PERFORMANCE PERSPECTIVES

with David Spaulding

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MORE ON MONEY-WEIGHTING

I feel like someone in Hyde Park (London), getting up on my soap box to offer my views on loads of things. Fortunately, there are enough readers to challenge me and try to keep me straight, which keeps life quite interesting. We've already gotten a couple e-mail letters commenting on the May issue; we'll present some of these in July. For now, I want to continue the earlier discussion a bit more.

Have you ever encountered a situation like this:

	Equities	Bonds	Cash	Total
ROR	2.32%	-0.85%	3.24%	6.01%

Table 1

At first, it appears a bit nonsensical. How can our portfolio's return exceed the returns of each of its components? If you've seen this, and even if you understand what's going on, explaining it can be a challenge. Let's look at the full year's portfolio and activity to uncover what's occurred:

	Equities	Bonds	Cash	Total
BMV	10,000.00	10,000.00	80,000.00	100,000.00
ROR	-2.00%	-1.50%	0.80%	0.29%
EMV 1Q	9,800.00	9,850.00	80,640.00	100,290.00
ROR	-3.00%	-2.00%	0.80%	0.15%
EMV 2Q	9,506.00	9,653.00	81,285.12	100,444.12
		Rebalance		
BMV	60,000.00	30,000.00	10,444.12	100,444.12
ROR	3.50%	1.20%	0.80%	2.53%
EMV 3Q	62,100.00	30,360.00	10,527.67	102,987.67
ROR	4.00%	1.50%	0.80%	2.94%
EMV 4Q	64,584.00	30,815.40	10,611.89	106,011.29
	Equities	**Bonds**	**Cash**	**Total**
ROR	2.32%	-0.85%	3.24%	6.01%

Table 2

Our portfolio began the year with €100,000. Our manager decided to allocate the funds as follows: 10% to equities, 10% to bonds, and the balance (80%) to cash. This strategy was apparently a wise one, given the returns for the first quarter (-2%, -1.5%, and 0.80%, respectively).

Sensing that both the equity and bond markets would remain in a less-than-desirable state, she did not alter the allocation as the second quarter began. Again, wise move, since equities and bonds had even worse quarters (-3% and -2% respectively) while cash continued to chug along at its 0.80% return.

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UPCOMING ARTICLES

As we begin the second half of the year, our manager decides to take a bold step, and shift the balance in favor of equities, followed by bonds. And, the equity market picked up, with a return of 3.50%, while bonds also did better achieving a +1.20% return. No changes to the allocation for the fourth quarter, and we see further improvement, with equities achieving a 4% return and bonds getting to 1.50%.

When we geometrically link the four quarterly returns for our three asset classes, as well as our portfolio, we get the returns shown in Table 1. In other words, the manager does not get much credit for the cash allocation decision. But if the manager controls these decisions, what we'd consider internal cash flows, then is the time-weighted return the appropriate measure? After all, the portfolio's overall gain is attributable to these decisions, and the only way to really uncover them is to evaluate our performance by considering these flows. Thus, the argument (again) for using money-weighted returns at the sub-portfolio level. If we were to calculate the returns using the Internal Rate of Return, our results would be:

	Equities	Bonds	Cash	Total
MWRR	11.84%	2.33%	3.24%	6.01%

Table 3

Do these returns make more sense? I would suggest that they do. Hope you agree.

How did we get the internal rates of return? Here are the formulas I used:

$$IRR_{Equities} = 10{,}000 + \left(\frac{50{,}494}{(1+r)^{1/2}}\right) - \left(\frac{64{,}584}{1+r}\right) = 0$$

$$IRR_{Bonds} = 10{,}000 + \left(\frac{20{,}347}{(1+r)^{1/2}}\right) - \left(\frac{30{,}815.40}{1+r}\right) = 0$$

$$IRR_{Cash} = 80{,}000 + \left(\frac{-70{,}841}{(1+r)^{1/2}}\right) - 10{,}661.89 = 0$$

The solutions are found via an iterative process; I use the Modified Dietz return as the starting point. The following table shows what I went through to get the results:

2005 Performance Presentation Standards Survey

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Equities		Bonds		Cash	
Trial	Result	Trial	Result	Trial	Result
11.60%	-72.0288	2.32%	-1.3247	3.26%	8.9634
12.00%	48.0595	3.00%	130.6307	4.00%	330.9398
11.80%	-12.4392	2.50%	33.5292	2.00%	-546.8601
11.90%	17.8420	2.40%	13.9808	3.00%	-104.5214
11.85%	2.7094	2.38%	10.0660	3.10%	-60.6687
11.83%	-3.3481	2.35%	4.1905	3.20%	-16.8846
11.84%	**-0.3191**	2.34%	2.2311	**3.24%**	**0.6098**
		2.33%	**0.2713**	3.25%	4.9818
		2.31%	-3.6496	3.23%	-3.7627

Table 4

So, have I won you over yet? If not, I'll keep trying!

I PROMISED

In the last issue, I promised to share with you the money-weighted returns for the scenario we discussed. To refresh your memory, our portfolio contained several equity securities, including XYZ Industries. At the end of April, there were 100 shares of XYZ, each share valued at $10 per share. On the 5th of May, the stock price dropped to $8.00 and the manager purchased another 100 shares. On the 15th, the price hit $6.00 per share, and 200 more shares were purchased. On the 20th, the price dropped to $4.00 per share and the manager bought an additional 500 shares. At month-end, the price hit $11 per share. The time-weighted return is 10 percent. So, what's the IRR or money-weighted return? The result I came up with is 192.14 percent. The input is shown in the following table:

	XYZ Industries		
	#shares	Price	MV
30-Apr	100	10.00	1,000.00
5-May	100	8.00	800.00
15-May	200	6.00	1,200.00
20-May	500	4.00	2,000.00
31-May	900	11.00	9,900.00

Table 5

I solved for the IRR by using this formula:

$$IRR_{XYZ} =$$

$$1{,}000 + \left(\frac{800}{(1+r)^{5/31}}\right) + \left(\frac{1{,}200}{(1+r)^{15/31}}\right) + \left(\frac{2{,}000}{(1+r)^{20/31}}\right) - \left(\frac{9{,}900}{(1+r)}\right)$$

As you know, the IRR is solved iteratively (i.e., by trial-and-error). A rule-of-thumb is to start with the result you'd obtain by using the Modified Dietz formula

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 important, we encourage the dialogue. We see this newsletter as one way to communicate ideas and want to hear your thoughts.

(which serves as the "first order" approximation to the IRR). The result using the Modified Dietz is 163.33 percent.

My trial-and-errors went as follows:

Test	Result
163.33%	(253.17)
165.00%	(236.86)
170.00%	(189.27)
200.00%	59.79
180.00%	(99.68)
190.00%	(16.90)
195.00%	22.16
193.00%	6.72
192.00%	(1.10)
192.50%	2.82
192.30%	1.25
192.10%	(0.31)
192.15%	0.08
192.13%	(0.08)
192.14%	**0.00**

Table 6

And, as you can see, I hit the mark with 192.14 percent.[1] By using the IRR, as opposed to the TWRR, we present a return that reflects the additional purchases (i.e., internal cash flows) that the manager made.

TIRED OF THIS?

By now, you may be tired of my apparent ceaseless ranting about money-weighted returns. Okay, I understand. We'll talk about something else in July. I promise.

DAVE'S BOOK CLUB

Oprah has one, why not me?[2] Looking for some light (ha) summer reading? I strongly recommend <u>You: The Owner's Manual</u>, by Michael F. Roizen and Mehmet C. Oz. It's fantastic! I liked it so much, I purchased copies for our entire staff.

It's informative and entertaining. Both authors are medical doctors and share a tremendous amount of great insights. And, they're funny (make that, very funny). I guarantee you'll enjoy this book.

1 As a point of clarification, we don't necessarily have to have a result of zero – we continue the iteration until we are reasonably close to zero – in this particular case, we happened to hit it on the nose, but that doesn't always happen. The earlier example showed three occasions where we settled for "close enough."

2 Actually, I learned of this book from Oprah.

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DATE	EVENT	LOCATION	DEADLINE
	Performance Presentation Standards Survey and receive a copy of the results (upon completion) along with a $25 gift certificate.	Participate via our website	June 30, 2005
July 19-20	Introduction to Performance Measurement Training	Chicago, IL (USA)	July 15, 2005
July 21-22	Performance Measurement Attribution Training	Chicago, IL (USA)	July 15, 2005
September 12-13	Introduction to Performance Measurement Training	New York, NY (USA)	September 9, 2005
September 14-15	Performance Measurement Attribution Training	New York, NY (USA)	September 9, 2005
October 4-5	Introduction to Performance Measurement Training	Toronto, Canada	September 30, 2005
October 6-7	Performance Measurement Attribution Training	Toronto, Canada	September 30, 2005
October 17-18	Introduction to Performance Measurement Training	Boston, MA (USA)	October 14, 2005
October 19-20	Performance Measurement Attribution Training	Boston, MA (USA)	October 14, 2005
October/ November	Fixed Income Attribution (FIA™) Symposium	New York, NY (USA)	TBA
November 7-8	Introduction to Performance Measurement Training	Los Angeles, CA (USA)	November 4, 2005
November 9-10	Performance Measurement Attribution Training	Los Angeles, CA (USA)	November 4, 2005
November 16-17	Performance Measurement Forum	Brussels, Belgium	November 11, 2005
December 1-2	Performance Measurement Forum	Orlando, FL (USA)	November 25, 2005
December 6-7	Introduction to Performance Measurement Training	Washington, DC (USA)	December 2, 2005
December 8-9	Performance Measurement Attribution Training	Washington, DC (USA)	December 2, 2005

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