

November 1997

## **Financial Planning Follies II -- The Meanness and Variety of Optimization**

Last month we warned you about over reliance on computer projections of the future value of your retirement funds. But don't put your guard down. Also lurking in the woods is the software-related danger of "mean variance optimization," usually accompanied by the marketing phrase "Nobel-prize winning technology." In 1952, Harry Markowitz published an article which stood the investment advisory industry on its head. Before Dr. Markowitz, the risk of a portfolio was gauged by adding up the risk of each security, without looking at the overall characteristics of the mix of what was owned.

*For years, "optimization" was  
safely ensconced in academia,  
unable to harm us*

Markowitz changed this by looking at the return and risk characteristics of portfolios as a whole. Buying a risky asset may reduce your overall portfolio risk if the new asset zigs when the rest of your portfolio zags. Markowitz showed that certain portfolios are "optimal" because they maximize portfolio return for a given amount of risk. Between two portfolios that provide the same long term return, the less volatile (risky) choice is "optimal," for the sake of your stomach lining if nothing else.

While Markowitz's theories were quickly accepted by academia, the mathematics of optimization were so complex that real folks were kept out of harm's way. Unfortunately, now that we all have massive computing power on our desks, software lets us all play at being Harry Markowitz. Unfortunately, real world practice is always tougher than theory. The software extrapolates into the future somewhat limited historical data on the returns and volatility of different assets. Over the last 15 years, total returns on bonds have skyrocketed because of the massive decline in interest rates as inflation was conquered. Think we'll see a similar interest rate decline over the next 15 years? The software does.

Let's say we are trying to pick the highest returning optimal portfolio, regardless of risk. If emerging markets have been hot, the software may suggest a portfolio 100 percent invested in emerging markets. The financial planner at that point realizes the client is not going to want so concentrated a portfolio, so he will limit emerging market investments to, say, 10 percent of the portfolio total. At that point, the program may suggest a 90 percent investment in foreign bonds. The planner, realizing that is likely to be unacceptable to his client, sets an upper limit for foreign bond holdings of perhaps 12 percent. And so on. Of course, the first time the planner sets such a limit, he has parted company with Dr. Markowitz, Nobel Prize winner. What the client winds up with is a portfolio that approximates the gut feelings of the planner. This can be sold to the client or prospect with a black-box, Nobel Prize mystique that the planner's gut lacks.

***Optimization can be sold to a prospect with a black box, Nobel Prize mystique that the financial planner's gut lacks***

We used optimizing software to pick the “optimal” highest return portfolio at various times between large stocks, small stocks, foreign stocks and bonds with data going back to December 1978. In June 1983, the suggested optimal portfolio was 100 percent small company stocks, just as they were about to begin a long period of underperformance relative to large company stocks. In the early 1990’s, the “optimal” portfolio was 100 percent in foreign stocks, just as the U.S. market took off. Now that large U.S. company stocks have been the best performing asset for three years, the magic black box suggests (ta-da!) investing all of our money in large U.S. company stocks. Our feeble, human brains can stupidly extrapolate the recent past into the future just fine, thank you.

Given the obvious failings of optimization software, why has it been spreading like wildfire in the past several years? Because the number of financial planners has been growing like wildfire, coincident with the bull market. You are more likely to be impressed with an industry rookie who has never lived through a market decline if she is selling you a portfolio chosen not by her but by wizard-behind-the-curtain, black box “Nobel Prize-winning” technology.

We are not criticizing Markowitz’s theory -- in fact, Sigma’s founder instructs budding financial analysts in such portfolio “science.” It’s just that the science is not as important as your emotions in investing. If you rely on a black box for your investment choices, you have no emotional reserves when the market goes against you. You will have no idea what was behind your portfolio decisions in the first place. While the industry rookie will still be babbling about the Nobel Prize, he will be unable to explain your portfolio performance. We wrote in September about the use of our “fire drill” models that allowed investors to imagine how they would feel during real-world historical portfolio declines for different asset mixes, without using jargon such as “standard deviation” or “covariance” that is impressive in bull markets but not comforting in bear markets.

If you like the idea of investing using technology-aided *human* analysis rather than just a garbage-in, garbage-out black box, call Sigma Investment Management Company. You should know, however, that none of us has a Nobel Prize yet (not that we’re bitter).