

# VOLUME 15 – ISSUE 10

**JULY 2018** 

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.

Our involvement with the industry isn't limited to consulting. We're actively involved as members of the CFA Institute (formerly AIMR), the New York Society of Security Analysts (NYSSA), and other industry groups. Our president and founder regularly speaks at and/or chairs industry conferences and is a frequent author and source of information to various industry publications.

Our clients appreciate our industry focus. We understand their business, their needs, and the opportunities to make them more efficient and competitive.

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# IT'S SUMMER, SO LET'S NOT SAY TOO MUCH...

Well, it's at least summer in the northern hemisphere, where I find myself most the year. And I suspect that most of our readers are in this half of the globe, as well. And so, rather than provide multiple ideas for you to read, reflect, and perhaps even ruminate over, I've intentionally limited what I have to say, to save both of us time that can perhaps be better spent reading one of the many books that are sitting on our shelves, waiting to be retrieved, and perhaps taken to the beach!

# LOOKING AT STANDARD DEVIATION FROM A DIFFERENT PERSPECTIVE

We frequently think of standard deviation as a measure of *volatility*, because, well, that is what it is. But, there's another way to consider standard deviation: as a measure of *variability*.

In his landmark 1966 paper<sup>1</sup> that gave us the Sharpe ratio, Nobel Laureate William F. Sharpe named his measure "Reward to Variability." He Christened the previously unnamed Treynor ratio the "Reward to Volatility."<sup>2</sup> The Sharpe ratio uses standard deviation as its risk measure:

SharpeRatio = 
$$\frac{r_p - r_F}{\sigma_p}$$



Sharpe acknowledged<sup>3</sup> that standard deviation can also be thought of as a measure of volatility. But, it's the "measure of variability" that I want to focus on now, as it can be quite intriguing.

Many (most?) investment professionals agree that volatility isn't a particularly good risk measure. In his recent and excellent book (*The Geometry of Wealth*),<sup>4</sup> Brian Portnoy pointed out the fallacy in thinking that increasing volatility results in higher returns: "Taking more risk does not produce greater returns. Instead, taking more risk *increases the variability of future outcomes*...There does remain a positive relationship between risk and reward, but as we take more risk, the range around possible outcomes grows." [emphasis in original]

- 2 Treynor, Jack. 1965. "How to Rate Management of Investment Funds," Harvard Business Review. Recall that Treynor used beta as his risk measure.
- 3 In a conversation with Dave Spaulding
- 4 I liked the book so much that I purchased copies for all of our employees! Oh, and we expect Brian to join us in Philadelphia next May, for our annual Performance Measurement, Attribution & Risk (PMAR) North America conference!

http://www.SpauldingGrp.com

<sup>1</sup> Sharpe, William. 1966. "Mutual Fund Performance." Journal of Business.

# *The Journal of Performance Measurement*<sup>®</sup>

## **UPCOMING ARTICLES**

Residuals on Duration-based Fixed Income Attribution – João Sousa Dias, Eagle Investment Systems

GIPS 20/20 – Carl R. Bacon, CIPM, StatPro

The Journal Interview – Nick Sharp, Ph.D., MSCI

## Net-of-Fee Performance Calculations

– Andre Mirabelli, Ph.D., Opturo and Krista Harvey, CFA, CIPM, TIAA

# A Measure for Evaluating the Distributions of Ex-Ante Forecast Returns

 Masahito Shimizu, Tokyo Institute of Technology

# Confronting the Challenges of Multi-Level Attribution

- David Spaulding, DPS, CIPM, The Spaulding Group He demonstrated this in a rather neat fashion. For example:



As we take on more risk, the possible outcomes increase.

#### How we calculate standard deviation

If we consider the two chief ways we calculate standard deviation, we can perhaps appreciate how variability might be used. Here, I'm speaking of the way firms that comply with the Global Investment Performance Standards (GIPS<sup>®</sup>) report it, though even outside of the Standards at least one of these approaches will typically be found.

One GIPS requirement is to report an "internal dispersion" measure,<sup>5</sup> and typically this is standard deviation.<sup>6</sup> We are looking at the distribution of returns for portfolios within the composite that were present the full year. Here the reader should be interested in the distribution of returns, as this is a classic instance where variability is, in fact, what we're interested in.

If you were an investor over this year, how different might the results have been. Is the manager pretty consistent in how they invest, or might there be a wide array of differences, resulting in various results?

GIPS also now requires firms to report the 36-month, *ex post*, annualized standard deviation. I have also opined on what I think is the questionable value of this measure; that is, the annualization of the monthly standard deviation.<sup>7</sup> If we take our corresponding though not required 36-month annualized composite return, and both add and subtract the annualized standard deviation, does this tell us the distribution of two-thirds of possible annual returns? I think not.

With this measure we are choosing to use standard deviation as a *measure of volatility*, not variability. In fact, as was pointed out in the previously footnote-referenced Spaulding (2014), it is not really possible to look at the annualized result as a measure of variability: the monthly, yes; annualized, no.

- 5 Only required if there are six or more portfolios present the full period (typically a year).
- 6 My dislike for the once heralded "asset-weighted standard deviation" is hopefully so familiar with our readers that I can avoid addressing it. If, however, you would like to gain some understanding into my thoughts on this arguably worthless measure, see "Why Do We Abuse, Misuse, and Confuse Standard Deviation?," *The Journal of Performance Measurement*. Fall 2014. And while range, high/low, and quartiles remain viable alternatives, they are very rarely employed.
- 7 Please see the previously mentioned Spaulding (2014) article.

#### Does this not pose a conundrum for us?

#### Perhaps!

If we wish to dismiss (or at least reduce the perceived value of) standard deviation as a *measure of volatility*, what is the attractiveness to the historical standard deviation? In the Sharpe ratio, while his article refers to it as a measure of variability, as already noted Sharpe, too, accepts it as a volatility measure.

While we may not know what the actual distribution of possible returns may be, we can be assured that the more risk we take, the greater potential for variability. I think that is what we need to be aware of.

And despite its limitations, the annualized standard deviation, like its monthly equivalent, tells us how volatile our composite's return has been. And if it's been more volatile than the benchmark, then we can pretty much expect that its distribution of potential results was/is wider.

Most of our commonly used risk measures are, in fact, measures of volatility.<sup>8</sup> My most favorite is tracking error, which is a measure of volatility of excess returns. The higher the tracking error, the more different our return was relative to the benchmark. And, since it's likely that this trend will continue, we can guess that our future returns, too, will be more varied if we continue to make bets that cause tracking error to differ.

#### So, what have we learned

Hopefully, the key "take aways" are:

- it's a good idea to consider standard deviation, as well as many other risk measures, as measures of variability, rather than solely measures of volatility,
- the higher the volatility, means the higher the variability,
- and more risk (volatility) does not, in any way, mean higher returns. Rather, it means higher variability.

Please chime in with your thoughts!

## FROM OUR READERS

Simon Willcox sent us a note regarding the June issue:

I read David's article ... with interest and [for] the first time, I felt duty bound to comment to get his views.

In my humble opinion, I feel the term "Time Weighted Returns" is open to interpretation but should not be mixed up with the concept of "geometrically linked returns" which is something different to the concept of time-weighted

<sup>8</sup> There are, no doubt, loads of reasons for this, though we are seeing more non-volatility measures being introduced, which is a good thing.

["]The recommended rate is called 'time-weighted' because it is simply the weighted average of internal rates of return for the subperiods between cash flows with each weight being only the length of its corresponding subperiod.["]

I interpret the above meaning as a means of explaining an IRR (modified Dietz {MD} or standard Dietz) methodology that he refers to in his article.

The MD is **time weighted** by definition as follows, assuming a one month measurement period.

CF1 on day 11 in a 31 day month = 30CF2 on day 19 in a 31 day month = 20

Then MV1 = MV0 (1+r) + 30 \*  $(1+r)^{(20/31)}$  + 20 \*  $(1+r)^{(12/31)}$ 

R, the rate of return for the month is time weighted using the cashflow amounts as weights for each sub period.

This is by far the most common approach to calculating time weighted returns and then linking them, so I disagree with his statement that "in reality, nobody does this"?

So long, as to you carry out this calculation consistently for each month, then you can geometrical-ly link. Independently, some practitioners argue never linking, but using an extended IRR for the whole period (still time weighted by cashflows)

Regards, Simon

I very much appreciate Simon's note.

I explained the <u>origin</u> of the term, which cannot be disputed. Granted, not many possess the Bank Administration Institute's once cherished volume, but anyone who does can affirm my representa-tion of the term. The BAI coined the term, and intended it to be the method to "link" subperiod results across time. Yes, everyone, everywhere, wisely uses geometric linking. My statement that no one does the method that the BAI proposed is, I believe, also indisputable.<sup>9</sup>

Recall that I suggested that if you go up to just about anyone who's been in performance for a decade or longer, who has the CIPM and/or CFA, and simply ask "what does the term time-weighting mean?," they will likely give you the wrong answer. When I pose this during training, or at other times, I am occasionally reminded of the "timeweighting" of cash flows in Modified Dietz (MD). This is NOT time-weighting as the BAI intended it. Further, since an increasing number of firms and organizations have moved away from the approximation methods such as MD or Modified IRR (MI), replacing them with the daily method, then are we to conclude that they are no longer using time-weighting? If so, then what are we labeling this alternative?

The day-weighting of cash flows that MD and MI use has nothing to do with the concept of "time-weighting."

9 If, I am mistaken; if, you know of someone who, in fact, uses BAI's "time-weighting" linking method, please let me know, so that I can educate them about the mistake they are making.

# **KEEP THOSE CARDS** & LETTERS COMING

We appreciate the emails we receive regarding our newsletter. Mostly, 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.



Bottom line: the term was originally intended as a way to describe a way to link returns, and that is it. However, over time, like many words and terms,<sup>10</sup> it has taken on a very different meaning. And what <u>is</u> that meaning? That the results *eliminate* or *reduce* the impact of cash flows. THAT is what we mean today by time-weighting. No, we don't weight time. But that's okay. Yes, it's confusing. And yes, some, like Simon, will describe how, in limited ways, there seems to be some "weighting of time," but that, again, has nothing to do with the term.

One more time: <u>if</u> *the weighting of cash flows* in MD and MI is what we mean by "time-weighting," then it would be incorrect, improper, invalid to refer to the "exact" method, where one revalues the portfolio daily, or for every cash flow, and where there is no weighting of cash flows, as "time-weighting." And yet, not only do we do this, but this is, in fact, the true measure of time-weighting.

Again, I very much appreciate Simon sending in his comments, as I suspect that his thoughts are shared by many others.

# **PUZZLE TIME!**

## June Puzzle<sup>11</sup>

I found June's puzzle to be fairly simple, as long as you take the hints provided (though, in reality, one might be able to come to them pretty much on their own).

As suggested, I created a starting "checkerboard" to see what the numbers would look like:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
17	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
16	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
14	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
13	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
12	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
11	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
10	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
9	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
8	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
7	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
6	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

And, as suggested, I looked for patterns. The first was that the first column value equals the row number minus one. For example, for row 5, column 1 = 5-1, or 4.

Next, to see what the value is on any given column, you would take the starting row value and add the column number, minus one. For example, for row 5, column 5, it would be (5 - 1) + (5 - 1), or 4 + 4 = 8. I confirmed this for a couple more rows and columns, to ensure that this logic holds.

10 "Podium" and "lion's share" are examples of words and terms that have lost their original meaning.

11 Last month's puzzle came from the "I Love Mathematics" page of FaceBook.

### July puzzle

Perhaps a bit simpler puzzle for a month where you should be spending more time relaxing!

$$3x - 1 = \frac{x+3}{2}$$

Solve this equation:

A. x = 4/5

B. x = 1

C. 
$$x = 2$$

D. x = 7

And so, rather than construct a full 1997 x 2018 checkerboard, we can simply do the math:

Row 1997, column 2018 = (1997 - 1) + (2018 - 1) = 4013.

Anthony Howland sent the following:

Maybe oversimplifying but it seems that the rows go ...

01234 12345

23456

etc

so the number is simply x + y - 2 (for row x and column y)

so 1997 + 2018 - 2 = 4013

The numbers may not be interesting for the puzzle but interesting as to why you chose them...2018 for this year, but why 1997???

I actually took the puzzle as it appeared, and didn't give any thought to why 1997 was chosen; perhaps I should have.

In addition to Anthonly, only a couple our readers got this correct: Daniel S. Kempf Mark Rothermel. We did hear from someone else, who offered an incorrect solution: his/ her name will remain unknown to our general readership.

# THE SPAULDING GROUP'S 2018 INVESTMENT PERFORMANCE MEASUREMENT CALENDAR OF EVENTS

DATE	EVENT	LOCATION
August 14-15, 2018	Fundamentals of Performance Measurement	Chicago, IL
August 16-17, 2018	Performance Measurement Attribution	Chicago, IL
October 15-16, 2018	Fundamentals of Performance Measurement	San Diego, CA
October 17-18, 2018	PMAR West Coast	San Diego, CA
November 15-16, 2018	Performance Measurement Forum	Luxembourg
November 28, 2018	Asset Owner Roundtable	Orlando, FL
November 29-30, 2018	Performance Measurement Forum	Orlando, FL
December 5-6, 2018	Fundamentals of Performance Measurement	Mumbai, India
December 11-12, 2018	Fundamentals of Performance Measurement	New Brunswick, NJ
December 13-14, 2018	Performance Measurement Attribution	New Brunswick, NJ

For additional information on any of our 2018 events, please contact Patrick Fowler at 732-873-5700

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Activity

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## **PMAR WEST II**

If you missed out on the attending PMAR North America, or if getting to the East Coast wasn't convenient for you then you need to be at PMAR West this October 17-18 in San Diego, CA



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