PART

One

Equities

EQUITY STYLES AS ASSET CLASSES

Although equities are frequently referred to as an asset class, they are in practice modeled as several distinct subasset classes, each represented by a different index. In the United States, investors often divide domestic equities along two dimensions: market capitalization and value/growth orientations. This practice is based on a large body of academic research that shows that, over the long run, small-cap stocks outperform large-cap stocks and value-oriented stocks outperform growth-oriented stocks.

In the 1990s, Morningstar popularized the concept of style investing with its now ubiquitous nine-square equity Style Box, as shown in Figure I.1.

The popularity of equity style investing led all of the major equity index providers to create families of style indexes along the lines of a style grid. Morningstar launched its own family of style indexes in 2002. The creation of these families of indexes and the growth of style-specific actively managed funds made it fairly straightforward to introduce equity-style asset classes into asset allocation models. Today in the United States, it is common to see specific allocations to U.S. large-cap value stocks, U.S. large-cap growth stocks, U.S. small-cap value stocks, and so on, in an asset mix.

Unfortunately, using equity style groups as asset classes is not as straightforward as it first appears to be. Each index provider uses its own methodology to decide how to distribute stocks among its family of style indexes. Therefore, the choice of index provider has a significant impact on the capital market assumptions (expected returns, standard deviations, and correlations) that go into an asset allocation model. This is the reason that

FIGURE I.1   The Morningstar Equity Style Box™
Source: Morningstar, Inc.

I chose Kaplan, Phillips, and Pascavis (2009) as the first chapter for this book. In this chapter, we compare the statistical properties of five families of U.S. equity style indexes. (Naturally, the results favor the Morningstar index family!)

Although there is research that supports the style approach to classifying equities in international markets, and index providers have introduced equity style indexes into these markets, the concept has not gained much traction outside of the United States. In Chapter 2 (Kaplan 2010), I make a case for style investing for European markets, using the Morningstar European equity style indexes to illustrate my points.

FLAWS OF FUNDAMENTAL INDEXATION

Until the publication of Arnott, Hsu, and Moore (2005), there was little question that the proper way to construct an asset class index, particularly an equity class, was to weight the index constituents in proportion to their market values. Arnott and his co-authors criticized this practice and argued that investors would be better served by indexes that are weighted on fundamental measures of size, such as revenues, earnings, and book value, rather than market values.

As I discuss in Chapter 3 (Kaplan 2008), several researchers criticize fundamental indexation on both theoretical and empirical grounds. They show that the theoretical arguments for fundamental indexation are flawed and that the empirical results are largely the result of style bias inherent in Arnott's weighting method, which systematically overweights value stocks and underweights growth stocks relative to market-value weights.

In Chapter 3, I critique fundamental indexation and argue in favor of a hybrid approach that uses weighting techniques that combine market and fundamental values. After the publication of my article, Arnott and I held a lively debate moderated by Larry Siegel. Chapter 4 (Arnott, Kaplan, and Siegel 2009) is an edited transcript of our debate.

In Chapter 5 (Arya and Kaplan 2006b), Sanjay Arya and I propose another hybrid weighting technique, called *collared weighting*. With collared weighting, most of the portfolio is weighted by market value; only those stocks with outlying valuation ratios (both high and low) are subject to a fundamental weighting. This dynamic changes, however, during periods of extreme valuation ratios (such as during the tech bubble of the late 1990s). During these periods, most of the portfolio is fundamentally weighted.

Some index providers design equity indexes to represent very specific strategies, such as dividend income. Instead of using market-value weightings, dividend indexes base their weights on income objectives. In Chapter 6 (Arya and Kaplan 2006a), we argue that the most suitable weighting method for a dividend-oriented index is fundamental weighting based on the total dividends available to investors provided by each index constituent.

ESTIMATION ISSUES

The last three chapters of this section deal with estimation issues that arise in equity-asset-class modeling. Chapter 7 (Kaplan 2003) addresses the asset-allocation issues of using actively managed equity funds in a portfolio of style-specific indexes. The direct way of doing this is to examine each fund's equity holdings. However, this holdings-based approach requires a large dataset of fund portfolios and the characteristics of individual stocks. Sharpe (1988, 1992) proposed an alternative method, known as returns-based style analysis. In returns-based style analysis, the weights of the various indexes are estimated by what is essentially a time series regression of the returns of the funds versus the returns of the indexes. This approach avoids the need for knowledge of the fund's holdings or data on the fund's constituents. By using Morningstar's database on fund holdings and individual stocks, I was able to conduct a thorough study to compare the results of the two methods.

Chapter 8 (Ibbotson, Kaplan, and Peterson 1997) addresses a statistical issue that arises when estimating the behavior of the returns of small-cap stocks; namely, the expected return premium and the systematic risk of small-cap stocks. Frictions in the markets for small-cap stocks induce correlation between the returns of small-cap stocks and the lagged returns of large-cap stocks. This results in investors overestimating small-cap premiums and underestimating the systematic risks (betas) of small-cap stocks

relative to large-cap stocks. Thus, investors might be tempted to overweight small-cap stocks in their asset-allocation models.

In Part III of this book, I include a chapter on hedge funds that raises a similar issue: the overestimation of alphas and the underestimation of betas that occurs with hedge funds that hold illiquid assets.

The last chapter of this section, Chapter 9 (Clare and Kaplan 1999), presents a technique for estimating the expected returns (or cost of capital) of emerging and frontier markets from macroeconomic data. With the absence of mature equity markets in these countries, investors need to go outside of the capital markets to estimate expected returns. (The results presented need to be interpreted in light of the note on expected returns and geometric mean at the beginning of this book.) Our approach also has a more general appeal. It provides a way to directly tie global macroeconomic data to global asset allocation models; hence, changes in economic conditions can be reflected in changes to asset allocations.

Note that this article was written before the world had been firmly divided up into developed, emerging, and frontier markets. But our distinction in the article between developed and developing countries that do not have equity markets represents basically the same idea.

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CHAPTER **1**

Purity of Purpose: How Style-Pure Indexes Provide Useful Insights*

Paul D. Kaplan, Don Phillips, and Travis Pascavis

The growing popularity of indexes and investable index products has helped investors in many ways—especially with regard to investment costs. Yet, there is little evidence that investors are using them to build better portfolios. To truly help investors, index-based investments need to evolve from lower-cost surrogates for active management to tools that encourage better investor behavior, better portfolio construction, and—ultimately— better investment results.

Morningstar launched its family of style indexes in 2002.[1] Our primary objective was to offer distinct indexes based on the most meaningful differences in stock style and capitalization. Since the launch, the idea of style-based indexing has gained further ground, and other index providers have retooled their style methodologies to align them with more readily accepted definitions of value and growth. In this chapter, we update the results of a study originally published in 2003 (Phillips and Kaplan).

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*http://corporate.morningstar.com/us/asp/subject.aspx?xmlfile=363.xml&filter= 448, November 2009. © 2009 Morningstar. All Rights Reserved. Used with permission.

THE PAST TO PRESENT

The earliest indexes were designed to gauge the market's general direction.
As technology improved, these gauges moved from very basic indexes, such
as the Dow Jones Industrial Average, to broader market measures like the
S&P 500 Index. In time, more inclusive measures of the full market, such as
the Wilshire 5000 Total Market Index, emerged. These indexes work well
if the goal is to simply track (or hold) the entire market. However, they
are insufficient for investors seeking greater control over their portfolios or
those looking to evaluate narrower disciplines, such as a manager or strategy
that focuses solely on growing small companies.

Index providers such as S&P, Russell, Dow Jones, Wilshire, and MSCI
rose to meet the demand of replicating various investment styles by develop-
ing style indexes. These indexes group stocks in buckets such as growth or
value to replicate the behavior of active managers. Because active managers
typically do not restrict themselves to stocks that fall on one side of a divid-
ing line, 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, thus representing broader opportunity sets of stocks
for active management selection.

Morningstar's view is that such broad, overlapping style benchmarks
dilute the overall definition of growth and value. The overlap in the most
commonly used style indexes, as shown in Figure 1.1, not only reduces the
true diversification potential available to investors but also makes it harder
to tell on which side of the field managers are playing.

THE STATE OF THE ART

We designed our style indexes to offer the most meaningful difference be-
tween stock style and capitalization, as opposed to broad indexes built using
an overlap approach or those based on the collective decisions of portfolio
managers. With this objective in mind, we set out to redefine the playing
field, identifying the fundamental traits of individual securities associated
with their performance patterns. We believe that once the field has been de-
fined, the behavior of the players can be tracked, identifying not only which
managers add value, but, more important, how they do so. Moreover, by
marking the boundaries of the field, the indexes would be the basis for
precise portfolio construction tools that would allow investors to efficiently
reposition their portfolios.

The Morningstar Style Indexes family consists of a set of 16 indexes
that track the U.S. market by capitalization and investment style using a

Morningstar Ownership Zones: The ownership zone represents 75% of the indexes' stock holdings.
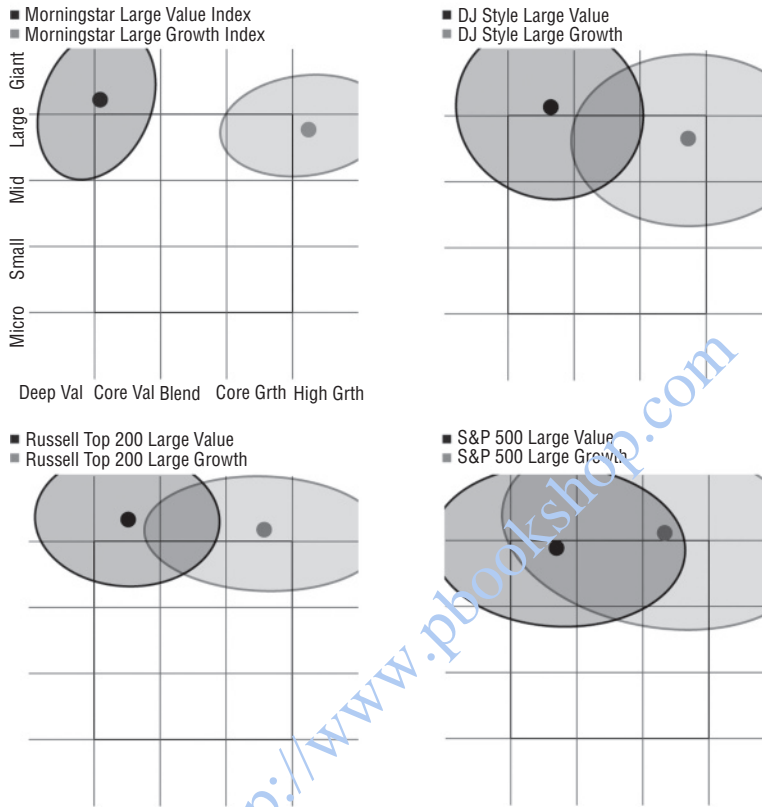The centroid represents the weighted average of stock holdings.

■ Morningstar Large Value Index
■ Morningstar Large Growth Index

■ DJ Style Large Value
■ DJ Style Large Growth

■ Russell Top 200 Large Value
■ Russell Top 200 Large Growth

■ S&P 500 Large Value
■ S&P 500 Large Growth

Deep Val Core Val Blend Core Grth High Grth

FIGURE 1.1 Overlap in Large-Cap Value and Growth Indexes
Source: Morningstar Direct.

comprehensive and nonoverlapping approach based on the methodology
for the Morningstar Style Box (see Figure 1.1). 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. (See Table 7.1 and
Figure 7.1 for an illustration of the Morningstar style model.) One of the
defining characteristics of our indexes is our treatment of the core style of the
stocks, for which neither growth nor value characteristics dominate. Such
stocks, including IBM, Wal-Mart, and Procter & Gamble, merit their own
category, allowing them to be treated as a distinct group. Further, separating

these core stocks ensures that our value and growth indexes 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 better performance. 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, represented by the value-growth pairs of common U.S. domestic large-cap stock indexes. 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—more distinct than those of other style-based index pairs.

We calculated:

Value/Growth Return Correlation

The correlation in monthly returns of the value and growth indexes.

Maximal Return

The compound annual return of a notional portfolio that was reallocated monthly, with perfect foresight, between each pair of value and growth indexes (the maximal return portfolio).
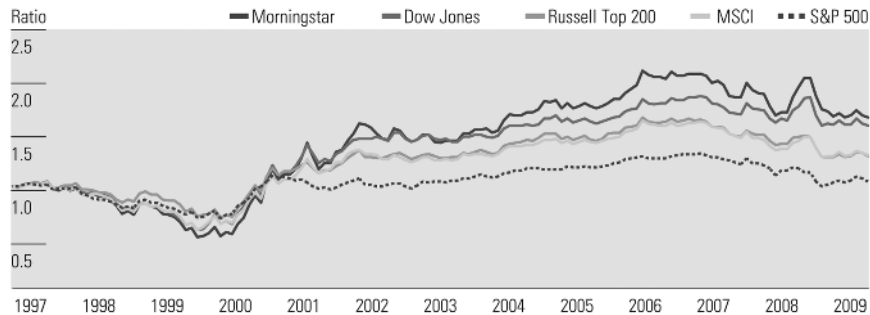
FIGURE 1.2 Cumulative Ratio of Large-Cap Value Returns to Growth Returns
Sources: Morningstar Direct, Morningstar, Inc., Dow Jones, Russell Investments, MSCI, Standard & Poor's.

Volatility Ratio

The ratio of growth stock monthly return volatility to value stock monthly return volatility (as measured by standard deviation).

Geometric Difference

The compounded pairwise difference in annual returns between the value and growth indexes over the period under study.

Figure 1.2 and Table 1.1 summarize the results.

Overall, Morningstar's value and growth style indexes demonstrate more distinctive return patterns than do other value and growth indexes. The greater distinctiveness of the Morningstar indexes is attributable in part to the existence of Morningstar's core index, which ensures that the

TABLE 1.1 Comparison of Return Pattern Differences—July 1997 to October 2009

Return and Volatility Summary	Morningstar	DJ Style	MSCI Indexes	Russell Top 200	S&P 500/ Citigroup
Compound Maximum Return %	20.68 ❶	12.33 ❷	11.52 ❸	8.37 ❹	7.56 ❺
Volatility Ratio	1.46 ❶	1.34 ❷	1.29 ❸	1.14 ❺	1.15 ❹
Geometric Difference %	4.1 ❶	3.6 ❷	2.0 ❸	1.9 ❹	0.5 ❺
Index Correlation %	59 ❶	68 ❷	72 ❸	7.6 ❹	81 ❺

⬤ – Ranking in Style-Related Differences (Scale 1–5).

Sources: Morningstar Direct, Morningstar, Inc., Dow Jones, Russell Investments, MSCI, Standard & Poor's.

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 (see Morningstar 2004).

Also, as shown in Figure 1.2, the Morningstar style pair generates the greatest separation between the growth of a dollar invested in growth and value indexes. The chart compares the distinctiveness of value stock and growth stock returns by measuring the ratio of the value of one dollar invested in a value index to the value of one dollar invested in a growth index. Hence, over any particular period, the amount by which the ratio deviates from 1.0 indicates the difference between—or the distinctiveness of—the returns of the two indexes. The Morningstar indexes show the highest ratio of value stock return to growth stock return, again indicating a high degree of distinctiveness.

WHAT THIS MEANS FOR INVESTORS

The Morningstar indexes provide precise equity market exposure, giving investors better control over their portfolios. Portfolio completion—plugging the gaps in a portfolio with style-pure indexes—increases the precision and reduces the chance for overlap with existing equity positions in the portfolio. In addition, the distinctiveness of the indexes can be useful in risk-budgeting decisions. The Morningstar Style Indexes capture a greater range in risk between growth and value stocks, as measured by the volatility ratio. Those managing portfolios from the risk-budgeting perspective can benefit from style-pure tools that reflect a greater range in risk profiles. Investors with expectations for a particular style can also benefit. As shown in Figure 1.2, the Morningstar style pair generates the greatest separation between growth and value. This distinctiveness between styles should lead to better returns, if the investor's expectations are correct.

CONCLUSION

Indexes and index funds have the potential to do much for investors. By defining the field, rather than trying to mimic portfolio manager behavior, indexes can lay the basis for performance attribution, portfolio construction, and better manager evaluation. Rather than assuming that managers cannot add value, investors can use these indexes to explore the techniques of those who do.

We believe index providers should focus on making useful, nonoverlapping distinctions and leave 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 into their overall portfolios. Finally, as investment alternatives, style indexes that are pure distillations of style—not diluted versions—have greater utility for investors, who can use them to efficiently reposition their portfolios without creating undesired redundancy. Rather than managers serving indexes, indexes can serve investors.

NOTE

1. Blackrock iShares offers exchange-traded funds based on Morningstar Style Indexes. For more information, visit www.ishares.com.

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