

Implementing a Portfolio Sufficiency Monitoring Program

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In the first part of this article, "Monitoring Retirement Portfolio Sufficiency," published in the February 1997 issue of the *Journal*, we discussed the paradox of how retirement portfolios often can fail to achieve the desired end wealth, even when assumptions about inflation and investment return prove accurate. This paradox stems from a variety of reasons, including the unpredictable effect of inflation, confusion between the compounding of return and the compounding of wealth, the compounding of arithmetical average for projecting end wealth when it is actually geometric compounding that determines the actual return, and the mistaken comfort in the reliance on the Law of Large Numbers.

In this second part of the article, we will suggest a way to overcome this paradox through the monitoring of portfolio sufficiency to determine whether to take corrective action to ensure that end wealth meets expectations. Our suggestion for implementation of this monitoring program is loosely based on the Financial Accounting Standard Board's (FASB) ruling number 87, used for monitoring defined-benefit pension plans.

A Model for the Individual

The principles of FASB 87 provide insight into how to monitor portfolio performance for clients. FASB 87, adopted in 1985, governs the way in

which U.S. corporations account for and disclose information about their pension plans. The rules are specifically applicable to defined-benefit pension plans—that is, plans that promise participants a defined-benefit throughout retirement, regardless of whether plan assets are sufficient to fund it, and for which, therefore, the sponsoring company is absolutely at risk.

There are significant differences between corporate defined benefit pension plans and an individual's retirement income portfolio. For example, the corporation has an expectation that it will continue generating earnings for an indefinitely long period of time, while the individual has a relatively fixed career expectation. The corporate plan also spreads mortality risk (the risk that the individual receiving retirement benefits will live longer than expected, and thus will receive benefits longer than expected) across numerous individuals, while the individual's retirement income portfolio cannot spread mortality risk. However, there are also significant similarities between corporate and individual plans, including the following:

- The individual investor, like the corporate retirement plan sponsor, is the party who bears all the risk
- The individual investor and the corporate retirement plan sponsor both seek to create a fund adequate to provide defined (targeted) benefits throughout retirement

- Inflation-adjusted targets, projected yearly additions, distribution requirements, life expectancy and so on, determine the rate of return necessary to hit the funding target

The corporate retirement plan's required rate of return is analogous to the individual investor's long-term expected return for the portfolio, and both plan sponsor and investor implement a portfolio that seeks the required return without excess or unnecessary risk. Furthermore, both the corporate plan sponsor and the individual portfolio owner seek to avoid the financial distress that would accompany unexpected announcements of a drastic shortage of funds.

Changing Requirements to Secure Pension Promises

Before 1985, corporate plan sponsors had a great deal of latitude in the way they accounted for pension plans. Actuarial and investment-related assumptions differed greatly from employer to employer; just as important, none of the key assumptions had to be disclosed in the company financial statements. Although FASB 87's provisions are both lengthy and technical in nature, its adoption has compelled companies to now use a relatively uniform methodology to account for their pension plans and measure the periodic cost of providing pension benefits.

Outline of FASB 87 Methodology

Measuring Cash Flow Obligations

FASB 87 contains a myriad of provisions, such as transition gains or losses, prior service credits and yearly service costs, that apply solely to corporate pension plans. However, for any portfolio designed to produce targeted amounts of future cash flows, it is possible to compute the present value, lump-sum equivalent of estimated future cash flows. FASB 87 assigns the term "projected benefit obligation" (PBO) to the discounted value of the future obligations—that is, the retirement income earned to date by the worker, projected forward to his or her retirement date.¹

Measuring the Influence of Time

FASB 87 also stipulates that as time unfolds, the time-sensitive discount must be "backed out" of the calculation because each year that passes is one less year available to accumulate a fund of assets for retirement. FASB 87 refers to this calculation as the determination of plan "interest costs." Interest costs are offset by the plan's long-term expected return on plan assets, which measures the portion of the cost expected to be covered by the plan's investment return on its currently accumulated portfolio.

Accounting for Variances in Actual Experience

FASB 87 mandates a calculation designed to determine the effect of the long-term expected rate of return on the year-to-year actual value of the investment portfolio. Of course, it is unlikely that any one year's investment return will match exactly the long-term expected return. However, the rationale for performing the calculation based on the long-term expected rate of return rather than short-run actual returns lies in the fact that chance variations are as likely to be positive as negative and that, over time, they will cancel out and the plan will converge toward expected

return. FASB 87 also provides a threshold level at which variances from expectations (generally, if the variance exceeds ten percent of the greater of the plan's assets or total PBO) must begin to be amortized.

Using FASB Concepts for Retirement Portfolio Sufficiency Monitoring

FASB Provides Rational Tools

Although there are significant differences between corporate retirement plans and an individual's retirement income portfolio, there are enough similarities that the individual investor can enhance his or her ability to manage a retirement income portfolio by using portfolio monitoring techniques based on the corporate retirement plan accounting rules.

Extrapolating from corporate rules to the individually owned portfolio, it is apparent that FASB 87 provides a consistent methodology for assessing how well a portfolio is doing relative to a specific objective. A similar methodology can be developed and applied by the individual. For example, as the chance error inherent in investing in risky assets moves the portfolio toward a surplus or deficit position, we can determine the percentage amount by which the actual amount deviates from the projected amount. Variation in the rate of inflation can be considered analogous to actuarial gains or losses and the impact of such variations can be accurately assessed. Likewise, the investor can calculate the impact of other actuarial or investment factors such as a change of health, the receipt of an inheritance and so forth.

Guidelines for Adjusting Strategy

Finally, appropriate action can be taken to compensate for the impact of results on portfolio sufficiency objectives. FASB 87 prescribes specific actions in order to prevent a large accumulation of either gains or losses. Specifically, it dictates that cumulative differences from the projected value of

the benefit obligation must be amortized on a straight-line basis. A variety of equally appropriate alternative steps are, of course, available to the owner of an individual retirement portfolio.

FASB 87 is designed to provide a structured methodology for determining the actual periodic cost of providing pension benefits. It also requires a continuous reexamination of the assumptions upon which the portfolio operates and an assessment of the important trends that unfold as time passes.

Advantages of the FASB Methodology

Using a structured sufficiency portfolio monitoring approach based upon the applicable provisions of FASB 87 has at least three significant advantages for the individual investor:

1. It minimizes the likelihood of a sudden, unexpected revelation that retirement lifestyle objectives are in jeopardy
2. It minimizes the likelihood that corrective actions will be hasty, ill-considered and self-defeating
3. It provides a rational methodology for evaluating and acting on differences between expected and actual portfolio performance

Implementing a Portfolio Sufficiency Monitoring Program

Portfolio sufficiency monitoring is relatively simple in concept. In theory, the process simply requires tracking experience variances from the parameters developed in the original financial plan, and determining benchmarks that will trigger strategic revisions to the plan. In practice, however, a portfolio sufficiency monitoring system requires

■ Rigorous recordkeeping to track experience variances, including variances in portfolio performance, inflation and additional assets

■ Distinguishing between acceptable statistical performance variances, and significant trend differentials that require revisions to the underlying asset allocation or other components of the financial plan

CHART 1
Projected and Actual Retirement Income Portfolio (with no Sufficiency Monitoring Adjustment)

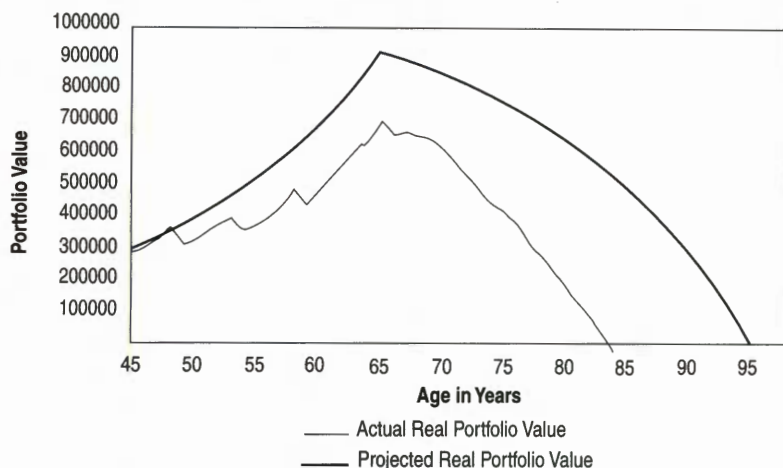
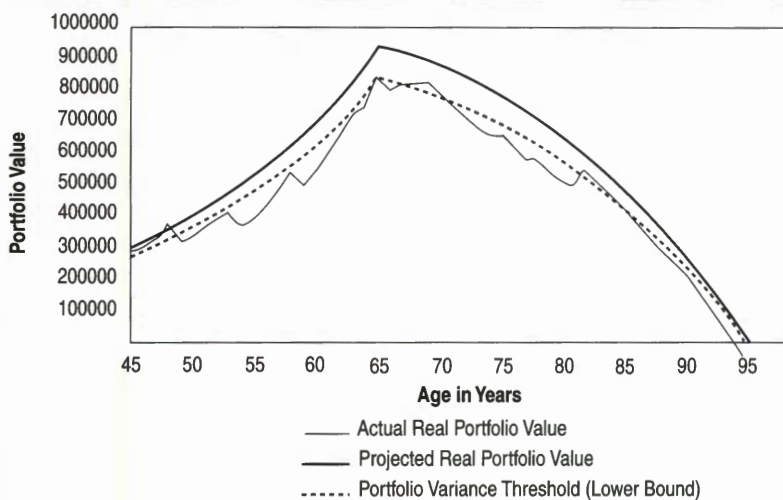


CHART 2
Projected and Actual Retirement Income Portfolio (with Sufficiency Monitoring Adjustments During Both Accumulation and Distribution Phases)



sufficient to meet those needs, given assumed future inflation rates, life expectancy, proposed retirement date and so forth.

Based on this goal, the individual should set reasonable objectives for the portfolio. In general, a retirement portfolio builds through both savings and investment growth. Since risk and return are positively correlated, most investors must assume some risk to attain their retirement planning objectives. However, most investors are risk averse and seek to minimize investment risk. This relationship between a portfolio's expected return and the sufficiency of assets at a future point in time (such as at retirement) drives the asset allocation decision. How much risk must the portfolio bear in order to obtain the required results?

Designing an Appropriate Retirement Portfolio

Once the investor has selected the risk level most appropriate for his or her goals and circumstances, the planner should design a portfolio that has a statistically high probability of achieving the investor's objectives.

Storing Portfolio Assumptions

After completing the portfolio design, the final process is to store expected annual investment results of the portfolio, through both the accumulation and distribution phases of the retirement plan. This summary of expected results forms the benchmark against which actual investment experience should be measured during the portfolio sufficiency monitoring phase.

Periodic Sufficiency Monitoring

Each year, the advisor should conduct a thorough portfolio review to determine the ongoing viability of the original financial plan. The review should include the following:

- A comparison of the portfolio's actual rate of return with the expected rate of return developed at portfolio inception, on both a current period and cumulative basis

- The ability to implement strategic revisions, if required
 - A methodology for determining the magnitude of corrective revisions required
- Consequently, most individuals seeking to monitor the sufficiency of their retirement portfolio should use the services of a professional investment advisor.

Components of a Portfolio Sufficiency Monitoring Program

Establishing Retirement Portfolio Objectives

The first step in setting portfolio objectives is to identify retirement income needs. The advisor then should develop a portfolio target value

■ Monitoring actual portfolio contribution and distribution information against projections specified in the financial plan

■ An analysis of actual inflationary experience, compared with projected inflation according to the original plan

Findings to be reported to the investor should include

■ Gains or losses relative to expected portfolio rate of return and inflationary experience

■ Deficits or accumulations in excess of predefined benchmark variance percentages

■ Key trends indicating the need (or opportunity) for revisions to the financial plan

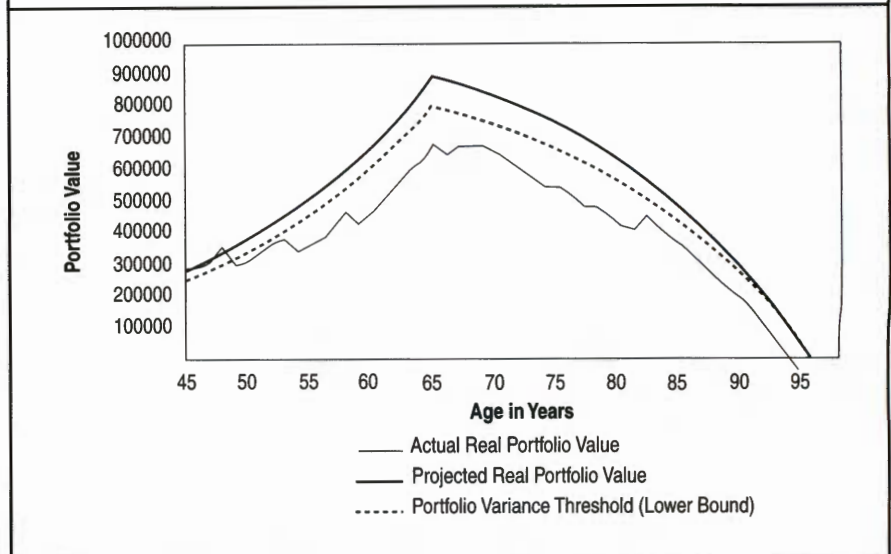
To examine the impact of a portfolio sufficiency monitoring program on a retirement income portfolio, let us revisit the hypothetical example developed in our February 1997 article. Let us assume that our investor has established a variance threshold that triggers action when the actual real portfolio value drops ten percent or more from the projected real portfolio value (consistent with the FASB 87 methodology for defined benefit pension plans). Let us further assume that our investor decides to take corrective action by amortizing variances between actual and projected portfolio performance over a 10-year period. Before any adjustments, our hypothetical investor's retirement income portfolio lasted for just 60 percent of the planned distribution period (as shown in Chart 1). How would the portfolio have fared, given the same patterns of actual performance and inflation, if a portfolio sufficiency monitoring program had been in place?

Chart 2 demonstrates the impact of a portfolio sufficiency monitoring program with corrective action taken during the accumulation and distribution phases of the portfolio.

The dashed line indicates the variance threshold, set ten percent below the projected real portfolio value. In this illustration, the hypothetical investor plans to take the following corrective actions:

■ Before age 65, each year the

CHART 3
Projected and Actual Retirement Income Portfolio (with Sufficiency Monitoring Adjustments During Distribution Phase Only)



investor will contribute one-tenth of the amount that the actual real portfolio value is below the variance threshold

■ After age 65, the investor will reduce the planned annual distribution by one-tenth of the amount that the actual real portfolio value is below the variance threshold.

As a result of implementing these policies, our hypothetical investor makes additional inflation-adjusted contributions to the portfolio totalling \$76,592 over 16 of the 20 years of the accumulation phase, with contributions ranging from \$857 to \$10,244. Further, he reduces his planned distribution in 24 of the 30 years of the distribution phase, with reductions ranging from \$349 to \$7,007, and totalling \$94,085 (all amounts expressed in inflation-adjusted dollars). However, he receives at least \$57,993 in distributions in each of the 30 years of retirement, with the planned \$65,000 distributed in 6 of the 30 years.

Adjustment During Distribution Phase Only

Chart 3 demonstrates the impact of a portfolio sufficiency monitoring program with corrective action taken dur-

ing the distribution phase only. This assumes that the investor is either unwilling or unable to make contributions to the portfolio during the accumulation phase.

Once again, the dashed line indicates the variance threshold, set ten percent below the projected real portfolio value. In this illustration, the hypothetical investor will not take any corrective action before age 65, but will reduce planned distributions by one-tenth of the variance between the actual real portfolio value and the variance threshold for each year after age 65.

Under this scenario, our hypothetical investor will receive his distributions for only the first 28 of the planned 30 years. Furthermore, he will receive reduced distributions in each year of the distribution phase. Nonetheless, the portfolio will last 10 years longer than our unadjusted example, in which the portfolio was completely depleted after just 18 years. Reductions range from \$6,103 to \$14,502 a year, and total \$299,232 (all amounts expressed in inflation-adjusted dollars). The good news is that the investor will receive at least 77 percent of his planned annual distribution across 93 percent of his planned distribution period.

Conclusion

Building an investment portfolio designed to supply a significant source of retirement income requires appropriate planning, and necessarily commits funds to the portfolio for a significant period of time. As the investment time frame is extended, although the actual rate of return on the portfolio tends to converge toward the expected rate of return, the range of possible portfolio values becomes larger. Since the portfolio's ability to supply a stream of retirement income is dependent on the portfolio value, not on the portfolio's rate of return, it is imperative that the investor monitor variances from the portfolio's projected value.

Portfolio sufficiency monitoring establishes a structure for measuring such variances, loosely based on the FASB 87 accounting rules that apply to corporate defined benefit plans.

Although the FASB 87 rules are not directly applicable to the individual investor, due to the differences between an individual and a corporation, there are enough similarities in the planning objectives of the individual and the corporation that the FASB methodology provides useful guidelines.

Portfolio sufficiency monitoring also can be used to initiate appropriate corrective action when actual portfolio experience varies significantly from projections. Depending on the type of corrective action implemented, sufficiency monitoring can significantly enhance the probability that a reasonable income stream is available throughout an individual investor's planned retirement distribution period. ■

Endnote

1. For an analysis and review of the provisions of FASB 87, see *The*

Analysis and Use of Financial Statements, Gerald White, A. Sondhi and D. Fried (John Wiley & Sons: New York, 1994), pp. 638-683.

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