Standard Deviation as a Measure of Risk

Risk and the Real-Life Investor

By: Vern Sumnicht, MBA, CFP®

When attempting to develop an optimally allocated portfolio of investments, using standard deviation as a definition of risk leads to unreliable conclusions when your objective is to avoid risk. Using standard deviation as a measure of risk assumes a symmetrical return distribution and assumes, absurdly, that unexpected gains are as risky as unexpected losses. Yet, an unexpected gain is not what an ordinary investor considers risk. Any practical investor will confirm that making an unusually large return isn't risky. *Losing* money is risky.

The use of standard deviation (SD) as a measure of risk assumes all investment returns follow a bell-shaped (symmetrical) curve. Yet, seldom does any investment return distribution actually resemble a classic "bell curve." Plotting most investment return distributions will result in a graph that is skewed either positively (like the green curve below) or negatively (like the blue curve).

Return On Investment Fig 1

If I were to analyze the investments represented by the green distribution curve and the blue distribution curve using standard deviation as my measure of risk, I'd consider them both equal. Remember, standard deviation assumes all investments have a symmetrical bell-shaped curve. Under this assumption, because both of these investments have the same expected return and standard deviation (SD), they would be considered equal. Both investments have the same SD because they are equally volatile. That is, they both deviate from the expected return equally as much. Yet, these are not equal investments: Green's volatility is upside-

biased (or skewed) and blue's volatility is downside-biased (or skewed to the downside).

Now, consider the following: What if I did *not* assume a symmetrical return distribution? What if I did not use standard deviation to measure risk at all and, instead, I only considered the possibility of losing money as risky. Clearly, I would determine that the investment represented by the blue graph was more risky since the blue investment graph indicates a much higher probability of losing $50 than does the investment represented by the green graph.

Just looking at SD as a measure of risk, I would have overlooked the green investment; I would have missed it simply because it had unexpectedly positive upside returns and little downside. Does it make you wonder how often you may have missed a really great opportunity simply because some investment had a large (SD)? Remember, when using (SD) as a measure of risk, upside volatility gets penalized the same as downside volatility.

Harry Markowitz, PhD, the father of MPT himself, said that "downside semi-variance" would build better portfolios than standard deviation. But as William Sharpe, PhD, one of his colleagues, notes, "In light of the formidable computational problems...he bases his analysis on the variance and standard deviation." Back in 1959, Markowitz did not have a Dell laptop with an Intel Core 2 Duo T7200, 2 GHz clock speed, 120 GB hard drive and Microsoft Excel software.

The iSectors Post-MPT Allocation series of investment models replaces standard deviation as a measure of risk with something more practical and easier to calculate. The Post-MPT Allocations consider negative returns or losing money as the risk to avoid. This definition of risk is supported in the Post-Modern Portfolio Theory research and the research done in the area of Behavioral Finance. But, perhaps most importantly, it is supported by individual investors and common sense.

This article is derived from the white paper, "Practical Applications of Post-Modern Portfolio Theory." The entire paper, written by Vern Sumnicht, can be found at www.isectors.com.

Vern Sumnicht has 25 years experience as a successful financial planner and has been recognized for four consecutive years by "Worth Magazine" as one of the Nation's Top Wealth Advisors. Vern and his team developed iSectors'® diversified ETF allocation portfolios. For more information about iSectors'® ETF allocation portfolios, visit www.iSectors.com, email Vern at vern@isectors.com or call 1-800-iSectors.

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