

SENIOR CONSULTANT

The Voice of the Investment Management Consultant

Style Analysis: How and Why

Ron Surz, PPCA, Inc.

The majority of today's investors have yet to fully appreciate the importance of investment style, and many of those who have reached this point, do not yet understand the complementary roles that can be played by returns-based and holdings-based style analyses. Because both approaches make important and meaningful contributions to our knowledge about equity performance achievements, they should not be regarded as mutually exclusive competitors. In this article, we examine and contrast returns-based style analysis and holdings-based style analysis, making a distinction between style analysis and attribution analysis.

Style analysis has evolved from a realization that custom benchmarks really are better than off-the-shelf indexes, including style indexes. The first attempts at custom benchmarks were called *normal portfolios*. The difficulty in constructing normals was that they required a determination of the right mix of stocks with the right weightings. Normal portfolios require very sophisticated black boxes. But what if most of a manager's essence could be captured with building blocks that are bigger than individual stocks? What if style indexes could be blended to create reasonably good custom benchmarks? This alternative to custom benchmarks is called *style analysis*. Although it's somewhat less precise, style analysis is easily constructed and, if done properly, reasonably accurate. One form of style analysis is returns-based style analysis (RBSA). RBSA regresses a manager's returns against a family of style indexes to determine the combination of indexes that best tracks the manager's performance. The interpretation of the "fit" is that the manager is employing this "effective" style mix because performance could be approximately replicated with this passive blend.

Another approach, called holdings-based style analysis (HBSA), examines the stocks actually held in the investment portfolio and maps these into styles at points in time. Once a sufficient history of these holdings-based snapshots is developed, an estimate of the manager's average style profile can be developed and used as the custom benchmark. Note that HBSA,

like normal portfolios, starts at the individual security level and that both normal portfolios and holdings-based style analysis examine the history of holdings. The departure occurs at the blending. Normal portfolios blend stocks to create a portfolio profile that is consistent with investment philosophy, whereas HBSA makes an inference from the pattern of point-in-time style profiles and translates the investment philosophy into style.

Experience with style analysis shows that most managers employ some blend of styles so that, generally speaking, no single off-the-shelf style index is appropriate. The style profiles produced by style analysis can be viewed as a "poor man's normal." It's not as robust as a carefully constructed custom benchmark, but generally far better than picking a single generic style index. The manager's benchmark is a custom style profile.

The choice between RBSA and HBSA is complicated and involves several considerations. Although RBSA has gained popularity, this doesn't necessarily mean that it's the best choice. The major trade-off between the two approaches is ease of use versus accuracy and ease of

understanding. RBSA has become a commodity that is quickly available and operated with a few points-and-clicks. Some websites offer free RBSA for a wide range of investment firms and products. Find the product, click on it, and out comes a style profile. Offsetting this ease of use is the potential for error. RBSA uses sophisticated regression analysis to do its job. As in any statistical process, data problems can go undetected and unrecognized, leading to faulty inferences. One such problem is multicollinearity, which exists when the style indexes used in the regression overlap in membership. Multicollinearity invalidates the regression and usually produces spurious results. The user of RBSA must trust the "black box" because the regression can't explain why that particular blend is the best solution.

Contrast this with HBSA, where the analyst can both observe the classification of every stock in the portfolio as well as question these classifications. This results in total transparency and understanding, but at a

**STYLE ANALYSIS HAS
EVOLVED FROM A
REALIZATION THAT
CUSTOM BENCHMARKS
REALLY ARE BETTER
THAN OFF-THE-SHELF
INDEXES, INCLUDING
STYLE INDEXES**



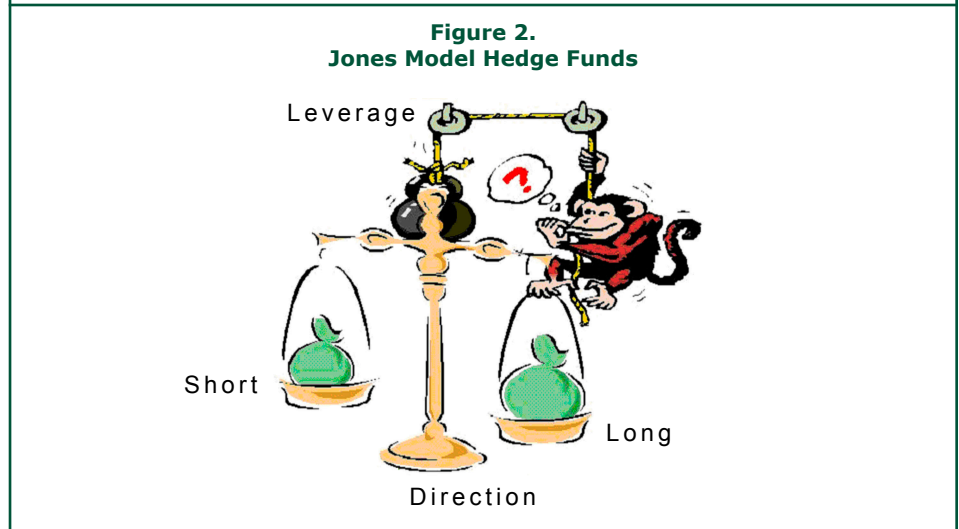
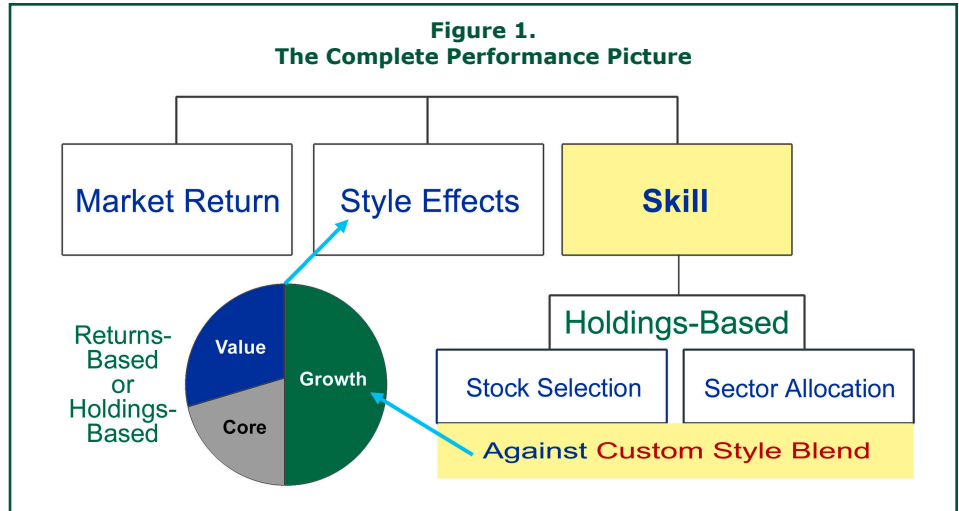
cost in additional operational complexity. HBSA requires more information than RBSA, that is, it needs individual security holdings at various points in time, rather than returns. Since these holdings are generally not available on the internet – as returns are – the holdings must be fed into the analysis system through some means other than point-and-click. This additional work, sometimes called *throughput*, may be too onerous for some, despite the benefits.

In certain circumstances, deciding between RBSA and HBSA is really a matter of Hobson's choice. When holdings data is difficult to obtain, as is the case with mutual funds and unregistered investment products such as hedge funds, or when derivatives are used in the portfolio, RBSA is simply the only choice. RBSA can also be used to calculate information ratios, which are style-adjusted, return-to-risk measures. Some researchers are finding persistence in information ratios, so they should be used as a first cut for identifying skill. Similarly, HBSA is the only choice when it is necessary to detect style drift or to fully understand the portfolio's actual holdings. Also, holdings are required for performance attribution analysis that is focused on differentiating skill from luck – an important distinction. Holdings are required for this level of analysis because we want to decompose performance into stock selection and sector allocation. Returns cannot make this distinction.

The overall performance picture, as we currently understand it, can be summarized in Figure 1.

One of the important lessons reflected in this schematic is that style effects must be taken into account or we will confuse style effects with skill, a common and costly mistake.

The concepts described in the preceding can be applied to some hedge funds, namely Jones model funds. In this context, style and attribution analyses begin by looking independently at the short portfolio and the long portfolio, just as if they were each long-only portfolios. Attribution analysis then blends the two portfolios, adding in the effects of directional bets, which are amounts long or short away from the target long and short exposures for the fund. The final level of attribution is leverage. Here we measure the effects of the targeted leverage



as well as any deviations from this target. Figure 2 summarizes the key elements to be measured and evaluated for hedge funds.

Conclusion

The search for investment manager talent puts a lot of emphasis on recent past performance. Unfortunately, in evaluating past performance, style is routinely confused with skill. After general market effects, the most important determinant of performance is style, followed by a distant third residual that we use to find manager skill. Detecting skill is tough for this reason. Although it's easy to confuse style with skill, it's hard to make good decisions once this mistake has been made. ■

About the Author

Ronald J. Surz, CIMA, is president of [PPCA, Inc.](#), a firm specializing in attribution analysis and the developer of [StokTrib](#), software that tracks style allocations and the effects of style, using portfolio holdings. This point-in-time, style-based attribution analysis applies to both U.S. and non-U.S. portfolios. He has earned an MBA in Finance and an MS in Applied Mathematics. In addition to being member of AIMR's Investment Performance Council (IPC) which develops and maintains investment performance presentation standards, Ron is also a member of the Board of Directors of the Investment Management Consultants Association.