



How Are You Doing? Measuring and Monitoring an Investment Portfolio

By Maria Crawford Scott

Joe Farragut is confused. He has been watching the market closely over the last quarter, and he knows that a number of his mutual fund holdings have done very well, but several—including his own portfolio of individual stocks—have gone down.

What should he do—does he need to sell any of his individual holdings? Is his original investment plan still on track?

Joe realizes that it is time to put his portfolio under the microscope for a thorough evaluation.

Evaluating a portfolio involves:

- Measuring the performance of his holdings and comparing their returns to performance benchmarks to see if the professional expertise that he has hired or is doing himself is up to snuff.
- Determining what steps must be taken to keep the portfolio in balance.
- Measuring the overall portfolio performance to see if the long-term performance is in line with what he would have expected based on his investment plan—his targeted asset allocation. (This, however, does not have to be done frequently; once a year or every few years is sufficient.)

Joe likes to keep a close watch on his holdings, and so he monitors his individual holdings quarterly, with an annual evaluation of his overall approach. His current evaluation is presented in Table 1.

To evaluate his individual mutual fund holdings, Joe does not make his own calculations to measure the performance—it is difficult to do with much accuracy, and the information is readily available in the many publications that provide information on mutual fund performance, including AAI's *Quarterly Low-Load Mutual Fund Update*, the source for the figures in Table 1.

Most publications also provide appropriate benchmarks for comparison. Joe uses the average of his funds' peers—the average for funds that are in the same category as each of his individual funds. These benchmark returns for the quarter are also included in Table 1.

Perusing his fund returns and the benchmarks, Joe is pleased with all but two of his funds, which he will examine in greater detail. One fund, the Sequoia Fund, has had very good performance in prior quarters, and Joe decides that this one quarter is an aberration. The other fund that underperformed this quarter, however, has underperformed in the past several quarters as well. Joe flags that fund as a possible sale, a decision he will make after carefully scrutinizing fund reports to try to determine the reason for the fund's inability to keep up with peers.

Joe also has a small portfolio of individual stocks that he manages himself. These stocks tend to be smaller firms, which Joe has invested in for long-term growth. For that reason, he compares his own performance to the average for aggressive growth mutual funds, which are most similar to his own style.

While the return for Joe's benchmark is available in various publications, those publications don't monitor Joe's own stock portfolio. And many brokerage firms now calculate total return, but Joe's does not. How does he calculate the return for his individual stock holdings? Joe uses the approximation method illustrated in Table 2; while the resulting answer is not precise, it is close enough for him to make an informed decision.

The information needed to perform the calculation is contained in Joe's brokerage statement. His total return consists of the change in value of the shares, plus any income provided by the stocks during the investment period. Table 1 indicates the total value of Joe's stock portfolio both at the beginning and ending of the period; none of his holdings pays any dividends.

The return calculation compares ending values to begin-

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ning values, and adjusts for the impact of net additions or withdrawals to the portfolio by adjusting the ending and beginning values by 50% of the net additions or withdrawals.

Joe started the quarter with \$17,846 invested in his individual stock holdings; at the end of the quarter, his holdings were valued at \$11,987. However, during the quarter, he sold a stock that he was unsatisfied with, and invested the \$5,000 proceeds in his money market fund. Joe does not intend to purchase any new shares of individual stocks, and therefore considers the \$5,000 a withdrawal from his individual stock portfolio.

Since \$5,000 was withdrawn from the portfolio, the adjusted ending value is \$14,487 [$\$11,987 - 0.50(-\$5,000)$, or $\$11,987 + \$2,500$, since subtracting a negative number is the same as adding a positive number], and the adjusted beginning value is \$15,346 [$\$17,846 - \$2,500$; adding a negative number is the same as subtracting a positive number]. Dividing the adjusted ending value by the adjusted beginning value indicates the change in value for the period; in this example the ending value is 0.944 times the beginning value. Subtracting 1 eliminates the beginning value so that the answer is in the form of an increase

or, in this case, a decrease since the answer is negative—a change in value totaling -0.056 , or -5.6% for the quarter.

The -5.6% for the quarter does not compare very favorably with Joe's aggressive growth benchmark return of 5.1% . And, in fact, Joe's stocks have not performed as well as the benchmark for some time. Joe realizes that he is going to have to sit down over the next quarter and seriously re-evaluate his approach to investing in individual stocks.

Somewhat humbled, Joe continues with his evaluation, and next turns to his asset allocation. His target allocation, along with the actual quarterly allocations, are presented in Table 1. Despite the disparate performance of his holdings, the actual allocations have not varied by much—Joe remains within a few percentage points of his target allocations in all categories. He is somewhat above his growth allocation, but rather than selling any shares and incurring taxes and transaction costs, Joe will simply not add to this category. Instead, he will add any contributions he can muster over the next quarter to those categories in which he is now somewhat undercommitted—aggressive growth, international stocks, and gold. Joe can also use money in his money market fund to add to his undercommitted

Table 1.
Assessing Joe's Portfolio

Current Holdings	Beginning Period (3/31/96)		Quarterly Return*	Benchmark Return**	Net Additions (Withdrawals)	Ending Period (6/30/96)	
	Market Value of Holdings (\$)	(%)				Market Value of Holdings (\$)	(%)
Individual stock portfolio (Aggressive Growth)	17,846.44	8.2	-5.6	5.1	(5,000.00)	11,987.51	5.3
Berger Small Co. Growth (Aggressive Growth)	14,396.73	6.6	15.8	5.1		16,671.41	7.3
Columbia Growth (Growth)	33,236.97	15.3	6.2	3.9	4,000.00	39,421.66	17.3
Vanguard Index: 500 (Growth & Income)	50,437.94	23.3	4.4	3.4		52,657.21	23.1
Sequoia Fund (Growth & Income)	15,387.69	7.1	-2.2	3.4		15,049.16	6.6
Harbor International (International Stock)	19,976.92	9.2	7.3	4.4		21,435.24	9.4
USAA Gold (Gold)	10,578.93	4.9	-10.4	-6.2		9,478.72	4.2
Loomis Sayles Bond (Corporate Bond)	32,968.03	15.2	1.6	0.6		33,495.52	14.7
Money market fund (Cash)	22,095.85	10.2	2.2	1.2	5,000.00	27,636.96	12.1
	216,925.50	100.0			4,000.00	227,833.39	100.0

	Asset Allocation (%)			Action
	Target	Actual 3/31/96	Actual 6/30/96	
Aggressive Growth	15	14.8	12.6	Add
Growth	15	15.3	17.3	Hold
Growth & Income	30	30.4	29.7	Hold
International Stock	10	9.2	9.4	Add
Gold	5	4.9	4.2	Add
Bonds	15	15.2	14.7	Hold
Cash	10	10.2	12.1	Withdraw
	100	100.0	100.0	

Portfolio Return: 3.2% (see Table 2 for calculation)

Weighted Benchmark Return: 2.7% (see below for calculation)

Calculating the weighted benchmark return:

$$(14.8\% \times 5.1) + (15.3\% \times 3.9) + (30.4\% \times 3.4) + (9.2\% \times 4.4) + (4.9\% \times -6.2) + (15.2\% \times 0.6) + (10.2\% \times 1.2) = 2.7\%$$

*Quarterly returns for funds as reported in AAI's Quarterly Low-Load Mutual Fund Update, July 1996. For calculation of the individual stock holdings, see Table 2.

**Benchmark returns are the average fund returns for the category; for the individual stock holdings, which are aggressive growth stocks, the benchmark used is the aggressive growth fund category average.

Table 2.
The Approximate Return Equation

To determine the return of an individual portfolio of stocks, you can use the following approximation equation:

$$\left[\frac{\text{Ending Value} - 0.50(\text{Net Additions}^*)}{\text{Beginning Value} + 0.50(\text{Net Additions}^*)} - 1.00 \right] \times 100 = \text{Return (\%)}$$

Return for the individual stock portfolio holdings in Table 1:

$$\left[\frac{11,987 - 0.50(-5,000)}{17,846 + 0.50(-5,000)} - 1.00 \right] \times 100 = \left[\frac{11,987 + 2,500}{17,846 - 2,500} - 1.00 \right] \times 100 = [0.944 - 1.00] \times 100 = -5.6\%$$

Return for the portfolio in Table 1:

$$\left[\frac{227,833 - 0.50(4,000)}{216,926 + 0.50(4,000)} - 1.00 \right] \times 100 = \left[\frac{227,833 - 2,000}{216,926 + 2,000} - 1.00 \right] \times 100 = 3.2\%$$

**Use net withdrawals, a negative number, if total withdrawals are greater than total additions.*

portfolio and the Berger Small Company Growth Fund), 15.3% in growth stocks (Columbia Growth Fund), 30.4% in growth and income (Vanguard Index 500 and Sequoia Fund), 9.2% in international stocks (Harbor International), 4.9% in gold funds (USAA Gold), 15.2% in corporate bonds (Loomis Sayles Bond) and 10.2% in cash (a money market fund). Using the quarterly returns for these benchmarks reported in Table 1, the bottom section of Table 1 shows how the weighted benchmark return was calculated, producing a return of 2.7%,

categories.

Joe next turns to evaluate his overall portfolio. Here, Joe uses the same approximation method that was used to calculate the return on the stock portfolio.

The portfolio was valued at \$227,833 at the end of the period, and \$216,926 at the beginning, but these values must be adjusted to reflect additions or withdrawals. While Joe withdrew \$5,000 from his stock portfolio, that amount was deposited in his money market account, so the net to the portfolio is \$0. However, over the quarter Joe added \$4,000 to his Columbia Growth Fund holding, an amount that came from periodic reductions from his salary.

Since \$4,000 was added to the portfolio, the adjusted ending value is \$225,833 [\$227,833 - 0.50(\$4,000)] and the adjusted beginning value is \$218,926 [\$216,926 + 0.50(\$4,000)]. Dividing the adjusted ending value by the adjusted beginning value and subtracting 1 provides an answer that is in the form of an increase in value of 0.032, or 3.2%, for the quarter.

How does this compare to a benchmark portfolio? While benchmarks exist for asset classes, they don't exist for a portfolio, so Joe creates his own portfolio benchmark. He does this by taking the percentage of his portfolio that is allocated to each asset class, and multiplying the percentage by the total return for the appropriate benchmark. The sum of these weighted returns is an appropriate benchmark that he uses to judge his portfolio's actual return.

At the beginning of the quarter, Joe had 14.8% of his portfolio in aggressive growth stocks (his individual stock

which is below the actual return that Joe enjoyed on his portfolio.

How has he done for the year ended June 30? Joe can use the approximation formula, using beginning and ending values for the year. He can also annualize his quarterly returns by adding 1.00 to each quarterly return figure (in decimal form), multiplying the four numbers, and subtracting 1.00 from the final figure; the result is the annual return in decimal form. [If Joe uses both calculations, the returns may differ slightly.]

Since June 30, 1995, Joe has had a terrific year, with quarterly portfolio returns of 6.8%, 5.5% and 1.3%, plus the 3.2% in the most recent quarter. His annual return through June 30 is: $[1.068 \times 1.055 \times 1.013 \times 1.032] - 1.00 = 0.178$, or 17.8%. In comparison, the annual return for his benchmark portfolio (using reported annual returns for each category and weighting them) was 18.1%. Overall, he is keeping up with his benchmark. But Joe realizes that the extremely large gains in his overall portfolio is due primarily to the performance of the markets, and not to any particularly brilliant decisions on his own part.

The terrific performance of the markets, along with the excellent showing of his other holdings, should help alleviate some of Joe's bad feelings about his own individual stock portfolio performance. It also indicates to Joe that all is not lost when a few of his holdings do poorly. Nonetheless, it is important for Joe to realize that performance such as this is most certainly not going to continue in the future.

Evaluating a portfolio is a necessity, both in good times and bad.

