

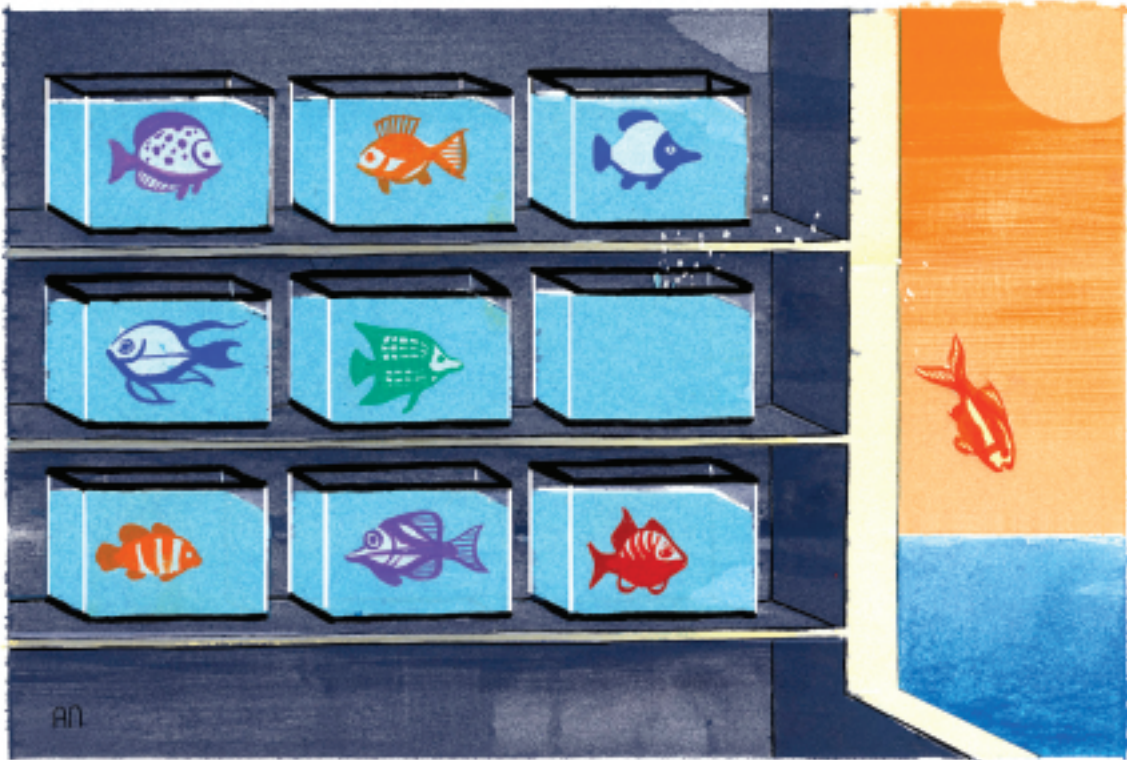
PORTFOLIO CONSTRUCTION

Illustration: Alex Nabaum

Outside the Box

Style boxes place artificial constraints on portfolio managers that may lead to underperformance.

Instead, the authors argue, we should set free managers to pursue their unique styles

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EQUITY MANAGERS ARE COMMONLY hired to represent a particular “style” box that limits them to picking stocks with certain characteristics, like small-cap value or large-cap growth. An extensive literature search reveals that this system has no empirical basis, however, but simply evolved out of convenience. Along the way, assumptions essential to its validity were made and believed to be true without empirical support. In using the multi-specialist system, the words “style” and “characteristic” are currently used synonymously. We would distinguish between the two and argue that small-cap value, for example, is neither a style of investing nor an asset class, but is simply a box in the characteristic grid. In

order to produce superior returns, managers must be allowed to pursue their unique styles and have access to the entire equity universe, which means that their resulting portfolios experience characteristic drift. Furthermore, based on style constancy, our empirical results show that characteristic-constrained investing sets the stage for underperformance.

In a style grid, stocks are ranked vertically on a market capitalization scale as small cap, mid cap, or large cap, and ranked horizontally on a value-growth scale. This grid is often incorrectly referred to as the style grid. It has become the basis for a very popular way for institutions to manage money: Multiple managers are hired and each one is generally required to buy and hold stocks from a single box, for example, mid-cap value.

Institutions undertake this approach in the belief that a manager can specialize in a particular box. At the overlay level, the weightings assigned to each box are set by the investor and can change through time or be left constant. We call this system “characteristic-constrained investing,” as managers are constrained to boxes defined by

market capitalization and value-growth characteristics. We refer to the traditional style grid instead as the “characteristic grid” as shown in Chart 1.

A foundation of the characteristic-constrained system is the assumption that “style” and “characteristic” are synony-

CHART 1: CHARACTERISTIC GRID BOXES

LARGE-CAP VALUE	LARGE-CAP BLEND	LARGE-CAP GROWTH
MID-CAP VALUE	MID-CAP BLEND	MID-CAP GROWTH
SMALL-CAP VALUE	SMALL-CAP BLEND	SMALL-CAP GROWTH

mous. Small-cap value, for example, describes a characteristic: stocks with small market capitalizations and low price/earnings ratios, price-to-book value, or price-to-sales ratios. Hence, stocks in that box are referred to as small-cap value and managers may categorize themselves as small-cap value managers.

Style and characteristic are not synonymous, however. The term “style” refers to a system, methodology, or technique of selecting stocks. It is the manner in which a manager screens stocks for selection. “Characteristic” refers to the market capitalization and value-growth scales. Small-cap value or large-cap growth does not describe the style that a manager employs when buying and selling stocks; each simply describes characteristics.

Characteristic-Constrained Investing

A literature search on characteristic-constrained investing revealed no inaugural article or empirical basis for the approach. It has evolved out of convenience and was partially driven by the desire to shift performance determination from the manager to the investor. Many advisors and consultants adopted the system for its ease and simplicity and for the opportunity to affect returns by determining the portfolio market capitalization and value-growth characteristics of the resulting portfolio. Along the way, this system has never been challenged.

When a manager with a definable investment style is locked in a **box**, an investor is **not** getting his top 20, 30, or even 40 selections

It evolved based on assumptions that have become accepted as truisms. Under empirical investigation, however, the assumptions supporting the use of characteristic-constrained investing fail, rendering the system defective. These are the key assumptions:

One box. For the system of constrained investing to be successful, a manager’s best stock selections, made through the rigid application of an investment style or technique, must fall into one box. Our research shows that this assumption is not valid and that a manager’s best selections do not fall into just one box.

No Migration. The second assumption that has been made, and that is necessary for constrained investing to be successful, is that the stock selections made by the rigid application of an investment style over time do not migrate to other characteristic boxes. Adding to the first assumption—that a manager’s best stock selections fall into one box, for example, small-cap growth—those best selections must not appear in other boxes in different time periods.

Hurts Performance. The third and final assumption necessary for characteristic-constrained investing to be successful is that characteristic drift by managers hurts performance. In implementing the constrained investing system, managers are required to hold stocks from just one characteristic box and can be terminated for drift. Our research shows that characteristic drift not only does not hurt performance but is part and parcel of superior performance.

Russ Wermers of the University of Maryland, in an unpublished 2002 paper, *A Matter of Style: The Causes and Consequences of Style Drift in Institutional Portfolios*, combined two databases to create a single mutual fund performance and portfolio holdings database. He ranked managers by drift and performance and found a strong inverse correlation: Managers who had portfolios with the greatest characteristic drift had annual alphas nearly 300 basis points higher than those managers with the least drift.

the three assumptions necessary for constrained investing to make sense (based on our January 2005 working paper, *The Problematic “Style” Grid*,” available at <http://www.iconadvisers.com>).

1. Stocks selected by a style (technique) fall into a single characteristic box.

2. Stocks selected by a style (technique) do not migrate to other characteristic boxes over time.

3. Characteristic drift hurts performance.

We tested four styles of stock selection by equity investors that have been published and are easily applied to a universe of stocks: those of Benjamin Graham, John Neff, William O’Neil, and T. Rowe Price. Graham published his Central Value Formula in 1962. It considers earnings per share, a five-year growth rate for earnings per share, and the AAA bond yield. Market price is divided by estimated value, stocks are ranked, and the lowest ranking price/value stocks are favored as they are considered to be the best bargains. The Neff, O’Neil, and Price investment styles compute a score by multiplying a few variables together. Neff includes earnings per share, sales growth rates, and free cash flow. O’Neil considers earnings per share and sales growth rates but also price relative to a 52-week high. T. Rowe Price incorporates earnings yield, return on assets, operating margin, net margin, and earnings per share growth.

Each style was rigidly applied to the Standard & Poor’s SuperComposite 1500 index universe at the beginning of each year from 1995 through 2003. To explore the impact of equity style on characteristic drift and investment performance, the stocks in the S&P SuperComposite 1500 Index universe were sorted into one of the nine characteristic boxes shown in Chart 1. The stocks that ended up in the large-cap value box, for example, ranked in the upper third by market value and ranked in the lower third based on price/sales. As a result, the nine characteristic boxes had varying numbers of stocks on average and over time.

Study Methodology

The methodology in our study examined

Test Results

The first question to be tested is whether

the 20 highest-ranked stocks for a rigidly applied investment style fit into just one characteristic box. Notice how this is related to the issue of “style” and “characteristic” either being synonymous or distinctly different. Table 1 shows the characteristic box that each style appeared in most frequently, on average, over the nine annual periods. It is immediately apparent that none of the four styles match with just one box. To the contrary, all four styles select stocks in multiple characteristic boxes. For each of these four approaches, style and characteristic are not synonymous and none of the four fit into just one box.

Fifty-three percent of stocks selected using the Benjamin Graham equation (or style) fall into the small-value box, meaning 47% of them are categorized elsewhere. If an investor hired a manager with the Benjamin Graham style as a small-cap value manager, the investor would be getting only 53% of that manager’s top 20 ranked stocks each year. The other top 47% would be typically ineligible.

Twenty-five percent of the O’Neil selections were in the small-cap value box, with 75% of that style’s top selections categorized elsewhere. Neff and T. Rowe Price appeared in the mid-cap growth box most frequently, each with only 17% of their respective selections. These two styles picked 83% of their top selections from other characteristic boxes.

While we tested four styles, we believe the results are true for many investment styles. In general, we believe style-selected stocks do not fit into a single characteristic box because style and characteristics are not synonymous. We view the results in Table 1 as evidence that the first assumption necessary for constrained investing to make sense—that style-selected stocks fall into a single box—is not true.

The second assumption crucial to characteristic-constrained investing is that the highest-ranked stocks selected by the constant application of an investment style do not drift to other characteristic boxes through time. In our study, all four styles exhibited significant characteristic drift from period to period; i.e., the rigid application of a definable stock selection style did not result in selected stocks staying in one box. To the contrary, the highest-ranked stocks for all four styles came from varying characteristic boxes through time. Thus, if an investor hires a manager with a definable stock selection style and locks that manager in a characteristic box, that investor is not getting a manager’s top-ranked stock selections. The evidence is very clear that the second assumption is not true.

TABLE 1: MOST FREQUENTLY SELECTED CHARACTERISTIC BOXES

	GRAHAM	NEFF	O’NEIL	PRICE
SMALL-CAP VALUE	53%	—	25%	—
MID-CAP GROWTH	—	17%	—	17%
OTHER	47%	83%	75%	83%

TABLE 2: ALPHA AND RANK SLOPE IN BASIS POINTS

	ALPHA	CB CONSTRAINED ALPHA	RANK SLOPE
AVERAGE	413	74	-2.7

To illustrate this point, we show what happens if an investor hired the “John Neff” style for any one of the nine characteristic boxes. Chart 2 shows the average ranking of the stocks in each box if the Neff style selects the 20 best stocks in each box. An investor hiring the Neff style to be a mid-cap blend manager, for example, is getting Neff’s 68th-ranked stock, on average. In other words, to build a 20-stock portfolio in the mid-cap blend box, the Neff style has to reach down to its 68th-ranked stock, on average.

We believe that when a manager with a definable investment style is locked in a box, an investor is not getting that manager’s top 20, 30, or even 40 favorite selections. This is evident for the Neff style as shown in Table 2 and is true as well for the other three styles we tested.

The first column in Table 2 shows the average performance over the nine-year sample period for the four styles when they were not characteristic constrained. Under these conditions, the average alpha—the excess return over the S&P SuperComposite 1500 Index—was 413 basis points annually. Column 2 shows how performance deteriorates when the styles are characteristic constrained. The alpha drops to 74 basis points if each style is required to fill out one of the nine boxes with 20 stocks each.

It is interesting to note that in Table 2 the average alpha drops by about 300 basis points from column one (unconstrained) to column 2 (characteristic constrained). Our result is similar to those of Wermers, reported earlier, which found that mutual fund managers who drift the most outperform the managers who drift the least by nearly 300 basis points.

Finally, the third column in Table 2 shows

how performance deteriorates as lower-ranked stocks are selected; that is, if you do not get the manager’s favorite selections. The rank slope is the change in average return when moving down a rank. For example, the rank slope of -2.7 basis points for the four styles means that choosing the 21st-ranked stock as compared to the 20th-ranked stock reduces average return by 2.7 basis points.

CHART 2: AVERAGE RANK OF NEFF SELECTED STOCKS*

(Twenty highest-ranked picks in each characteristic box each year from 1995-2003, using S&P SuperComposite 1500 Index Universe)

18	79	98
LARGE-CAP VALUE	LARGE-CAP BLEND	LARGE-CAP GROWTH
109	68	84
MID-CAP VALUE	MID-CAP BLEND	MID-CAP GROWTH
81	86	132
SMALL-CAP VALUE	SMALL-CAP BLEND	SMALL-CAP GROWTH

*Rank 1 is best, 2 next best, and so forth.

The rank slope shows why it is critical to get a manager’s best selections. We found that the value added by any of these four styles disappears around the 60th- to 80th-ranked selection. As style and characteristics are not synonymous, and a manager’s best selections do not fit in any one box, performance is greatly diminished by locking a manager in a box. An investor is not getting a manager’s favorite selections but instead gets lower-

ranked stocks to fill out a box-constrained portfolio that hurts investment performance.

It Just Ain't So

Returning to the three assumptions necessary for characteristic-constrained investing to make sense, the first was that style-selected stocks must fall into one characteristic box. Our evidence suggests that this assumption is not valid. To the contrary, we believe that style-selected stocks fall into multiple characteristic boxes.

The second assumption is that style-selected stocks fall into the same characteristic box

over time. Evidence suggests instead that stocks selected by rigid application of an investment style come from multiple boxes through time. Finally, the assumption that characteristic drift hurts performance appears invalid.

On the contrary, characteristic drift appears to be part and parcel of superior performance.

The evidence shows that characteristic-constrained investing is deficient. On the other hand, our literature search failed to uncover empirical support for characteristic-constrained investing. We believe the burden of proof is on the users of characteristic-con-

strained investing to show that in fact it helps investment performance, or, at least, does not hurt it. Just because characteristic-constrained investing is a convenient method for categorizing and evaluating managers, it does not mean that it is a prudent system. The investment management industry should discard it for a better system. **IA**

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REDEFINING THE ROLE OF THE ADVISOR

SOME ADVISORS CLING TO THE NOTION OF SPECIALIZATION, THINKING incorrectly, we believe, that a manager can specialize in a characteristic box. The four styles we tested are those of specialists who select stocks not by style box but by a well-defined methodology or specialty. Graham, O'Neil, Neff, and T. Rowe Price are all specialists, but the highest-ranked stocks selected according to their methods have varying size and value-growth characteristics through time.

Here is an example: What if a manager specializes in selecting stocks that are about to enter a phase of rapid growth? It would be a mistake to attempt to restrict that manager to one box, say, small-cap growth. One of that manager's top five selections might be a large-cap oil company that just discovered a new oil field. Being large cap, it would not be eligible despite fitting the manager's stock selection style. There is no specialty style that fits a characteristic box. Once that is accepted, boxes become useless for categorizing, selecting, and evaluating managers.

If you have been using the characteristic-constrained system of investing, take the performance challenge. Compute annual rates of returns on your accounts. Based on our results and those of Russ Wermers, performance will lag by about 300 basis points per year over the long term. Think what that is doing to the value of your practice. In a market of free competition, with free entry and exit, advisors using a deficient system that underperforms will lose clients and go out of business, while advisors who produce higher returns will experience growth.

Many advisors have observed the underperformance of characteristic-constrained investing and have blamed the managers, not the system. The managers do underperform, but we believe a contributor to this underperformance is that they are charac-

teristic constrained. On this dimension at least, it is the system that is to blame and not the managers. By blaming the managers, some advisors have defaulted to using indexes in each box, essentially closet indexing the portfolio. Notice how absurd this is. Taking this approach, 100% of the excess return depends upon the advisor's ability to time characteristic boxes over time. Most advisors do not have discretion, do not have definable styles, and do not have AIMR-compliant track records for taking on this critical task.

The new role of the advisor is to select a few managers who have complementary styles but not to characteristic constrain those managers. As long as the manager is implementing his or her style, let the characteristics drift. If the advisor and client happen to care about the characteristics of the portfolio, who is in a better position to determine them: the advisor or the manager? The manager is staring eye-to-eye with stocks that meet his or her criteria for selection. Buying favored stocks will determine the portfolio market capitalization and value-growth characteristics. The advisor, on the other hand, is simply timing boxes, not knowing their contents from year to year or which stocks managers will be holding in each box.

Free managers with definable stock selection styles and strict disciplines, and devote your time to counseling, educating, and providing discipline to investors. In this new unconstrained world, advisors remain responsible for selecting investment managers, evaluating performance, and ensuring that the composition and tilts of the overall portfolio are those that are desired by the end client. This is where the advisor can truly add value, rather than pursuing the value-destroying activity of characteristically constraining managers.—*Craig Callahan and C. Thomas Howard*

Past performance does not guarantee future results. Opinions and forecasts and portfolio holdings and composition are all subject to change at any time, based on market and other conditions and should not be construed as a recommendation of any specific security. The unmanaged Standard & Poor's (S&P) SuperComposite 1500 Index is a broad-based, capitalization-weighted index comprising 1,500 large-cap, mid-cap, and small-cap U.S. companies. The alpha coefficient is a measure of risk-adjusted return. This number represents the difference between the portfolio's actual performance and the performance anticipated in light of the portfolio's risk posture and the market's behavior. A positive alpha indicates that the manager has been successful at security selection and has produced a rate of return which is more than commensurate with the portfolio's risk posture.

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