Since 1990, The Spaulding Group has had an increasing presence in the money management industry. Unlike most consulting firms that support a variety of industries, our focus is on the money management industry.

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For additional information about The Spaulding Group and our services, please visit our web site or contact Chris Spaulding at **CSpaulding@SpauldingGrp.com**

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LINKING SHORTS HAS GOTTEN EASIER!

In the last issue we briefly discussed the challenges of dealing with short positions and how one might link the returns from these positions. The approach I suggested is one that I developed when I first encountered this problem a few years ago.

Well, a client of ours, Merrill Lynch, took my approach and made it even simpler! And with their permission I'm pleased to share with you the formula:

$$R_{Linked} = \left[\prod_{i=1}^{n} \left(1 - r_i \right) - 1 \right] \times \left(-1 \right)$$

Here's an example:

	BMV	EMV	Daily ROR	Standard Linking	Alternative Linking
31-May		(1,000)			
1-Jun	(1,000)	(1,200)	-20.00%	-20.00%	-20.00%
2-Jun	(1,200)	(1,100)	8.33%	-13.33%	-10.00%
3-Jun	(1,100)	(1,000)	9.09%	-5.45%	0.00%

Note that I show the "standard linking" that we use for long positions, and how it provides an invalid return (we go from -1,000 to -1,000 and yet we're getting a return of -5.45% with this approach). The alternative method provides the correct return (0.00%).

This approach is superior to the one I proposed in that with mine you have to know if you're dealing with an odd or even number of periods (this can be a bit cumbersome); this alternative formula accomplishes the same thing without much checking needed.

NEGATIVE SHARPE RATIOS

The issue of negative Sharpe ratios has surfaced over the past two years as many firms, perhaps for the first time, had three year cumulative returns which were negative. The results often appeared rather nonsensical. We addressed this two years ago[1] in this newsletter and I've been teaching this topic as part of our Fundamentals of Investment Performance course ever since. And as I've pondered this topic more and more, I've come to the realization that these apparently incorrect results are, in fact, legit!

We'll use the same example as we did previously. Recall that the Sharpe ratio is:

where:

rp = portfolio return
rf = risk free return.

$$SR = \frac{\overline{r}_p - \overline{r}_f}{\sigma r_p}$$

1 See http://www.spauldinggrp.com/old-site/Aug08NL.pdf.

The numerator is often referred to as the "risk premium," "equity risk premium," or "excess return." We'll use the latter most term in our tables to make this review fairly simple.

Let's first consider the case where our returns are positive:

	Excess Return	Risk	Sharpe Ratio
Index	9%	5%	1.80
Fund A	9%	10%	0.90

Fund A has the same return as the index, but took more risk to obtain it, and therefore has a lower Sharpe ratio, meaning that it didn't do as good a job of managing risk or obtaining a return for the risk it took. This is what we're used to seeing, where the Sharpe ratio combines both the return (premium) and risk (standard deviation) so that we can see how risk was handled; the return we got for the risk we took.

Our second example simple makes our returns negative:

	Excess Return	Risk	Sharpe Ratio
Index	-9%	5%	-1.80
Fund B	-9%	10%	-0.90

Again, the returns are identical and the fund took more risk, but in this case the fund's Sharpe ratio is higher! How can this be? Since the manager took greater risk but ended up with the same return (again), shouldn't he/she have a lower Sharpe ratio?

This counter argument made perfect sense to me and is one reason some firms make adjustments to their Sharpe ratio. I had heard that Bill Sharpe felt that there was nothing wrong with the way his ratio handles negative returns. But how can this be? Can't he see the problem?

Well, after pondering this for quite some time I think I've figured out what is going on here, but it's helpful to consider Beta as our vehicle to the answer. Recall that Beta is a measure of *market risk*, where standard deviation is a measure of *total risk*. The index has a beta of 1.0. A higher beta means that when the index goes up, the security (or portfolio) will go up more; if the index goes down, then the portfolio will go down by more. However, if the beta is lower, when the index goes up the portfolio won't go up by as much; and if the index goes down, it won't go down by as much.

Figure 1 attempts to convey this graphically. The blue line, marked "Beta = 1.0," represents the index. The red line has a higher beta (1.1) while the green line has a lower beta (0.9).

If we use this same idea, but think of it in terms of standard deviation (see Figure 2), we may be able to see why the negative Sharpe ratios make sense.
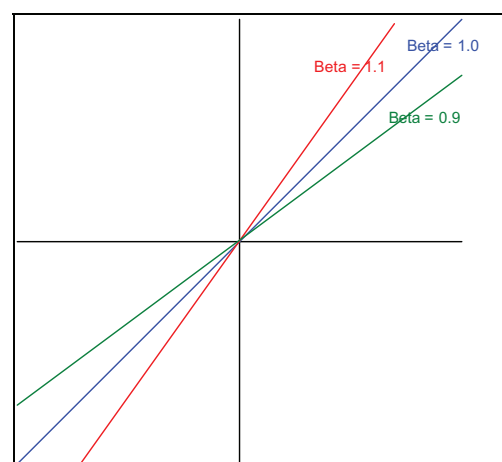

Figure 1

In the case of the positive excess returns (and resulting positive Sharpe ratio), the fund didn't act as we would have expected: that is, we take on more risk but we didn't get a higher return. This is a bad thing, right? That is, if the manager took on greater risk we would have expected a higher return but this wasn't obtained, and the result is a lower Sharpe ratio.

Now, consider the negative excess return (and negative Sharpe ratio) situation. Here, the manager took on more risk and in a down market we'd

Figure 2

expect the portfolio to do worse than the index. But it didn't, did it? It actually performed better than we'd have expected, equaling what the index did. Is this a bad thing? I would suggest that no, it isn't. The fund actually did better than we would have expected in a down market. The result? The fund receives a higher Sharpe ratio. Doesn't this actually make sense? Why give a manager a worse Sharpe ratio when they actually did better than we would have predicted?
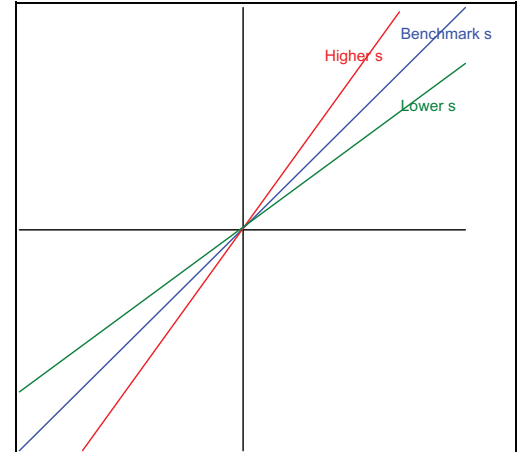
I intend to write on this at greater length, but this should at least give you an idea as to how I've reconciled to why the numbers actually make sense. Your thoughts are, as always, invited.

FROM OUR READERS

Ian Fremer of Merrill submitted the following comment regarding the issue of aggregate returns, which was discussed last month:

Hi David,

Hope all is well!

I just wanted to comment on your article about aggregation vs. asset weighting. We run into scenarios where aggregation is superior to asset weighting. This specifically occurs when a client closes an account and opens a new account moving all the assets to the new account. This happens every day. For example, the client may put assets into trust and is required to open a trust account. Asset weighting is an average and therefore does not take into consideration that these are two independent time periods (where technically you need to geo link the two time periods). It treats them as if they are overlapping. See my examples below. As you can see (especially in the second example), I can not go back to the client that gave me $100K at the beginning of the month that I gave him back $90K and tell him I only lost 5 percent.

Your thoughts/feedback are greatly appreciated.

					Asset wtd - + Wtd CF	
Example 1	BMV	Mid Cash Flow	EMV	RoR	Weight	wtd RoR
A	$ 100,000	$ (105,000)	$ -	5.0%	0.48	2.4%
B	$ -	$ 105,000	$ 110,000	4.8%	0.53	2.5%
Total	$ 10,000	$ -	$ 100,000			4.9%
Aggregation	Don't Revalue for Flow		10.00%	Geo Link	10.0%	

					Asset wtd - + Wtd CF	
Example 2	BMV	Mid Cash Flow	EMV	RoR	Weight	wtd RoR
A	$ 100,000	$ (95,000)	$ -	-5.0%	0.53	-2.6%
B	$ -	$ 95,000	$ 90,000	-5.3%	0.48	-2.5%
Total	$ 10,000	$ -	$ 90,000			-5.1%
Aggregation	Don't Revalue for Flow		10.00%	Geo Link	-10.0%	

And my response:

I agree with you that in this case aggregation makes sense and is clearly appropriate, in order to keep track of a client who changes account numbers, moves from one account to another, etc. The problem occurs, I think, when there are multiple accounts that comprise the overall client view.

And from Debi Rossi of Turner Partners:

As always, very good newsletter. I had a feeling the aggregate composite would be a thought-provoking topic.

Dave's response to Andre Mirabelli was how I interpreted the original article. Composite returns are different because that return represents the underlying accounts in the strategy - that is the key. Aggregating that data for various analysis may make sense but does not necessarily make sense when computing the monthly return.

Debi

KEEP THOSE CARDS & LETTERS COMING

We appreciate the occasional e-mail we get regarding our newsletter. Occasionally, we hear positive feedback while at other times, we hear opposition to what we suggest. That's fine. We can take it. And more importantly, we encourage the dialogue. We see this newsletter as one way to communicate ideas and want to hear your thoughts.

THE SPAULDING GROUP'S 2010 INVESTMENT PERFORMANCE MEASUREMENT CALENDAR OF EVENTS

DATE	EVENT	LOCATION
October 19-20, 2010	Fundamentals of Performance Measurement Training	San Francisco, CA (USA)
October 21-22, 2010	Performance Measurement Attribution Training	San Francisco, CA (USA)
November 11-12, 2010	Performance Measurement Forum	Prague, Czech Republic
November 16-17, 2010	Fundamentals of Performance Measurement Training	Chicago, IL (USA)
November 18-19, 2010	Performance Measurement Attribution Training	Chicago, IL (USA)
December 2-3, 2010	Performance Measurement Forum	Dallas, TX (USA)
December 7-8, 2010	Fundamentals of Performance Measurement Training	New Brunswick, NJ (USA)
December 9-10, 2010	Performance Measurement Attribution Training	New Brunswick, NJ (USA)

For additional information on any of our 2010 events, please contact Christopher Spaulding at 732-873-5700

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The Spaulding Group has offered in-house training to our clients since 1995. Beginning in 1998, we formalized our training, first with our Introduction to Performance Measurement class and later with our Performance Measurement Attribution class. We now also offer training for the CIPM program. To date, close to 3,000 individuals have participated in our training programs, with numbers increasing monthly.

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The two-day introductory class is based on David Spaulding's book, Measuring Investment Performance (McGraw-Hill, 1997). The attribution class draws from David's second book Investment Performance Attribution (McGraw-Hill, 2003).

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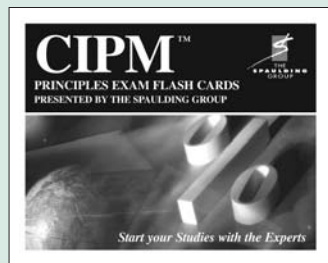
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