful Tools Made Available to You

It has often been said that the money-weighted approach is the “investors’ way” of calculating return on investment, while the time-weighted approach is the “managers’ way” of calculating it. There is a lot of truth to this statement. But, the fact remains that, just as you must have both a hammer and a screw-driver in your tool box, the two rate of return calculation methods are also needed because they each fulfill different and equally important functions.

This is why National Bank Financial – Wealth Management is including both time-weighted and money-weighted rate of return calculations in the performance reports we will begin sending to all our clients as of the beginning of 2017.

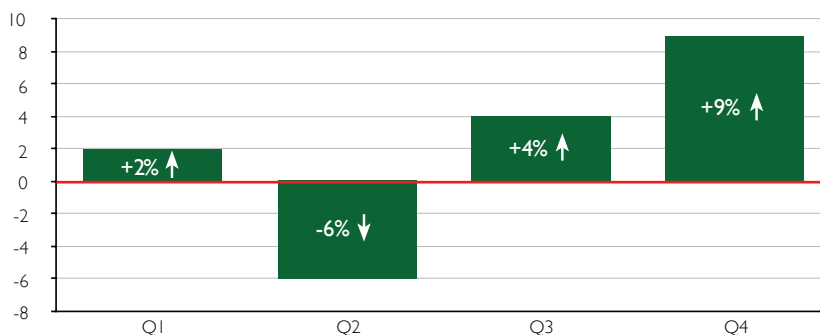
	MEASURES	USEFUL FOR
 TWRR	<ul style="list-style-type: none"> <li>• Pure investment performance not taking into account cash flow</li> <li>• <b>Included:</b> interest, dividends, and realized capital gains Excluded: deposits, withdrawals and transfers</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating your Investment Advisor against those with similar mandates</li> <li>• Comparing performance with that of other managed products</li> </ul>
 MWRR	<ul style="list-style-type: none"> <li>• Performance of the actual cash invested taking into account all types of cash flow</li> <li>• <b>Included:</b> interest, dividends, realized capital gains, deposits, withdrawals, and transfers</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating your actual investment experience</li> <li>• Comparing your results to a targeted rate of return to reach a personal financial objective</li> </ul>

## TWRR and MWRR at Work – A Practical Example

Let us introduce our example by reminding you that investment performance is far from linear – a reasonable portfolio return is often the sum of many market movements up and down.

INVESTOR A	INVESTOR B	INVESTOR C
<ul style="list-style-type: none"> <li>Invests \$100,000 on January 1.</li> <li>On March 31, Investor A realizes a Q1 2% gain, for a balance of \$102,000.</li> <li>In Q2, Investor A suffers a 6% portfolio loss, resulting in a June 30 value of \$95,880.</li> <li>Investor A enjoys a 4% Q3 gain and a 9% Q4 gain for a total year-end portfolio value of \$108,690.</li> </ul>	<ul style="list-style-type: none"> <li>Also invests \$100,000 on January 1.</li> <li>On March 31, Investor B realizes a Q1 2% gain, for a Q2 starting balance of \$102,000.</li> <li>In Q2, Investor B suffers a portfolio loss of 6%, and also must withdraw \$20,000 for house repairs, leaving a balance of \$75,880 to start Q3.</li> <li>Investor B enjoys a 4% Q3 gain and a 9% Q4 gain, resulting in a year-end portfolio valued at \$86,018.</li> </ul>	<ul style="list-style-type: none"> <li>Also invests \$100,000 on January 1.</li> <li>Q1 brings a 2% gain and Q2 produces a loss of 6% for a June 30 value of \$95,880.</li> <li>Investor C invests a \$20,000 inheritance in the same portfolio at the start of Q3.</li> <li>Investor C also enjoys a 4% Q3 gain and a 9% Q4 gain, resulting in a year-end portfolio valued at \$131,362.</li> </ul>

### Quarterly Performance in a Fluctuating Market



Now let's examine and compare the Time – Weighted Rate of Return and the Money-Weighted Rate of Return for each of our three Investors.

	INVESTOR A	INVESTOR B	INVESTOR C
Q1	\$100,000	\$100,000	\$100,000
Q2	← No Deposits or Withdrawals →		
Q3	—	(\$20,000)	+\$20,000
Q4	← No Deposits or Withdrawals →		
End Value	\$108,690	\$86,018	\$131,362
Gain	\$8,690	\$6,018	\$11,362
TWRR	8.7%	8.7%	8.7%
MWRR	8.7%	6.33%	10.84%

INVESTOR A	INVESTOR B	INVESTOR C
<ul style="list-style-type: none"> <li>From a time perspective, the total annual return of this portfolio is 8.7%, and, since there was no cash flow during the year, the money-weighted return is also the same at 8.7%.</li> </ul>	<ul style="list-style-type: none"> <li>The time-weighted return is still 8.7%, because TWRR measures the growth of \$1 from the beginning to the end in the same investment as if there were no cash flows. However, Investor B's MWRR is 6.33%, which makes more intuitive sense given that the gain was \$6,018 in the period.</li> <li>Both TWRR and MWRR have provided B with useful information – the former telling how well the investment choices performed, and the latter how well the actual money put into this investment did, the difference being the impact of a big outflow happening at an unfortunate time.</li> </ul>	<ul style="list-style-type: none"> <li>The time-weighted return is still 8.7%, because TWRR measures the growth of \$1 from the beginning to the end in the same investment as if there were no cash inflows. However, Investor C's MWRR is 10.84%, which makes more intuitive sense given that the investment gain was \$11,362 in the period.</li> <li>Both TWRR and MWRR have provided C with useful information – the former telling how well the investment choices performed, and the latter how well the actual money put into this investment did, the difference being the impact of a big deposit happening at a lucky time.</li> </ul>

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