Misconceptions about Optimization

A. Many financial advisors view optimizers as "black boxes" rather than as tools used to make more objective and accurate investment decisions.

- Modern Portfolio management techniques are concerned with investment analysis, portfolio design, and performance evaluation. These methods express quantitatively the advisor's views regarding risk and its relationship to investment return. They focus attention on the overall composition of the portfolio rather than the traditional method of analyzing and evaluating the individual components. Advisors are, therefore, able to examine and design portfolios predicated on explicit risk-reward parameters and on the identification and quantification of portfolio objectives.

B. Simple asset allocation to "60% Equities, 30% Bonds and 10% Cash is sufficient.

- What about real estate, natural resources, hedge strategies, venture capital, and other investment vehicles.
- What kind of equities? Domestic equities, international equities (Asian, European…), large company, small company, growth, value, income, etc.
- What kind of bonds? Short, intermediate, long-term. Domestic or international. Corporate, government, agency, mortgage, municipal. Convertible or non-convertible. Portfolios consisting of long-term bonds and equities tend to be more volatile than pure equity portfolios.

B. Most investment professionals focus their attention on the evaluation and selection of specific issues rather than on the portfolio as a whole. It is a common belief that skilled professionals, with their financial resources and information gathering abilities, should be able to consistently "beat the markets". It is assumed that this can be done with sophisticated securities analysis and selection, and by adroitly timing moves in the markets. This assumption is further predicated on the concept that markets are inherently inefficient, thereby allowing investors with superior skills in selecting issues and timing markets to outperform benchmarks of market performance.

- The fact of the matter is that most professionals cannot outperform the markets and that security analysis does little to enhance portfolio performance. The issue is not whether to be in IBM, but whether to be in equities at all.

D. "Using optimization is like driving forward looking through the rear-view mirror".

- Making any investment decision involves making some assumptions regarding the relationship of alternative investment vehicles to each other, their historical or forecasted rates of return and volatility. It is virtually impossible to know exactly what these relationships are without using some tools to measure how various investments have performed relative to each other in the past. Optimizers calculate these relationships and put them into perspective mathematically.
- Making assumptions about an investment's forecasted rate of return is OK, but it is worthless without knowing precisely how these investments might perform in combination and what the correct allocation should be given the return assumptions and their historic relation to each other (correlation and covariance).
- Without using tools such as optimizers, advisors are guessing at an appropriate allocation to each investment. These "guesses" essentially remove any objectivity from the investment decision process and subject advisors to many of the very decision-making errors they are trying to avoid.
- Measurements of the risk and return characteristics of individual investments are inadequate in explaining what happens when investments are combined in portfolios. The true measurement of diversification between assets is called the covariance of the assets. Covariance measures the timing, direction and momentum of the movement of two variables. Are they moving in the same direction at the same time, and what is the volatility of the movement of each variable. By calculating the covariances and expected returns for all assets in any given portfolio, it is possible to calculate the optimal portfolio mix for any degree of risk. Each portfolio on this "efficient frontier" will generate the highest possible rate of return for any specific level of risk, with risk being measured by the standard deviation (variance) of returns. Any other portfolio which exhibits the same standard deviation will generate lower returns and will therefore be considered inefficient.

E. "Optimizers lead to over concentration in a few investments based on historical performance and require manipulation of the mix by applying constraints".

- The number of assets in the portfolio is less important than the relationship of those assets. Therefore having many assets in a portfolio will not reduce the systematic risk in the portfolio as much as having negatively correlated assets. Further, it is a misconception, albeit a widely held one, that investors must accept higher levels of risk to achieve higher returns. By using asset allocation methodologies, investors may achieve higher returns with less risk.
- In most cases, establishing additional constraints on how much (or little) of any investment can be included in a portfolio is strictly subjective and not a scientific or objective approach to portfolio management.
- Establishing arbitrary constraints without consideration of how return assumptions can impact the mix of a portfolio based on other factors is subjective and pure guesswork.
- In my opinion, we need to first look at our return assumptions. Modify them if necessary and then run the optimizer. If the mix is still out of line with what our intuition and experience suggest, then constraints are appropriate.

F. Using a strictly historical database is more accurate for back-testing than using forecasts, but could be questioned when looking at an uncertain economic environment. How do we know that the correlation of foreign assets to domestic will be the same as it has been when globalization is changing the world.

- Actually, correlations don't change much over time. It is the volatility of correlation that can change most (covariance) and that is what optimizers do well in constructing optimal portfolios. Also, aren't we all making certain assumptions about the economic environment when making investment decisions. Choosing an historic economic environment and calculating how investments performed at that time relative to each other can be very instructive, especially when applying forecasted return assumptions on a forward looking basis.

G. Optimization by inexperienced users can be dangerous.

- This may be true to some extent, but does that mean they shouldn't use optimization, or does it mean that more education would materially help them do a better job?

I find it simply amazing that some advisors are willing to modify investment strategies based on the mathematical probability of achieving financial goals, but are unwilling to use more scientific methods of developing the investment strategy to begin with. It seems that many financial advisors are more interested in designing portfolios that are aesthetically appealing to clients than they are in building investment strategies that actually have a higher probability of achieving their client's objectives.