WHITE PAPER

RISK–THE MOST DIFFICULT TOPIC IN INVESTING

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In reference to pornography, Supreme Court Justice Potter Stewart famously commented that he could not define it, but he knew it when he saw it. Similarly, investment risk is a particularly difficult topic because market participants have a difficult time explaining it, and they employ many different definitions; some that are quantifiable and many that are more subjective. Additionally, even if you are able to settle on a workable definition, it is challenging to decide how much risk is appropriate for you or your institution, and risk tolerance tends to fluctuate over time in concert with movement in the stock market. In other words, risk is an emotional topic that is subject to all of the frailties of human decision making. Relationships between securities and markets change over time which somewhat limits the value of even sophisticated mathematical risk analysis.

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Investment Risk Defined

The four most commonly used definitions of risk include: the chance of losing money, the chance of permanent loss of capital, the probability of not achieving one's goals, and the volatility of return.

All of the definitions have pros and cons, but the volatility of return is the most commonly used – and widely accepted – measure of risk. Academics and researchers use this definition because it's measurable, lends itself to detailed statistical analysis, and in some sense, incorporates all of the other definitions of risk. But, there are several problems with it as well. First, the mathematics of volatility can be somewhat off-putting. Second, most investors are comfortable with volatility on the upside and deathly afraid of it on the downside, so they have a difficult time thinking of volatility as the universal measure of risk. Third, it is very difficult to determine how much volatility is "right" for any given investor.

So, How Do We Think About Risk?

We believe that a comprehensive way to think about risk is to blend two of the four measures in a way that takes into account both short and long time horizons. This analysis involves tradeoffs because increasing the odds of success in one measure typically increases the chance of a problem with the other. We can supply the necessary math, so it is your job to think conceptually about these relationships as they apply to your financial circumstances and emotional makeup.

First, we think investing is all about accomplishing ones goals so we are attracted to the definition of risk that is based on the probability of failing to achieve a return objective. Some investors, such as pension funds, endowments, foundations, and some individuals, have very specific return objectives that make this form of analysis particularly useful. But, it is also applicable to those that have fuzzy goals such as "I want my assets to grow." Let's take a simple example of an endowment fund that has a target return of 7% over 20 years. Extrapolating historical volatility and return data on stocks and bonds, an 80% domestic stock / 20% bond ratio carries with it a 34% probability of failing to achieve

Economic output or real GDP is determined by two factors: the number of people working, and the amount they produce during each hour worked.

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the goal over the 20-year period. In contrast, a 20% stock / 80% bond ratio carries with it a lofty 64% chance of failure. According to this measure, portfolios with higher equity exposure are *less* risky because they increase the odds of achieving the 7% return goal.

The obvious tradeoff is that the 80/20 portfolio is much more volatile than the 20/80 alternative and offers an increased probability of short term pain. More specifically, the 80% equity portfolio is 65% more volatile as measured by the standard deviation of return, the most widely used measure. What does this mean? In any given year, the equity laden portfolio carries with it more than twice the probability of a 10% decline in value as compared to the more fixed income oriented portfolio.

The most difficult part of investing is evaluating this tradeoff. In order to achieve target rates of return of 6-9%, which are common for pension funds, endowments, and many individuals – a significant allocation to equity-like investments is required. But, such an allocation is likely to increase short term volatility and significantly raise the probability of a moderate to significant decline in value over interim periods. Perhaps the best way to think about the tradeoff is to suggest that you should opt for the most aggressive asset allocation possible, given your ability to tolerate short term volatility.

How Much Volatility Can You Tolerate?

Some of the factors that determine one's tolerance for volatility are financial and structural in nature whereas others are emotional.

Using our quantitative models, Diversified Trust can show you how a given portfolio is likely to behave over time and, in particular, how it might behave in a market decline. But, in the end, you will have to assess your emotional makeup and determine if you have the fortitude to ride out the tough times without abandoning your investment program. If not, we need to dial down the short term volatility of your portfolio knowing that it will likely affect its long term return.

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DIVERSIFIED TRUST

The Benefit of Diversification

It's impossible to discuss risk without reviewing the benefits of diversification. Let's go back to the simple example of an 80% domestic stock / 20% bond portfolio. It was expected to earn an annual return of 8.7% based on an extrapolation of historical data, and offered a 66% probability of achieving a 7% return target over a 20-year period. However, this portfolio is likely to be only slightly less volatile than a pure stock portfolio and carries with it about a 30% chance of a decrease in value in any given year, and a 14% probability of a 10% decline.

In contrast, consider a portfolio with more diversified asset allocation. This is an example of a portfolio mix that might be somewhat typical of tax exempt clients: 24% US stocks, 17% non-US stocks, 12% private equity, 9% real estate, 29% fixed income, and 9% hedge funds.

Interestingly, this portfolio offers the same projected return as the 80% domestic stock / 20% bond portfolio with projected volatility almost exactly equal to that of the 20% stock / 80% bond alternative. And there is a commensurate decrease in the probability of significant losses in any given year. So, by diversifying, we maintain the same odds of long term success with a significant decrease in the probability of an unpleasant short term decline in value that might cause panic and lead to a rash and costly decision to change investment strategy. And, the addition of still other asset classes has the potential to further improve the risk: return tradeoff.

Conclusion

Wealth managers like to discuss risk using math and statistics that often obfuscate the real issues. We focus on two questions that must be answered: (1) What is the long-term return objective and what type of asset allocation is required to provide a reasonable probability of achieving that goal? (2) Does this portfolio structure entail short term volatility that could cause severe distress and the possibility of a destructive, emotional decision? Answering these questions requires both an objective evaluation of the ones financial circumstances and a good deal of soul searching.

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