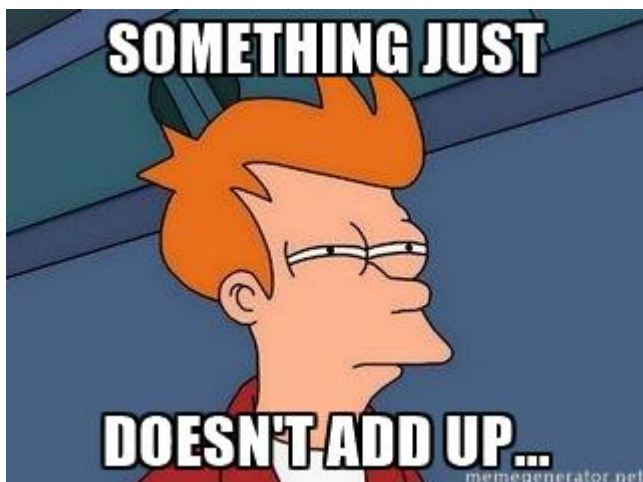


Common Performance questions: What to do when your Blended Benchmark calculations don't add up



Welcome to our series on Common Performance Questions. In today's feature Joe Porter, Orion's Product Manager of Composites and Performance, will detail some of the reasons why it might appear that your blended benchmark performance in Orion doesn't match your manual calculation.

Think back to the days of high school (or college) algebra. Remember when you plugged all the variables into the equation only to arrive at a different answer than your classmate? We've all experienced the frustration and unease that comes when something doesn't quite match up. You're often left thinking "what did I do wrong?"



If your Blended Benchmark performance in Orion doesn't match up with your manual calculation, there are a couple things that could be causing the difference.

Index Total Return or Index Price Return

One of the most common reasons for differences is that the benchmark is using the index total return (TR), whereas the selected index the user has chosen for the manual calculation is the index price return (PR). The difference between TR and PR is that TR reinvests the dividends and PR does not reinvest the dividends.

The 2016 return for the S&P 500 TR was +11.96% whereas the 2016 return for the S&P 500 PR was +9.54%. As you can see the performance numbers are quite different, which in turn will cause a difference in the return of the blended benchmark in Orion and the manual calculation.

The Blended Benchmark's Rebalance Interval

Another reason there could be differences in calculations could be due to how often the blended benchmark is set up to rebalance (this is called the "rebalance interval"). The available rebalance interval options are daily, monthly, quarterly, semi-annually, annually, and buy and hold. The rebalance interval determines how often the individual indexes in the blend are set back to their target weights.

If the rebalance interval is set to daily, then the calculation will use the target's weights each day when calculating performance. The other interval options allow for a "drift" to occur. The weights of the individual indexes will change based on how they perform, as well as the other indexes in the blend. For example, with a blend of 50% S&P 500 and 50% MSCI ACWI Ex USA it is possible for the S&P to outperform causing the weights to be more like 52%/48%.

Show Your Work

Let's look at some examples on how using TR vs PR and different rebalance frequencies can affect the overall blended benchmark performance for the year 2016.

The two charts below are set to rebalance daily for the following blended benchmarks: a blended benchmark with 50% S&P 500 PR / 50% MSCI ACWI Ex USA and a blend of 50% S&P 500 TR / 50% MSCI ACWI Ex USA. To calculate the blended benchmark performance, we are going to take the index weight of 50% for each index and multiply that by the 2016 performance for each individual index. We will then sum up each index contribution to get the blended benchmark's performance for 2016.

Daily Rebalance						
Date	Indexes	Weight		Performance		Contribution
12/31/2016	S&P 500 PR	50%	*	9.54%	=	4.77%
	MSCI ACWI Ex USA	50%	*	4.50%	=	2.25%
	Blended Benchmark Performance					7.02%

Daily Rebalance						
Date	Indexes	Weight		Performance		Contribution
12/31/2016	S&P 500 TR	50%	*	11.96%	=	5.98%
	MSCI ACWI Ex USA	50%	*	4.50%	=	2.25%
	Blended Benchmark Performance					8.23%

There is a difference of 1.21% (8.23% - 7.02%) between the blend that uses TR and the blend that uses PR for 2016.

The two charts we will look at next have the rebalance interval set to annually for a blended benchmark with 50% S&P 500 PR / 50% MSCI ACWI Ex USA and a blend of 50% S&P 500 TR / 50% MSCI ACWI Ex USA. As we can see from the charts below, each day the weight of the blend will change (drift) due to how each index performs.

The weight of each individual index is then multiplied by that day's performance and then summed together to get that day's performance. All of the days in the time period are then summed together to get the overall blended benchmark's performance.

Annual Rebalance							
Date	Indexes	Weight		Performance	Contribution	Daily Blend Perf	
1/4/2016	S&P 500 PR	50.0%	*	-1.53%	=	-0.77%	
	MSCI ACWI Ex USA	50.0%	*	-2.65%	=	-1.33%	-2.09%
1/5/2016	S&P 500 PR	50.3%	*	0.20%	=	0.10%	
	MSCI ACWI Ex USA	49.7%	*	-0.23%	=	-0.11%	-0.01%
...	
12/30/2016	S&P 500 PR	51.4%	*	-0.46%	=	-0.24%	
	MSCI ACWI Ex USA	48.6%	*	0.44%	=	0.22%	-0.02%
12/31/2016	S&P 500 PR	51.2%	*	0.00%	=	0.00%	
	MSCI ACWI Ex USA	48.8%	*	0.00%	=	0.00%	0.00%
	Blended Benchmark Performance						7.25%

Annual Rebalance							
Date	Indexes	Weight		Performance	Contribution	Daily Blend Perf	
1/4/2016	S&P 500 TR	50.0%	*	-1.51%	=	-0.75%	
	MSCI ACWI Ex USA	50.0%	*	-2.65%	=	-1.33%	-2.08%
1/5/2016	S&P 500 TR	50.3%	*	0.20%	=	0.10%	
	MSCI ACWI Ex USA	49.7%	*	-0.23%	=	-0.11%	-0.01%
...	
12/30/2016	S&P 500 TR	51.9%	*	-0.46%	=	-0.24%	
	MSCI ACWI Ex USA	48.1%	*	0.44%	=	0.21%	-0.03%
12/31/2016	S&P 500 TR	51.7%	*	0.00%	=	0.00%	
	MSCI ACWI Ex USA	48.3%	*	0.00%	=	0.00%	0.00%
	Blended Benchmark Performance						8.43%

** Start date of 1/4/16 was used, because that was the first day the market was open in 2016*

There is a difference of 1.18% (8.43% - 7.25%) between the blend that uses TR and the blend that uses PR for 2016.

There is also a difference for the blends that do use the same index, but have different rebalance frequencies. The blend with the PR daily rebalance had a return of 7.02% vs the blend with the PR annual rebalance which had a return of 7.25%. The same for the blend with TR daily. It had a return of 8.23% vs the TR annual rebalance that had a return of 8.43%.

A good rule of thumb for choosing how often to rebalance a blend is to look and see how often you rebalance portfolios, because as we can see the type of index and the frequency that the blend is rebalanced to target weights will play into the overall performance of the blend.

If you have any questions about blended benchmarks or your Orion reports, please contact the SME Performance Team.

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