SMARTRISK™

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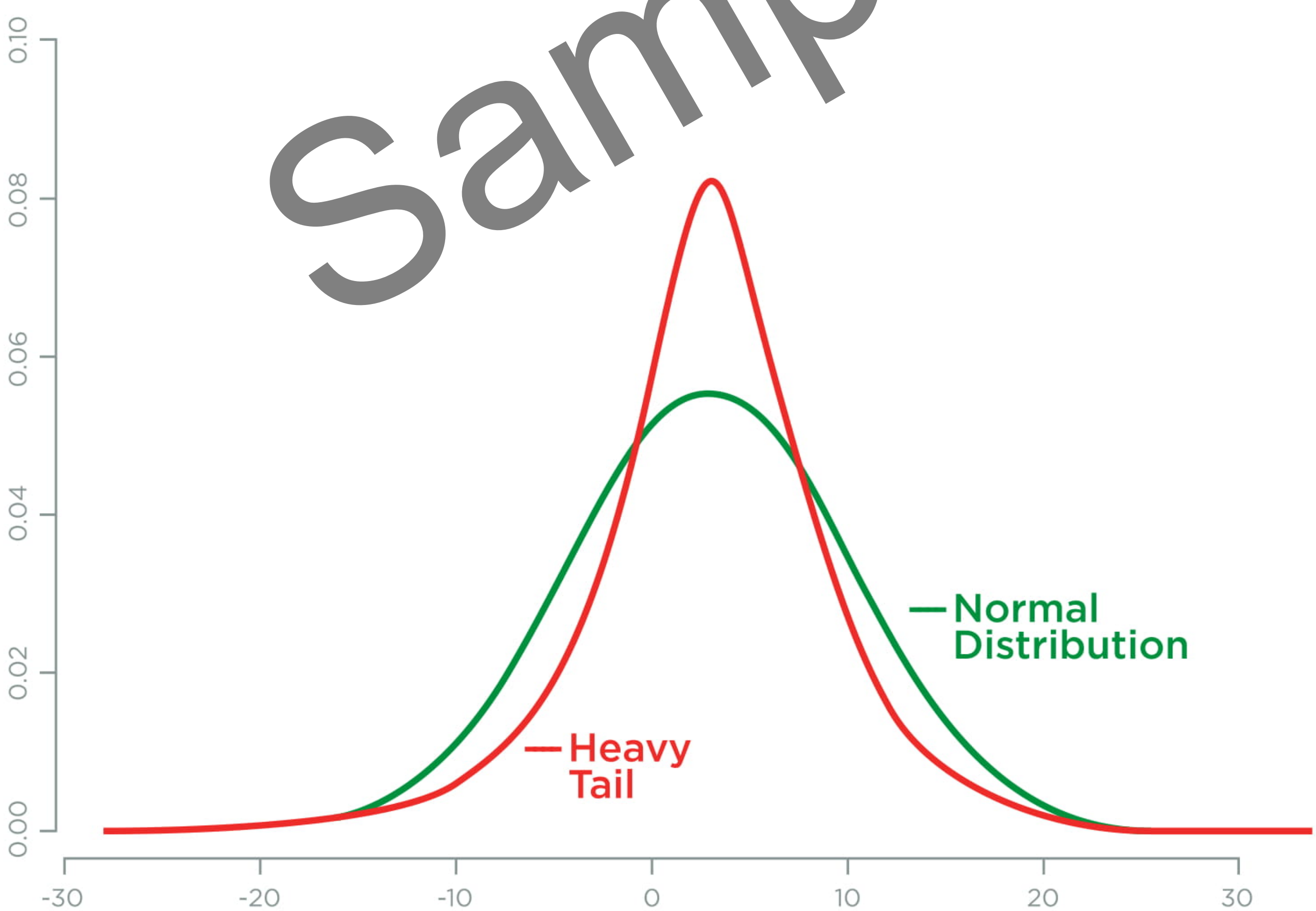
PORTFOLIO RISK ANALYSIS

The End of an Era

In 1952, Harry Markowitz revolutionized the world of investing with the Modern Portfolio Theory. In this representation, investment risk is modeled as the standard deviation of returns, following a normal distribution, which is also known as a "bell curve." Subsequently, virtually every model of financial returns, made the same assumption. According to these calculations, the odds of witnessing the crash of 1987 start with 54 leading zeros, odds so small they are meaningless, yet big swings in the market happen regularly.

With advances in computing power, better models for estimating risk have become available. These are generally referred to as "heavy-tailed" because they recognize that extreme events happen far more often than the traditional models would predict, and also have a far greater impact. The chart above shows the difference between a heavy-tailed distribution and a normal distribution. Notice the red line has a steeper peak, recognizing that in normal markets, returns tend to be clustered near the average, but in extreme bull or bear markets, much bigger swings are possible than traditional models would predict.



Value at Risk

Common methods of risk measurement also use Value at Risk (VaR) methodology. This method draws a line at the 95th percentile of downside scenarios. This tells you the point at which you might consider yourself in a rare bear market, but it doesn't tell you how bad the bear market could be.

Estimated Tail Loss

Models that incorporate an estimated tail loss (ETL) method demonstrate the average downside of bad scenarios, rather than simply the edge of what could be considered a bad scenario. This perspective sets more accurate expectations of risk in portfolios, better preparing investors for the inevitable downturns. We use the 99.5% threshold to begin our ETL analysis.

Your Advisor's Role

Part of your advisor's role is to help you analyze the amount of risk in your portfolio in order to help you make better investment decisions. This report explores two important areas:

1. Is your portfolio actually more or less risky than you think?
2. Is your portfolio diversified?

YOUR CURRENT PORTFOLIO: RISK AND RETURN POTENTIAL

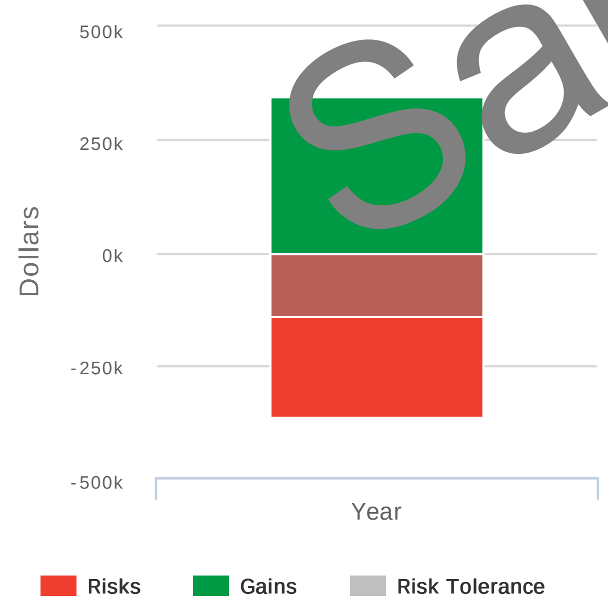
The green area in the risk charts represents potential investment gains during an exceptionally good period for your portfolio (quarter and year, respectively), gross of advisory fees or commissions, but net of any internal fees and expenses.

The red area represents potential loss during an exceptionally poor period for your portfolio (quarter and year, respectively), gross of advisory fees or commissions, but net of any internal fees and expenses.

Your comfort level with risk, also known as your risk tolerance, is the shaded area. In your case, your portfolio is more risky than with which you have indicated you are comfortable.

TODAY'S PORTFOLIO VALUE: $900,000

	Your Risk Tolerance	A Very Bad Period	A Very Good Period
Dollars	-$63,000.00	-$170,943.91	$135,081.27
Percent	-7%	-19%	15%



	Your Risk Tolerance	A Very Bad Period	A Very Good Period
Dollars	-$144,000.00	-$367,786.75	$347,920.73
Percent	-16%	-41%	39%

YOUR CURRENT PORTFOLIO: DIVERSIFICATION

When considering diversification as a risk management technique, it is important to analyze the movement of your portfolio holdings during times of market stress. We calculated the risk metrics for each holding in the proposed portfolio using our heavy-tailed model and 99.5% ETL methodology.

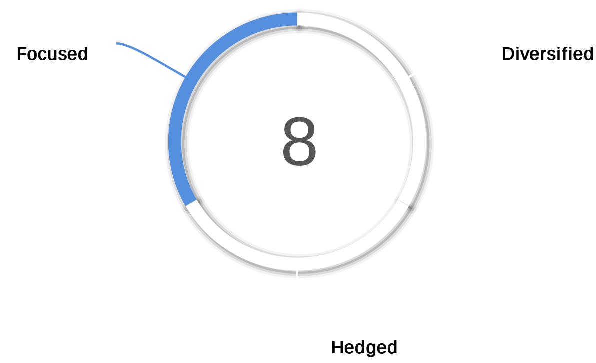
Mathematically, diversification is the amount of risk not present when assets are held in a portfolio, rather than analyzed individually. In your proposed portfolio, the sum of the individual risks is $51,454.67. The portfolio risk is $47,373.17.

Portfolio Risk	**Sum of Individual Holdings Risk**
$47,373.17	$51,454.67
Ratio of portfolio risk to individual holdings risk: 92%	

When we create this ratio, the proposed portfolio has 8% less risk than the sum of the risk of your holdings. That percentage of risk reduction could be considered your diversification index.

DIVERSIFICATION INDEX

More diversification is not necessarily good or bad. Portfolios with a low diversification index (i.e. DI < 16) will be highly dependent on the performance of one single economic factor, and thus are deemed to be 'Focused'. Finally, portfolios with very high levels of internal hedging (i.e. DI > 59) are deemed to be 'Hedged' and may, in some cases, fail to appreciate in value, as most of the gains made by some of the portfolios' components could be offset in large parts by losses in other parts of the portfolios. A diversified portfolio (DI between 16 and 59) is not overly dependent on a single economic factor and does not exhibit a high level of internal hedging.



NEED FOR A STRATEGY

There are two primary components of risk:

1. Risk tolerance is a behavioral question: At what point does the exposure to loss cause you to be unwilling to continue with your investment? Understanding your willingness to accept downside risk helps your advisor identify which portfolio choices should be avoided because they may heighten the propensity for behavioral mistakes.
2. Risk Capacity is your ability to meet your financial goals, even in the event a risk event becomes a reality. This report is primarily concerned with your risk tolerance. An appropriate assessment of risk capacity should incorporate all the elements of this report, plus those that are necessary in the development of an overall financial plan including other income sources such as pensions and Social Security, as well as your spending goals.

This report should inform your overall retirement and investment plan. Your advisor can help you explore your risk capacity through the development of a comprehensive financial strategy.

CURRENT PORTFOLIO: ACCOUNTS

Name: Qualified
Balance: $750,000.00
Statement Date:

Holding	Quantity
SPY	2,121.716
AGG	1,283.477

Name: Qualified
Balance: $150,000.00
Statement Date:

Holding	Quantity
SPY	212.172
AGG	770.086

Name: Roth
Balance: $0.00
Statement Date: 12/5/2019

Holding	Quantity

Name: Roth
Balance: $0.00
Statement Date: 12/5/2019

Holding	Quantity

Name: Non-Qualified
Balance: $0.00
Statement Date: 12/5/2019

Holding	Quantity

SMART RISK DISCLOSURES

This report is not intended and should not be construed to provide financial advice. This report, generated by Covisum, LLC is intended as an educational starting point from which the recipient may begin a conversation with a professional regarding investment strategies. The report may inform the creation of a financial plan or the purchase of a financial product, but the recipient of this report acknowledges that no action, whether account, product, investment strategy, or otherwise related, should be taken solely on its contents. Use of the contents of this report is at the user’s sole risk. This report is provided as is, without warranties, representations of conditions of any kind, either express or implied. The report metrics do not represent the actual historic performance of your portfolio.

Covisum does not know or have access to the historical holdings of your portfolio. Covisum defines risk of loss as the risk inherent in the current portfolio for a certain time horizon. The metrics utilized in this report were derived from a proprietary risk model and are not definitive. All risk models, including the SmartRisk model must make assumptions and therefore, the metrics are not statements of fact. The presented portfolio may be different from your actual portfolio because a current holding may be excluded from report or a proxy holding may have been substituted for an actual holding. Cash may have been substituted for an actual holding. These substitutions may occur because the actual holding was not recognized, the actual holding may not have the required history or the actual holding may have been re-mapped by your advisor to a different holding. SmartRisk metrics do not address any other risk, including but not limited to liquidity or systemic risk.