

Getting All the Pieces of the Puzzle

Ron Surz

December 17, 2008

This article will appear as a chapter in the forthcoming book, "*A New Framework for Portfolio Construction*," edited by Dr. Frank Sortino, to be published in 2009 by the Academic Press

He who stops being better stops being good.
Oliver Cromwell

A solid investment program evolves from the integration of various interrelated disciplines, or puzzle pieces. Asset allocation is paramount and involves not only the assignment to asset classes but also the make-up of asset classes, specifically the types of stocks, bonds, etc. The active-passive decision – allocating between active managers and passive indexes – is an important part of the investment program, and constitutes a second level of the portfolio construction puzzle that needs to be solved.

In this chapter we focus on solving the equity investment part of the puzzle which entails (1) the composition of the equity market so we can determine how we want to allocate within it, and (2) the metric we'll use to identify talent so we can make an informed active-passive decision. The first puzzle involves choosing the best family of market indexes. The second involves investment manager evaluation, and requires the construction of the best benchmarks.

As you will see, indexes are not the same as benchmarks, although they are connected. We'll begin our discussion with the distinction between the two.

Equity Market Composition

An index is a barometer of how a particular market segment has performed. For example, the Dow Industrial Index tracks the performance of 30 industrial stocks. By contrast, a benchmark establishes a goal for the investment manager. A reasonable objective is to earn a return that exceeds a low-cost, passive implementation of the manager's investment approach. This may be an index, especially if the investment manager is an index hugger. But it is best to consider customized benchmarks, which is the subject of the next section.

Solving the equity allocation puzzle requires decomposing the market into segments that behave differently, so we can be sure that we have diversified among these components. The benefits of diversification arise from allocations to assets that are uncorrelated, or move differently. The relatively recent introduction of style indexes (based on market capitalization and value/growth) work well for this purpose, although you could choose another differentiator like economic sector. Style indexes have the

desirable property of being easily applicable to many money manager disciplines, so they set up well for the second piece of the puzzle. A variety of style index families are available for consideration, including the popular Russell and S&P indexes, and the less well known Surz Style Indexes.

So how do we choose from among these candidates? We want to divide up the market in small enough pieces that behave differently but not so many pieces that integration is unwieldy.

The Russell and S&P families come in six pieces: large, middle and small sizes of both value and growth. There's an inconsistency here that matters a great deal. On the size scale, defining a middle in between large and small has proven worthwhile since there have been periods when mid-cap stocks have outperformed both large and small, and periods when they have underperformed. Mid-caps behave differently than small and large so it's important to have a separate and distinct barometer for this segment of the market.

What is missing is a similar differentiator on the style front, namely something between value and growth. There are degrees of value and growth, so some growth stocks are more aggressive than others, and some value stocks are deeper value than others. And some stocks have characteristics that are not clearly value or growth – they're the stuff in the middle. Russell deals with this issue by allocating a percentage of each fuzzy stock into value and growth – they are classified as a specific unique mixture of value and growth. S&P ignores the problem altogether by drawing a hard line that divides half of the market's value between value and growth.

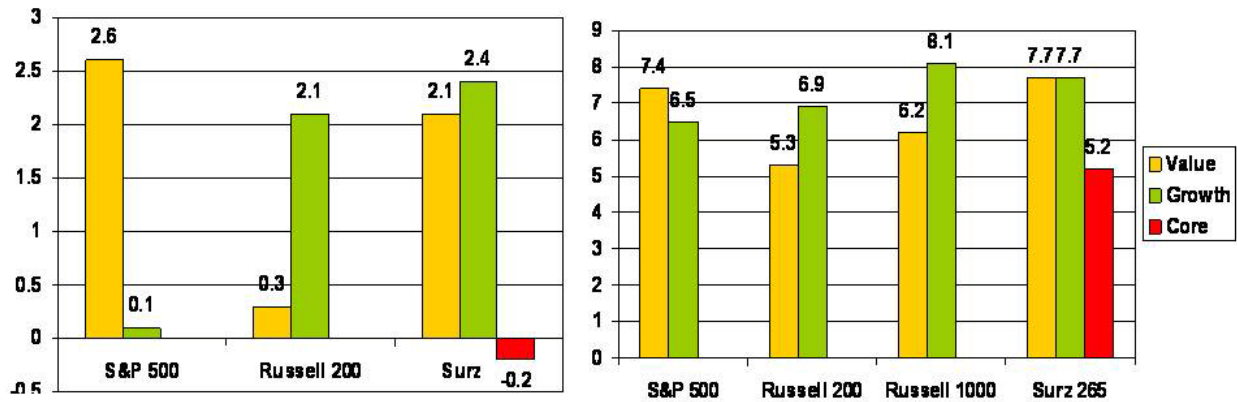
By contrast, Surz indexes deal with this "stocks-in-the-middle" issue by defining a separate category called "Core," so there are nine Surz styles rather than the six maintained by Russell and S&P.

Surz indexes break out value, core, and growth stock groupings within each market cap by establishing an aggressiveness measure that combines dividend yield, price-to-earnings ratio, and price/book ratio. The top 40% (by count) of stocks in aggressiveness are designated as growth, while the bottom 40% are called value, with the 20% in the middle falling into core. The result is a family of indexes that are mutually exclusive and exhaustive, making them perfect for style analyses, including both returns-based and holdings-based style analysis, as discussed in the next section. But they also reveal the reasons that S&P and Russell occasionally disagree – it's because they're missing Core. The following exhibit documents some recent instances of the importance of including a Core index.

Large Cap Style Index Returns Differ in the 2nd Quarter of 2005 & the 1st Half of 2007

2nd Quarter 2005

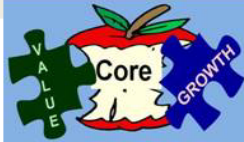
1st Half 2007



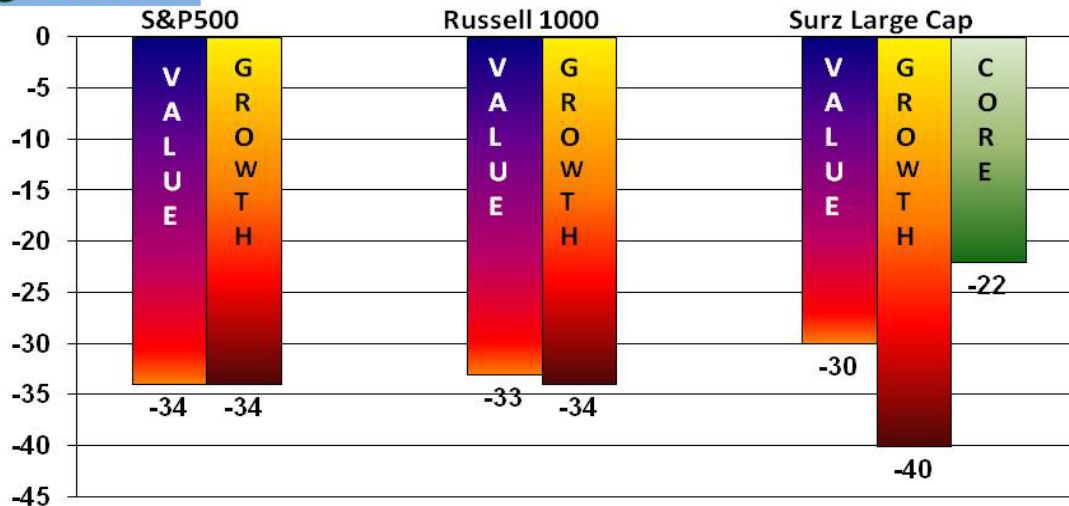
Core usually performs between value and growth, but about a third of the time it does not, including the periods in the exhibit. During these unusual times the Surz indexes, as an alternative to Russell and S&P, provide conspicuously valuable insights. Surz indexes have been around for more than 20 years.

More importantly, there are times when Russell and S&P agree, but the reality is significantly different. Such was the case during the financial crisis of 2008. As shown in the next exhibit, these two indexes measured both value and growth as losing the same amount, about 34%. By contrast, the inclusion of core reveals that value actually outperformed growth, and core outperformed both value and growth. This is an important insight for both portfolio construction and performance evaluation, especially in these distressed times.

Year-to-Date (10/08) Style Distortions Demonstrate The Importance of Core



The Market Structure Puzzle: Core is the stuff in the middle, in between value and growth



Ignoring core leads to poor diversification and the increased likelihood of poor performance. “Homogenized core” stocks, defined as the stuff in the middle as opposed to a blend of value and growth, perform differently than value and growth. Accordingly, ignoring homogenized core is like throwing away the filling in an Oreo cookie – it’s the sweet spot of diversification, around which value and growth revolve.

In most portfolio construction programs, value and growth styles receive roughly market weight-weighted allocations, and the investor usually applies strategic bets above or below these market weights to enhance performance. But these bets unknowingly underweight homogenized core. Research conducted by Dr Frank Sortino of the Pension Research Institute and Sortino Investment Management proves this point, and indicates that allocations to skillful value and growth managers systematically underweight the middle of the market. This is understandable in light of the scrutiny that most managers are under to maintain style consistency. Managers are incited to sell companies that drift toward the middle, away from their declared style. The result is an unintended bet in most managed portfolios away from homogenized core. This is a diversification mistake, and one that hurt performance in the economic crisis of 2008, as shown in the exhibit above.

The asset allocation process allocates to equity style puzzle pieces in their market proportions, or at least acknowledges that anything other than a market weight is a bet designed to add value. This leads to the second puzzle, active or passive management.

Evaluating Investment Managers: The Search for, and Use of, Skill

The professional search for investment talent is currently being conducted in the same way that the drunk looks for his keys under the light of a lamppost. When asked where the keys were lost, the drunk replies “up the street, but the light is much better here.” When it comes to investment fund selection and allocation, advisors are doing what is easy rather than what makes sense. They ought to be customizing the benchmark rather than limiting their comparisons to off-the-shelf indexes, and they should allocate to talent rather than to style boxes. In other words, consultants should fish for talent with fly rods not flypaper. More thoughtful, albeit more difficult, angling for active managers will enrich investment talent harvests and their applications.

Fund selection criteria currently favor index funds and index huggers, because style boxes undermine the search for skill. Equity allocations are pre-ordained to set style boxes, each with their own index, and managers are sought to track these indexes. **Risk is defined at the individual manager level as tracking error¹**. The standard approach today begins with a decomposition of the stock market into 4 style segments, for example 35% large growth, 35% large value, 15% small growth and 15% small value. Managers are chosen for each of these four assignments, and assets are allocated to the winners at the market weights. This simplifies the process but compromises the talent search.

Because risk is defined as tracking error, index huggers have an edge in manager searches. But recognize that alpha and R-squared are from different alphabets: low tracking error limits the alpha that can be achieved. Populating our asset allocations with index huggers makes for a mediocre but safe portfolio. So the problem with this current approach is that it's hard to make a good cioppino when all the ingredients are bland, even if they are safe. Our industry has drunk the index huggers' cool aid, and has reversed a process that had been in place for some time.

Not too long ago, we sought skill wherever we could find it. Then, once a talent pool was filled, allocations across this pool were optimized for diversification. **Risk was defined in the aggregate as failure to achieve objectives and it was talent that mattered.** Dr. Frank Sortino continues this tradition with his latest work. Dr. Sortino develops his talent pool using a measure he calls “DTR α ” which customizes the benchmark to each manager's style profile. He then allocates to this pool to maximize total portfolio DTR α while simultaneously minimizing style bets. Each manager comes into solution as a blend of styles. The active-passive decision is a mix of both: use active managers wherever you can find skill and fill in the voids with passive style indexes.

DTR α uses custom benchmarks derived from style analysis. Before style indexes were developed, there was wide acceptance and support for the concept of a “normal portfolio,” which is a customized list of stocks with their neutral weights. “Normals” were intended to capture the essence of the people, process, and philosophy behind an

investment product. However, only a couple of consulting firms were any good at constructing these custom benchmarks. Today we can approximate these “designer benchmarks” with style analysis, sometimes called “the poor man’s normals.” While style analysis may not be as comprehensive as the original idea of normal portfolios, it makes it possible for firms to partake in this custom blending of style indexes. Style analysis can be conducted with returns or holdings. Both approaches are designed to identify a style blend that—like normals—captures the people, process, and philosophy of the investment product.

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 a blend of passive indexes.

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. HBSA, like normal portfolios, starts at the individual security level and both 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.

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 (RBSA) versus accuracy and ease of understanding (HBSA). 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 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. In his 1988 article entitled “Determining a Fund’s Effective Asset Mix”, Nobel laureate Dr. William Sharpe introduced RBSA and set forth recommendations for what has come to be known as the “style palette”:

“It is desirable that the selected asset classes be:

- mutually exclusive (no class should overlap with another)

- exhaustive (all securities should fit in the set of asset classes)”

Surz indexes² are one of only two index families (the other is Morningstar) that meet these important criteria, and are the preferred choice of Dr. Sortino in his groundbreaking work. Surz indexes were the first on the scene, introduced in 1986. Then Morningstar followed more than a decade later in 1997.

Treating all managers as index huggers is an evaluation mistake. We need to bring the best custom benchmark to each liberated manager, rather than force these square pegs into round holes. Otherwise, we will miss a lot of talent. Some investment firms are simply at their best when left unfettered from indexes. This doesn't take these firms off the benchmark hook; it customizes the hook.

The investment manager research and due diligence industries have been lazy and sloppy with their benchmarks, tolerating the obfuscations of investment relationship personnel. What we allow in this high stakes game we encourage, at the clients' expense. Flawed benchmarks lead to flawed decisions.

This manager-in-a-box approach produces flawed asset allocations. Since many managers don't belong in a box, the allocations to styles get distorted. If the intention is to allocate a percentage of assets to the large growth segment of the market and a single manager is assigned to that segment, we should be sure that the manager is 100% pure large growth.

Conclusion

The challenge in solving the portfolio construction puzzle is defining the puzzle pieces. Current practices, such as shoving every manager into a style box, amount to jamming square pegs into round holes. Better solutions emerge when puzzle pieces fit together, and utilize mutually exclusive and exhaustive style indexes that explicitly include core. Only two style index families meet these criteria – Surz and Morningstar. Morningstar indexes are domestic only while Surz style indexes are both domestic and foreign.

¹ A detailed discussion of limitations of the information ratio are discussed by Dr. Joseph Messina in chapter 6 of “Managing Downside Risk in Financial Markets, Frank Sortino & Steven Satchell, Butterworth Heineman, 2001

² Surz indexes are available on a number of platforms including Zephyr Style Advisor, MPI Stylist, Ibbotson Associates, Northfield, Factset, Pertrac, PSN/Informa, Frontier/SunGard, Open Finance Network, and Cainsoft