

Adaptive Asset Allocation

In an award-winning article, William Sharpe proposes an asset allocation approach that downplays contrarian behavior by setting asset weights relative to (not irrespective of) the market

BY SUSAN TRAMMELL, CFA

A primary lever in the asset management toolkit is the policy portfolio, but how many investors slavishly rebalance their holdings to maintain a predetermined mix of asset weightings? Investors devote substantial resources to arrive at an appropriate asset allocation after carefully considering their need for return, risk appetite, time horizon, liquidity, and so on. After a few years, however, the asset weights are likely to have drifted, with the very people who ran the optimizers and approved the strategic portfolio probably sitting on their hands.

In fact, the most aggressive rebalancing likely occurs among portfolios of small investors—workers who are saving for retirement and directing their money into multi-asset balanced and target-date funds. Balanced, or life stage, funds strive to maintain a constant asset mix while target-date funds readjust their weights to conform to a predetermined glide path. Both follow traditional asset allocation policies. They sell assets whose weights in the portfolio exceed a range and buy more of the assets whose weights have dipped below an allowable minimum.

Whether conforming a fund to fixed asset proportions or to orchestrated shifts, shedding relative winners and buying relative losers represents a contrarian investment strategy, with the implicit assumption that the market will reverse at a time and to a degree that will enable the investor to realize returns superior to a strategy of buying and holding the market.

But no one can predict when the market will reverse. What if, over a time period, the market trends more than it reverses? Does it make sense to sell winners in what might be a prolonged bull market or load up on losers in a free fall? Even if investors wanted to revise their policy portfolios to conform more closely to the market environment, how many can perform the sophisticated analyses required to arrive at a new strategic allocation that accounts for expected returns and correlations of assets?

In his Graham and Dodd award-winning article “Adaptive Asset Allocation Policies” (*Financial Analysts Journal*, May/June 2010), William Sharpe, STANCO 25 emeritus professor of finance at Stanford University, proposes an approach to rebalancing the policy portfolio that many investors will find relatively simple to implement and that also minimizes or avoids contrarian behavior. Sharpe believes that both small investors and institutions could find the model helpful when faced with the choice

of making significant trades to return the strategic portfolio to predetermined weightings, abandoning the current asset allocation policy for a new policy portfolio, or doing nothing.

“This is one of the most important challenges to traditional asset allocation that we’ve had in a while,” says Rodney Sullivan, CFA, *FAJ*’s editor, who reviews all articles but doesn’t get to vote on the Graham and Dodd awards. “I don’t see as much research these days on asset allocation, and you think there’s nothing new to add until Bill Sharpe, who’s supposed to be retired, comes along with this provocative paper.” “The difference between being retired and not being retired,” says Sharpe, “is that I don’t get paid.”

Passive–Aggressive Behavior

The *FAJ* advisory council and editorial board honored Sharpe with the top 2010 Graham and Dodd award at a ceremony held this past September in San Francisco, where Sharpe presented his paper to the CFA Society of San Francisco. In a nutshell, “Adaptive Asset Allocation Policies” describes a method for developing a fund’s asset allocation policy that readjusts the major asset class weightings not in relation to constant, predetermined proportions—the traditional asset allocation approach—but relative to their proportion of total market value. Adaptive asset allocation, as Sharpe calls it, implicitly recognizes an investor’s risk appetite relative to, not irrespective of, market proportions.

To understand the intuition behind adaptive asset allocation, it might be helpful to review a key feature of the strategy that it proposes to replace. A traditional asset allocation policy states a target for each asset class as a percentage of the total value of the fund. The percentages are derived after considerable analysis and changed only episodically. To accommodate disparities between policy proportions and actual holdings, targets are set within allowable ranges.

Over time, without active rebalancing, the disparities can become quite substantial. Investors may frequently rebalance their portfolios to restore asset proportions to the predefined ranges, or they may revisit their asset allocation policies when they become uncomfortable with the size of the disparities. If they rebalance, they may believe that they are taking a passive stance by following an investment style that goes against prevailing market trends. Staying close to the policy portfolio, they pride themselves on being disciplined in their investing by avoiding the impulsive behavior of investors who jump ship as the stock market is tanking or load up on equities in an upswing. They may not realize it but making large and frequent trades to bring a portfolio back to a previously set asset allocation policy is active contrarian investing.

A key assumption underpinning the traditional, contrarian investment approach is that someone will take the opposite side of the trades. But who are these investors who will abandon their own traditional asset allocation policies to trade with the contrarian investor? To be workable, a traditional approach to asset allocation policy requires trend followers who will take the other side of the contrarian approach in transactions. Obviously, not all investors can be contrarians, and as a result, not all investors can follow a contrarian policy.

Market Efficiency

Why would an investor adopt a contrarian strategy? There are two possible reasons. The investor may believe that markets are efficient. When adopting an investment strategy, an investor must make an assumption about the nature of future security markets as well. Contrarian strategies will outperform buy-and-hold strategies in markets that experience frequent reversals (so-called sideways markets); buy-and-hold strategies capitalize on markets that are trending and end up far from their starting points.

It is possible that an investor who rebalances frequently to conform to a policy portfolio is less concerned than the average investor about inferior returns in very good or very bad markets. But this seems highly unlikely for the typical balanced-fund or target-date fund investor.

A more likely rationale for frequent rebalancing is a belief that markets in the future will tend to move sideways more often than they trend, that markets are inefficient, and that investors who take the other side of contrarian trades do not fully understand the nature of asset returns. Such trend followers, the thinking goes, will continue to hold assets that have become overpriced, enabling contrarian investors to take advantage of them.

Sharpe believes that the majority of institutional investors who adopt traditional asset allocations do so for reasons that have nothing to do with their views on market efficiency. Rather, they adopt a policy that reflects both their risk–return preferences and their special circumstances at the time. But when the portfolio begins to drift from its initial proportions, it no longer serves its original purpose.

“In my experience in dealing with pension and mutual fund boards, the discussion is, ‘Where do we want to be on the risk–return spectrum? Do we want to put more money into private equity because we don’t need liquidity as much as the average investor?’” Sharpe says. “The institutional investors adopt a policy and then really don’t follow it. They may shore up their asset allocation policy at the time or shortly thereafter, but then they give the equity money to specialized equity managers, their fixed-income money to fixed-income managers, and so on. Then, as the markets move, they basically leave the money with their managers.”

“Maybe they do a little bit of reallocation with cash flows,” Sharpe continues, “but they really don’t act in a contrarian way month by month, week by week, day by day. It may be inertia, it may be just the whole nature of

delegated portfolio management, which the big funds use. Or maybe you really don’t want to just run around buying losers and selling winners every day after all.”

Highly Complex

The gold standard for arriving at an asset allocation policy, Sharpe points out, is to get the inputs for portfolio optimization by first performing a reverse optimization—backing out consensus capital market expected returns for each asset class, as implied by the current capital market mix of assets, and then incorporating the investor’s views about the expected performance in order to arrive at revised estimates of risks, returns, and/or correlations for the major asset classes. These new inputs are plugged back into the optimizer, yielding the preferred asset allocation policy.

Notice that the policy portfolio is, crudely speaking, a function of investor characteristics and market forecasts. Market forecasts are based on historical information, economic theory, and market values at the time the strategic policy is formulated. Why should market values inform forecasts? Because current market values incorporate the consensus view about the probabilities of future prospects. Thus, market values should be taken into account when managing a portfolio. But how many organizations have the resources to develop a formal system that accommodates real-world aspects? Such a system requires complex models, and relatively few organizations are willing to undertake the process frequently. Yet market value information is too

2010 GRAHAM AND DODD AWARDS

The Graham and Dodd Award for best article is presented annually for the most outstanding article published in the previous year’s *Financial Analysts Journal*. In addition, several articles are chosen to receive the highly respected Graham and Dodd Scroll Awards. The Graham and Dodd Best Perspective Award recognizes the favorite perspectives article. *FAJ* readers are also invited to weigh in by casting their vote electronically for the most thought-provoking article from their viewpoint (the Readers’ Choice Award). All awards salute excellence in financial writing while paying tribute to Graham and Dodd. The 2010 winners are as follows:

Scroll Awards

“Economic Growth and Equity Investing,” by Bradford Cornell (January/February 2010)

“In Defense of Optimization: The Fallacy of $1/N$,” by Mark Kritzman, CFA; Sébastien Page, CFA; and David Turkington, CFA (March/April 2010)

“The Risk of Tranches Created from Mortgages,” by John Hull and Alan White (September/October 2010)

Best Perspectives Award

“The Importance of Asset Allocation,” by Roger Ibbotson (March/April 2010)

Readers’ Choice Award

“Opportunities for Patient Investors,” by Seth Klarman and Jason Zweig (September/October 2010)

important to ignore when setting the policy portfolio.

“The inevitable conclusion is that an investor’s asset allocation, expressed in the traditional manner as percentages of total value in each asset class, should change over time to reflect changing market values, even if the investor’s characteristics are unchanged,” Sharpe writes. “This conclusion is the key tenet of this article.”

As an alternative to a reverse optimization/optimization protocol, Sharpe describes a method that can be used by a majority of investors to adapt their asset allocations periodically in light of changes in asset values without resorting to contrarian investing. With a few computations, the policy proportions of the major asset classes can be adjusted as market values change.

Follow the Math

In the article, Sharpe takes as an example a hypothetical fund that invests only in U.S. stocks and bonds. The fund establishes an asset allocation policy at the end of February 1984 of 80 percent stocks and 20 percent bonds. At the time, the proportion of each asset class to total market value is 59.62 percent U.S. stocks and 40.38 percent U.S. bonds. This information is taken into account when setting the policy weights.

At the end of October 1990, the market capitalizations of both asset classes have increased substantially. The ratio of the ending to initial market cap is 1.6096 for stocks and 2.5757 for bonds. However, although the market values of both stocks and bonds have risen, stocks are a much smaller proportion of overall market value—47.99 percent compared with 59.62 percent.

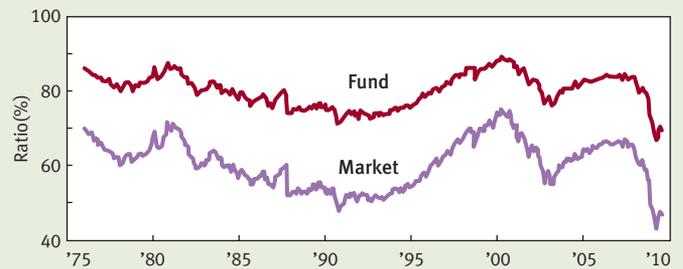
To compute the new asset value proportions for a portfolio with the same degree of risk relative to the market as at the portfolio’s inception, the policy weight of each asset is multiplied by the ratio of its ending value to initial value. Thus, the initial policy weight of stocks, 80 percent, is multiplied by 1.6096, equaling 128.77 percent. The same is done for bonds: 20 percent is multiplied by 2.5757, equaling 51.51 percent. The two adjusted proportions are summed, equaling 180.28 percent (the sum is greater than 100 percent because the outstanding values of both assets have increased substantially).

Finally, the adjusted proportion of each asset class is divided by the sum. For stocks, 128.77 percent is divided by 180.28 percent, equaling the new asset allocation of 71.43 percent. From representing close to 60 percent of the total market value, stocks have fallen to less than 48 percent. The policy weighting falls from 80 percent to an allocation of 71.43 percent.

It’s All Relative

The elegance of the formula is that relatively little trading is required to bring the portfolio in line with its new asset allocation. In a world with a fixed set of traded securities, an investor who reinvests all cash flows in its own asset class and makes no additions or withdrawals from the portfolio would be in compliance with the adaptive asset allocation at all times. Despite the real-world complications of

Asset Allocations: Market and an Aggressive Balanced Fund



The chart shows the performance of an aggressive balanced fund that has an intended 80/20 mix of U.S. stocks and bonds when their proportions of total market value are 60/40. Note that at the four times when the total market value of stocks is close to 60 percent and the total market value of bonds is close to 40 percent, the fund’s asset allocation policy dictates a value close to the intended 80/20 mix.

new stock issues, buybacks, redemptions, and so forth, investors who follow an adaptive asset allocation policy are not likely to have to engage in large asset purchases and sales with investors who do not follow such policies. The situation contrasts sharply with investors who follow traditional asset allocation policies that ignore changes in the capital market portfolio allocation.

The chart above shows how a multi-asset fund that markets itself as “aggressive” might adapt the proportions of its asset classes in light of changing market values in every period. Rather than thinking of an aggressive fund in absolute terms, it might be thought of as one that provides relatively more risk than the market at all times. Using adaptive asset allocation techniques, the manager rebalances the portfolio relative to the market.

The chart shows the actual stock proportions for a fund that wishes to hold an 80/20 mix of U.S. stocks and bonds when the market proportions are 60/40. Although the proportions oscillate over the 35-year time period presented, the fund remains more aggressive than the market throughout the period. The scenario suggests a simple way to convert an existing balanced fund to an adaptive one. A target-date fund can also convert from a traditional asset allocation to an adaptive target date fund by applying the adaptive formula to base allocations in every period along the glide path.

Looking Forward

Although the examples in this article included only two asset classes, adaptive asset allocation can be followed with any number of major asset classes. Using adaptive policies, funds should routinely compare their asset allocations with current market proportions in order to ensure that any differences are commensurate with differences between their circumstances and those of “the average investor.” The lack of available data on market values can make such comparisons difficult. In time, sufficient interest may develop among those who provide benchmarking indices to make this valuable data more readily available. //

Susan Trammell, CFA, provides business plan writing and marketing research through her New York City consulting firm.