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What Comes Next?

The Case For A New Generation Of Indexes

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Illustration By Russell Thurston





Introduction

The growing popularity of indexes and investable index products has helped investors in many ways—especially with regard to investment costs. Low-cost index funds have saved investors hundreds of millions of dollars in the form of lower fees and lower tax bills. Yet the aggregate asset flows into both general and style-based index funds suggest that few investors are using them to build better portfolios. As a group, investors still buy high and sell low, whether their investment vehicle of choice is an active or a passively managed fund. As reported in this journal, index fund inflows, as a percentage of all fund inflows, increase substantially during rising markets yet decrease during declining markets.¹ To truly help investors, index-based investments need to move from simply being lower-cost surrogates for active management to being tools that encourage better behavior by investors, better portfolio construction and—ultimately—better investment results.

The Past To The Present

The earliest indexes were designed to gauge the market's general direction. As technology improved, these gauges moved from very basic indexes like the Dow to broader market measures like the S&P 500. In time, higher quality measures of the full market, such as the Wilshire 5000, emerged. These indexes work well if the goal is to simply track (or hold) the entire market. But they are insufficient for investors seeking greater control over their portfolios, or those looking to evaluate more narrow disciplines.

A second generation of indexes rose to meet this demand by replicating various investment styles. From one- and two-factor models like the S&P/Barra and Russell indexes, the field has evolved to more complex six- to nine-factor models such as those of Salomon Smith Barney, Dow Jones and the forthcoming U.S. equity indexes from MSCI. (Editor's note: See the following article in this issue.) These indexes seek to be flexible benchmarks that replicate the behavior of active managers. Yet investment managers ply an infinite number of approaches, hence any attempt to group them into one or two styles will, by definition,

result in very broad indexes.

The matter is further complicated by the fact that many index providers incorporate stock overlap in their indexes. That is, they allow stocks on either side of a dividing line to be counted in both adjacent indexes—representing broader opportunity sets of stocks for selection. The rationale for doing so is that indexes should reflect the way that money managers actually invest. As a manager of one of the largest family of index funds writes in support of such manager-defined indexes, “The reality...is that growth and value, and small-cap and large-cap, are what investment managers deem them to be. Modern portfolio theory doesn't define any of those terms. Managers do.”

But how sound is the logic of using the collective decisions of portfolio managers to define divisions of the market? Is General Motors really big because large-cap managers hold it, or is it simply big because it's big? Conversely, is Amazon.com a value stock if Bill Miller buys it? We think not. Further, as a group, managers don't follow a shared discipline, so trying to incorporate their varied approaches will inevitably lead to indexes that represent very broad, overlapping opportunity sets.

Morningstar's view is that such broad, overlapping style benchmarks have diluted the overall definition of growth and value (especially when a stock's market cap is split between two indexes²). Managers appear to have conformed to these broad benchmarks by playing close to the middle, investing largely in stocks that demonstrate neither strong growth nor value traits. The overly broad nature of these indexes makes it permissible for growth managers' portfolios to include not only healthy samplings of core stocks, but even to cross over into the value category. Likewise, value managers are allowed to or even encouraged to hold decidedly non-value stocks, reaching into core and beyond into growth. The “sameness” of the most commonly used style indexes not only reduces the true diversification potential available to investors, but it also makes it harder to tell which side of the field managers are playing on.

Despite the relatively high degree of correlation between value and growth indexes

within many index families, there are meaningful differences in stock behavior, as evidenced by price behavior and volatility, that exist independently of managers' selections. Academics began exploring fundamental factors such as ratios and market caps, and how these factors correlate to performance, long before active managers took notice of such things.³

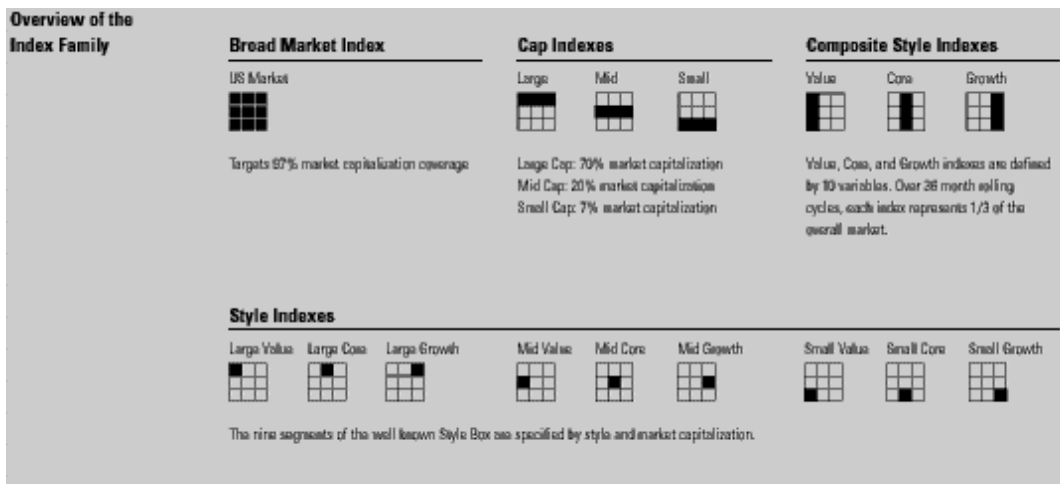
Our Case For The Future

We think it's time for a new, third-generation approach to index construction. We believe investors would be better served by distinct indexes based on the most meaningful differences in stock style and capitalization, as opposed to broad indexes built using an overlap approach or those based on the collective decisions of portfolio managers. This approach sets out to define the playing field, identifying which fundamental traits of individual securities are associated with which performance patterns. Once the field has been defined, the behavior of the players can be tracked, identifying not only which managers add value, but also, more importantly, how they do so. Moreover, by marking the boundaries of the field, potent investable indexes can be constructed that would allow investors to efficiently reposition their portfolios to the spots they desire. Such

indexes also offer a more flexible basis for portfolio construction and would contribute to a better investor experience.

While proponents of other approaches might protest that non-overlapping indexes restrict portfolio managers—we would argue that the opposite is true: The most restrictive approach is one that assumes that indexes and managers should do the same thing. Distinct component indexes, used singly or in weighted combinations, offer the possibility of calibrating an appropriate measure to match any precise target asset allocation—not a default benchmark that includes stocks in other subasset classes.

This third generation approach opens up new uses for indexes as the basis for attribution analysis. Such indexes would also allow for more potent index-based investment products that can serve as “building blocks” for portfolio construction. Third-generation indexes that are constructed without gaps and without overlap can be ideal tools for style-based attribution analysis. Attribution analysis of an equity portfolio can only be done with a classification system that divides stocks into unique and mutually exclusive groups without omissions. Just as sector-based attribution analysis cannot be done unless each and every stock is assigned to a sector, style-based attribution



Value Score Factors			Growth Score Factors		
		Weight%			Weight%
Forward-Looking	Pace-to-Projected Earnings	60.0	Forward-Looking	Long Term Projected Earnings Growth	90.0
Historical	Pace-to-Book	12.5	Historical	Earnings Growth	12.5
	Pace-to-Sales	12.5		Sales Growth	12.5
	Pace-to-Cash Flow	12.5		Cash Flow Growth	12.5
	Dividend Yield	12.5		Book Value Growth	12.5



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analysis can only be done if each and every stock is assigned to a style. A family of indexes constructed this way can be used to measure how managers add value relative to their style bets.

Building New Indexes

We've used the approach outlined above to create a new set of market indexes—one we believe should lead to improved results for investors. Our recently introduced family of 16 U.S. equity indexes tracks the U.S. market by capitalization and investment style using a comprehensive and non-overlapping approach based on the methodology for the Morningstar Style Box. (See sidebar for details.) The investment style of each individual security is determined by a comprehensive 10-factor methodology that separately measures both the value and growth characteristics of each security, using historical and forward-looking elements. One of the defining characteristics of our indexes is our treatment of the “core” style for the stocks for which neither growth nor value characteristics dominate. Such stocks, including General Electric, Coca-Cola, and Procter & Gamble, merit their own category, allowing them to be treated as a distinct group. Further, it permits value and growth indexes that better reflect the accepted definitions of these different approaches to security evaluation and selection.

What Really Matters

In the end, stock style distinctions are meaningless unless they reflect material differences in stock return patterns. Indeed, we think such differences should be the basis for evaluating style models.

- To be useful, a distinction between the styles of different stocks must imply a difference in return behavior. Otherwise it is a distinction without a difference.
- It isn't necessary for one style to outperform another or that there be any expectation of outperformance; rather, stocks of different styles should react differently to risk stimuli, and thus have different risk exposures and different patterns of performance.
- The more effectively a style classification process distinguishes among stocks with different risk exposures, the greater the

expected difference in their return patterns.

- The greater the difference in return patterns, the more necessary it is for investors to take style differences into account when constructing a portfolio.
- The more substantial the size of the average return difference, the more valuable the model.

We evaluated the differences in return behavior of value stocks and growth stocks, as evidenced by 15 value-growth pairs of U.S. domestic stock indexes. These comprise large-cap, mid-cap and small-cap bands for each of five separate index “families.” Our research demonstrates that the style definitions on which the Morningstar indexes are based provide overall return patterns for U.S. value and growth stocks that are distinct, and, that in general they are more distinct than those of other style-based index pairs. The consequences for investors, advisors and investment managers are important. This work supports our conclusion that the Morningstar U.S. style indexes represent separate sets of stocks with consistently different risk characteristics and distinct return behaviors, and provide superior opportunities for portfolio diversification and risk management.

For each of the Morningstar value and growth indexes and the corresponding indexes from S&P/BARRA, Dow Jones, Wilshire and Russell, between July 1, 1997, and June 30, 2002, inclusive, we measured:

1. Value/Growth Return Correlation: The correlation in monthly returns of the value and growth indexes.
 2. Maximal Large-Cap Return: The cumulative return of a notional portfolio that was reallocated monthly, with perfect foresight, between each pair of value and growth indexes (the maximal return portfolio).
 3. Euclidean Distance, V-G Returns: Euclidean distances⁴ between the non-overlapping monthly returns of each pair of value and growth indexes.
 4. 60-Month V-G Volatility Ratio: The ratio of growth stock monthly return volatility to value stock monthly return volatility (as measured by standard deviation).
- Table 1 summarizes the return and volatility histories, and the differences between them, for five pairs of value and growth



Table 1 Value and Growth Indexes

Large-Cap Stock Indexes	Morningstar	Dow Jones	Russell	S&P/BARRA	Wilshire
Return and Volatility Summary					
Large-Cap Cumulative Return (%)	12.5	11.5	15.5	19.8	18.5
LC Growth Cumulative Return (%)	-17.5	-15.5	-3.1	12.9	3.2
LC Value Cumulative Return (%)	33.7	24.4	31.3	22.3	21.7
LC Growth Return Vol.	8.9	7.8	6.8	6.0	6.8
LC Value Return Vol.	4.6	4.6	4.8	5.0	4.9
Style-Related Return Differences					
Value/Growth Return Correlation	0.49	0.56	0.68	0.75	0.70
Maximal Large-Cap Return (%)	554.8	365.8	260.2	191.9	243.5
Maximal LC Return/Overall Return	44.3	31.8	16.7	9.7	13.1
Euclidean Distance, V-G Returns	59.3	49.4	38.8	0.8	37.7
60-Month V-G Volatility Ratio	1.9	1.7	1.4	1.2	1.4
Rankings in Style-Related Return Differences					
Value / Growth Return Correlation	1	2	3	5	4
Maximal LC Ret / Overall Return	1	2	3	5	4
Euclidean Distance, V-G Returns	1	2	4	5	3
60-Month V-G Volatility Ratio	1	2	3	5	4

indexes in the large-cap band.⁵ Overall, Morningstar's value and growth style indexes demonstrate more distinctive return patterns than do other value and growth indexes. The differences among index families are especially evident for large-cap and small-cap stocks, where Morningstar's value and growth indexes rank first on all measures. For mid-cap stocks, Morningstar's indexes rank first on two measures and second on the other two. The greater distinctiveness of the Morningstar indexes is attributable in part to the existence of Morningstar's core index,

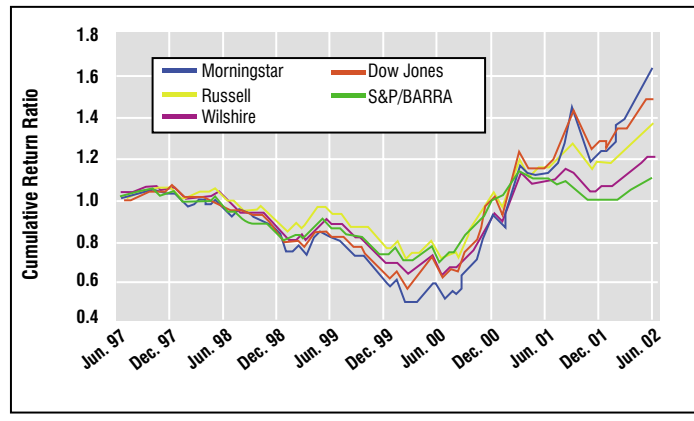
which ensures that the Morningstar value and growth indexes remain distinct in their fundamental characteristics at all times, and in part to the robustness of Morningstar's 10-factor style model.⁶ Note that in those instances where the Morningstar indexes rank second, it is the Dow Jones value and growth indexes—which exclude neutral stocks—that achieve slightly higher scores.

Relative Return Ratios

Another way to compare the distinctiveness of value stock and growth stock returns is to measure the ratio of the value of one dollar invested in a value index to the value of one dollar invested in a growth index. Chart 1 shows the value-growth return ratio for the five index families shown in previous sections for large-cap stocks, from June 30, 1997, to June 30, 2002.

Barring an expectation for one stock style to outperform the other

Chart 1 Ratio Of Large-Cap Value Returns To Growth Returns





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over an extended period, we can assume that this ratio will average approximately 1.0. Hence, over any particular period of time, the amount by which the ratio deviates from 1.0 indicates the difference between—that is, the distinctiveness of—the returns of the two indexes. Because each pair of value-growth indexes is represented by a single series of numbers, it allows a clear comparison among different index families.

As Chart 1 shows, the relative returns of value and growth stocks have clearly moved in close step across all index families. Value stocks substantially outperformed growth stocks as measured by all five indexes. The Morningstar indexes show the highest ratio of value stock return to growth stock return, again indicating a high degree of distinctiveness for the Morningstar indexes.⁷

Conclusion

Indexes and index funds have the potential to do much more for investors than they

have to date. By defining the field, rather than mimicking portfolio manager behavior, indexes can lay the basis for performance attribution, portfolio construction and better manager evaluation. And rather than assuming that managers can't add value, investors can use these indexes to explore the techniques of those who have.

We believe the role of index providers should be to focus on making useful, non-overlapping distinctions, leaving the stock picking to the managers. As measures, indexes should reveal where on the field a manager is playing, allowing investors to accurately determine how that strategy will fit in the their overall portfolios. Finally, as investment alternatives, style indexes that are pure distillations of style—not diluted versions—have greater utility in that they can efficiently reposition a portfolio according to the investor's wishes, without creating undesired redundancy. Rather than asking managers to serve indexes, it's time for indexes to serve investors.

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Endnotes

¹ Wiandt, Jim, "Passive Investing Trends," Journal of Indexing, 3rd Quarter, 2001.

² Citigroup, IBM, Procter & Gamble, Merck, and Coca-Cola, for example, all appear in both the Russell 1000 Value Index and the Russell 1000 Growth Index. According to a recent Financial Times article ("Investors Get Used to a Stylistic Leap," October 17, 2002), approximately 40% of the stocks contained in the Russell indexes are overlapped.

³ There is extensive academic literature on value and growth stocks that dates back to Sanjoy Basu, "Investment Performance of Common Stocks in Relation to their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis," Journal of Finance (September, 1977). Similarly, the "size effect" dates back to Rolf W. Banz, "The Relationship between Return and Market Value of Common Stocks," Journal of Financial Economics (March, 1981). A proliferation of funds that focus specifically on value or growth stocks or large-cap, mid-cap, or small-cap stocks, or combinations such as large-cap growth, followed the publication of this literature.

⁴ Euclidean distance is calculated as $\sqrt{\sum_{m=1}^{60} (rg_m - rv_m)^2}$ where rg_m = monthly return on growth stocks and rv_m = monthly return on value stocks, over the 60-month period July 1997 through June 2002. We use the Euclidean distance rather than the tracking error to take into account the difference in the levels of returns between the value and growth indexes, as well as the volatility of the monthly return differences.

⁵ Results for mid- and small-cap indexes are available at <http://www.journalofindexes.com>.

⁶ See "Morningstar Index Construction Rules" at <http://indexes.morningstar.com>

⁷ The Morningstar indexes also show the highest ratio of value stock return to growth stock return in the mid-cap and small-cap bands. See <http://indexes.morningstar.com> for the full set of results.

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