

Retirement Planning: Part 5: Optimizing Strategic Asset Allocation, Dividends and MERs

JIM OTAR

Last time, I briefly talked about strategic asset allocation. Let's look at how to optimize this technique for your income portfolio.

In strategic asset allocation, the common procedure is first to determine the "ideal" mix of equity, bond and cash based on investor's risk tolerance. After implementing the investment plan, the portfolio is rebalanced periodically so that the percentages of the asset mix remain the same. Strategic asset allocation reduces the portfolio volatility. However, we know by now that in an income portfolio the real risk is running out of money, not the volatility.

I am not a proponent of blindly following this particular strategy in an income portfolio. In Part 3 of this series, we have seen how dollar-cost averaging can deplete your portfolio quickly in bear markets. By using the strategic asset allocation, you would be in effect doing the same each time you rebalance your portfolio.

However, it is a technique used by most investors and advisors. That being the case, how can we best make use of it?

Going back one hundred years from 1900 to 1999, I ran several cases of "what-if" scenarios. These scenarios produced different portfolio profiles at different initial withdrawal rates and at different asset allocations. Figure 1 shows a typical portfolio profile with 3% initial withdrawal rate. The top chart shows the probability of portfolio depletion for different asset mixes after 5, 10, 15, 20, 25, 30 years. The bottom chart shows the maximum, the average and the minimum life of the portfolio at each asset mix.

Based on each portfolio profile, I determined an optimum asset mix. The optimum asset mix is a combination of the lowest probability of depletion, the highest "minimum portfolio life" and the highest "average portfolio life" -in that order-, for each initial withdrawal rate.

I combined all this information in Figure 2, which I called "Optimum Portfolio Topography". The horizontal scale shows the initial withdrawal rate as a percent of initial portfolio value, adjusted annually for inflation. The vertical scale shows the portfolio life, typically the life expectancy of the retiree plus a few years. Knowing the two, you can then read off the optimum equity percentage on the chart. The fixed income portion is the difference between 100% and the optimum equity percentage.

For example, if you are designing a portfolio for twenty year life expectancy and 4% initial withdrawal rate (adjusted for inflation over time), draw a vertical line from "4" on the horizontal scale and a horizontal line from "25" on the vertical scale. The two lines meet in the 40% region on the chart. That means your portfolio would include 40% equities and the remaining 60% in fixed income. Based on one hundred years of data, this mix would give you the lowest probability of depletion and the highest longevity.

If the probability of depletion exceeded 50% then the asset mix did not help much. This area is marked as "Not likely" on the topography chart.

Rebalancing: The conventional wisdom is to rebalance the portfolio every year. Doing so reduces the portfolio volatility. However, since we know by now, for an income portfolio the real risk is not the volatility but running out of money, why should we rebalance each year? Why not rebalance in-synch with the market cycle? In part 1 of this series, I noted that a typical bull market runs for fifty months and a typical bear market runs for eleven months. Why not rebalance every four years, the typical length of a bull-run?

Here is what happened to the portfolio life if one retired in 1929 (the worst year to retire) and in 1933 (the best year to retire) with an initial withdrawal rate¹ of 5%:

| | Asset Mix: Fixed Income / Equity | | | |
|----------------------------|----------------------------------|---------|---------|---------|
| | 20 / 80 | 40 / 60 | 60 / 40 | 80 / 20 |
| Retire in 1929: | | | | |
| | Portfolio Life, years | | | |
| Rebalance every year | 13.4 | 17.9 | 21.7 | 25.2 |
| Rebalance every four years | 14.5 | 22.4 | 28.5 | 29.8 |
| Retire in 1933: | | | | |
| Rebalance every year | 48.6 | 39.5 | 28.3 | 21.9 |
| Rebalance every four years | 52.7 | 45.2 | 33.3 | 24.0 |

Rebalancing every four years improved the portfolio longevity for these two years. In some cases, rebalancing every four years did not help as much. I'll save more about that for a future article.

¹ In these examples, all periodic income was taken from fixed income first, and only if this was insufficient, then income was taken from equity.

Dividends:

So far, all I have written about equities is based on the Dow Jones Industrial Average (DJIA). DJIA does not include the effect of dividends. When dividends are included in the return, it is then called the total return. Most index-based mutual funds are based on the index return, not the total return. Owning dividend-paying equities improves the portfolio longevity significantly. Dividends reduce the need to encroach on the capital for income.

The average dividend yield until 1990 was about 4%. After 1990, the average dividend yield started declining rapidly, and it is now about 1.5%. Some other researchers on this subject may have included the total return in their calculations with high historic dividend yields. With average dividend yield being drastically lower than historic norm and unlikely to return to historic levels for various reasons, I believe it would be a mistake to base the retirement income projections on the historic total return.

The next table shows the probability of portfolio depletion at different initial withdrawal rates. They depict the effects of both 2% and 4% dividend yield. You can also use the same tables for a portfolio outperforming the DJIA by 2% and 4% respectively instead of dividend yield.

MER (Management Expense Ratio):

An average diversified equity mutual fund typically underperforms its underlying index by about 2%. Some segregated funds may be charging as high as 4% MER. How do these factors affect the portfolio longevity? You can see that on the next table as well.

Probability of Depletion, Initial Withdrawal Rate 4%:

| | 5 yr | 10 yr | 15 yr | 20 yr | 25 yr | 30 yr |
|---------|------|-------|-------|-------|-------|-------|
| 4% Div. | 0% | 0% | 0% | 4% | 8% | 10% |
| 2% Div. | 0% | 0% | 1% | 11% | 25% | 36% |
| No Div. | 0% | 0% | 7% | 29% | 48% | 59% |
| 2% MER | 0% | 0% | 22% | 49% | 64% | 74% |
| 4% MER | 0% | 1% | 31% | 64% | 80% | 94% |

Probability of Depletion, Initial Withdrawal Rate 6%:

| | 5 yr | 10 yr | 15 yr | 20 yr | 25 yr | 30 yr |
|---------|------|-------|-------|-------|-------|-------|
| 4% Div. | 0% | 0% | 9% | 29% | 47% | 53% |
| 2% Div. | 0% | 2% | 25% | 50% | 59% | 63% |
| No Div. | 0% | 3% | 36% | 59% | 73% | 84% |
| 2% MER | 0% | 9% | 51% | 75% | 89% | 100% |
| 4% MER | 0% | 24% | 60% | 84% | 100% | 100% |

Probability of Depletion, Initial Withdrawal Rate 8%:

| | 5 yr | 10 yr | 15 yr | 20 yr | 25 yr | 30 yr |
|---------|------|-------|-------|-------|-------|-------|
| 4% Div. | 0% | 3% | 34% | 56% | 63% | 70% |
| 2% Div. | 0% | 14% | 47% | 69% | 77% | 87% |
| No Div. | 1% | 27% | 59% | 80% | 92% | 100% |
| 2% MER | 2% | 33% | 68% | 91% | 100% | 100% |

| | | | | | | |
|--------|----|-----|-----|------|------|------|
| 4% MER | 2% | 41% | 82% | 100% | 100% | 100% |
|--------|----|-----|-----|------|------|------|

Probability of Depletion, Initial Withdrawal Rate 10%:

| | 5 yr | 10 yr | 15 yr | 20 yr | 25 yr | 30 yr |
|---------|------|-------|-------|-------|-------|-------|
| 4% Div. | 1% | 29% | 54% | 71% | 79% | 87% |
| 2% Div. | 2% | 33% | 65% | 85% | 93% | 100% |
| No Div. | 2% | 41% | 78% | 94% | 100% | 100% |
| 2% MER | 2% | 51% | 86% | 100% | 100% | 100% |
| 4% MER | 3% | 61% | 93% | 100% | 100% | 100% |

For example, let's look at two portfolios performing exactly same as the DJIA with an initial withdrawal rate of 4%: After twenty-five years, the portfolio with 4% dividend yield has an 8% probability of depletion. On the other hand, a portfolio with a 2% MER has 64% probability of depletion. Obviously, you will not find this revelation in any mutual fund sales material!

I hope your mutual funds are doing better than average. For more information on how to select better mutual funds, please check my "Fingerprinting Technique" by visiting the Canadian MoneySaver website.

Happy retirement!

Jim Otar, P.Eng. IA, CFP, Independent Financial Advisor, Datile Securities, (905) 889-7170.

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Figure 1: Portfolio profile at 3% initial withdrawal rate for all years between 1900 and 1999.

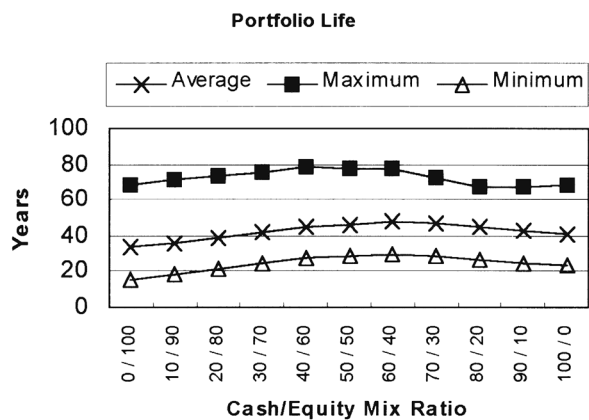
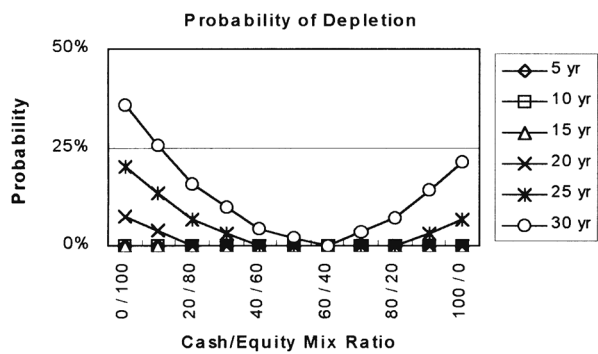


Figure 2: The topography of optimum asset allocation at different initial withdrawal rates and portfolio life for all years between 1900-1999. The numbers shown are the percent equity in the optimum portfolio. The remainder is invested cash and/or fixed income.

