Russell and S&P Corrupt Dr. Sharpe's Award-winning Financial Tool. This hammer belongs in better hands.

- Dr. William F. Sharpe recently won a prestigious award for his introduction of returns-based style analysis (RBSA)
- Users of RBSA should read Dr. Sharpe's article that introduced the idea because then they might use this powerful tool properly
- The common practice in RBSA produces suspect results that shouldn't be relied upon.

On May 10, 2016 Dr. William F. Sharpe was awarded the $80,000 Wharton-Jacobs Levy Prize for Quantitative Financial Innovation for 2015. The award recognizes his work in the area of style analysis, currently known as "returns-based style analysis (RBSA)." "His model was widely implemented across the industry and in academia, and continues to be used today." What most users of RBSA don't realize is that they are not following Dr. Sharpe's recommendation for style indexes in his "Determining Effective Asset Mix" (***Investment Management Review***, December 1988).

Although Dr. Sharpe doesn't recommend a particular index family, he does recommend the following characteristics:

- Mutually exclusive (no asset class should overlap with another)
- Exhaustive (all securities should fit in the set of asset classes)
- Investable (it should be possible to replicate the return of each class at relatively low cost)
- Macro-consistent (the performance of the entire set of securities should be replicable with some combination of the asset classes)

The most popular style index families do not meet these criteria. I discuss each in the following and explain the problems they cause.

<u>The problems with Russell style indexes</u>

Russell style indexes are not mutually exclusive and they are not exhaustive. In addition to these two problems, Russell indexes have two more problems: annual rebalancing and reliance on book-to-price ratios. For details, please see Becoming Style Conscious.

One third of the stocks in the Russell indexes, and one-third of the dollars, are in both value and growth. Similarly, Russell mid-cap stocks borrow from their large cap and small cap indexes. Russell indexes are not mutually exclusive. This creates a statistical problem in RBSA called multicollinearity that creates erroneous (spurious) style results and inflated R-squareds, so the user thinks he is getting a better fit than he is actually getting.

Similarly, Russell indexes are not exhaustive, covering only the largest 3000 companies in the 6000-stock U.S. stock market. Consequently portfolios that hold small companies cannot be accurately analyzed.

The other two problems are also serious. Annual rebalancing means that changes in stock size or aggressiveness are ignored until June of each year. Current realities are suspended until an arbitrary point in time. Also book-to-price is a poor measure of value because book value is a historical artifact while price is current. During the 2008-2009 financial crisis distressed banks became deep value by the book-to-price measure because prices sank while book value was unchanged. The reality of course is that these troubled institutions became very risky, rather than safe.

The problems with S&P style indexes

S&P has a couple of the same problems that Russell has. The S&P indexes are not exhaustive, covering only the largest 1500 stocks in the U.S. market, and they are rebalanced annually.

So which is better?

Neither index family is good. They should not be used in RBSA. Fortunately, there are two index families that do meet Dr. Sharpe's criteria. My Surz Style Pure© Indexes were introduced in 1988. Several years later, in 1993, Morningstar launched a similar family now popularized as "Morningstar Style Boxes." Both index families work very well in RBSA, even though they are rarely used.