

Risk Management or Diversification Management

What's more important and what are you focusing on?

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You've probably never heard of diversification management. But maybe you should. Measuring diversification is the first step towards managing it.

Gravity Investments premier portfolio analysis software, G-Sphere provides investors with more diversification intelligence than any other tool in existence. Diversification is measured three ways. The Intra-portfolio Correlation (IPC) measures portfolio diversification as it pertains to systemic risks. The concentration coefficient measures diversification against risks of portfolio concentration. The IPC3, a combined measure, is the single best measure of diversification available. G-Sphere uses CVDRAM as its optimization engine. This process has diversification at its core.

Risk, by its very nature does not lend itself to quantification. We use risk measurements such as standard deviation, semi-variance, maximum drawdown, value at risk, downside deviation or estimated tail loss. However, these are all measures that light a facet of risk, but they do not let us know risk. Risk does not allow it. Risk is most often expressed with statistics, but risk statistics cover probability whereas risk must include that which is not measured.

For a starting place let's look at the dictionary definition of risk.

RISK:

- 1 : possibility of loss or injury : PERIL
- 2 : someone or something that creates or suggests a hazard
- 3 a : the chance of loss or the perils to the subject matter of an insurance contract; *also* : the degree of probability of such loss b : a person or thing that is a specified hazard to an insurer <a poor *risk* for insurance> c : an insurance hazard from a specified cause or source <war *risk*>
- 4 : the chance that an investment (as a stock or commodity) will lose value

From Merriam-Webster Online Dictionary

In traditional portfolio optimization, risk plays the central role. A quadratic optimization produces an array of mean-variance efficient portfolios. Each mean-variance efficient portfolio maximizes the ratio of return to risk.

Diversification is used implicitly, not explicitly. Individual asset standard deviations (or other risk measures) play the primary role. Diversification is only catalytic. Portfolio diversification is used to reduce portfolio risk.

Risk however, is managed in several other instances at professional investment management companies.

Risk is managed when investment candidates are selected. The very act of selecting an investment means that the investor has a favorable view of the future prospects for that asset. The logic employed by the investor is inherently a risk reduction mechanism.

Risk is also managed by effective portfolio monitoring. Exogenous and endogenous events may occur that would invalidate the original trading thesis. Good money managers monitor such activities and account for circumstances when reality conflicts with the original expected result. This is the essence of management; assimilating new information and making choices from it.

Similar to portfolio monitoring is positional risk management. Most professional investors set rules at or before the time of a trade. These rules dictate both success and failure criteria. Making these rules and acting on them with instruments like stop-loss orders is a huge risk management activity. Placing a stop loss order on an investment entirely mitigates other risk measurements such as standard deviation. Other risks such as execution risk and operational risk still prevail.

Portfolio risk is also hedged at the portfolio level. Institutional money managers often use the futures market to temporarily offset risks in a portfolio. The application of such hedging instruments can insulate portfolios from market risks at times of elevated uncertainty.

Risk measurements are also sensitive to the selection of historical data and confidence levels. Few investment managers deliberately select historical data, instead opting for the easy answer of using three, five or ten years of historical information. Yet, selecting historical data is another opportunity for an investment manager to manifest talent.

By utilizing these risk management techniques, good investors can reduce a risk down towards a mere probability. This probability is then weighted against the potential returns. With so many risk management tools available, risk need not be the center piece of portfolio construction.

Let's examine the jeopardy of a risk based portfolio optimization.

The detailed risk management techniques can dramatically change the character of risk thus invalidating the quantifications used in portfolio optimization inputs.

Investments with historically superior returns generally have higher standard deviations. This has led to a dangerous association... high risk equals high return. While the two measures do seem to exhibit a small positive correlation (this correlation is reduced or alleviated with other risk measurements) the true association of the two may not be material.

Using the above risk management techniques further decouples any association between risk and return.

Yet in risk centered portfolio optimization such as mean - variance optimization (MVO) this risk normally remains measured at its historical value. This creates a potentially significant dichotomy from the purpose of the optimization and the model created.

This same dichotomy tends to reduce allocations to the best returning assets. Since risk is managed and reduced, the historical standard deviation is a poor estimate and punishes your best returning investment candidates. This is especially true when risk is measured as standard deviation.

At the margin, perhaps the difference is this... a risk-based optimization such as MVO will incrementally allocate to an asset that decreases the portfolio risk, whereas a diversification-based optimization will spend that allocation on the asset that adds incremental diversification.

Given the dichotomy in the measured risk values and the inherent cunning for risk to deflect quantification, it is worth questioning what makes for a better optimization focus.

Fiduciary diversification management is more likely to achieve superior returns than traditional risk minimization techniques. The improved return performance is itself a risk management method. It's harder to lose your principal after you doubled your investment. Additionally, diversification-focused optimization engenders greater performance by reducing the risk / return association. Allowing risk to be managed elsewhere frees the portfolio optimization for the encumbrance of risk minimization and its relative negative effect on absolute returns.

Creating a portfolio of the best investment candidates with the best return expectations and ensuring diversification both in terms of creatively sourcing investment candidates and maximizing available diversification from within the

selected candidates allows for alpha. Diversification enables managers to seek and allocate to better performing investments.

The investment policy level is another opportunity to manage risk and diversification. Many investment policies may even target risk levels or seek to maximize risk adjusted returns. Targeting risk levels in an investment policy must lead to a selection bias for low risk assets. This reduces portfolio performance.

Investment policy statements can be made to target diversification levels. Mandating a diversification requirement within an investment policy forces creativity. This also creates a selection bias, however, this selection bias, driven by the need to find uncorrelated assets, helps investors find opportunities before others do. This creates a virtuous high-performance cycle.

We see that risk is capable of being well managed in many aspects of portfolio management. The management techniques change the true shape of risk, but this distinction is not accounted for.

Diversification measurement is inherently a holistic measure. Therefore diversification measurements do not distort. Ergo, risk is a less reliable optimization input than diversification.

Portfolio monitoring is another resource for managing diversification. Monitoring sector, country or counterparty exposure is a straight forward method. When an allocation exceeds a threshold the portfolio can be rebalanced or re-optimized for more diversification. This is a portfolio defense against concentration. Monitoring the portfolio's Intra-Portfolio Correlation is another diversification-management resource. The IPC will expand and contract with changes to systemic risk and liquidity risk. Low IPC values could trigger a portfolio-level hedging opportunity.

To summarize:

1. Risk is difficult to quantify.
2. Many opportunities to manage risk decrease the impetus to manage risk at the portfolio allocation level.
3. Investment policies and portfolio allocations are appropriate places to manage diversification.
4. Diversification is effective at managing risk at the portfolio allocation level and engenders better performing assets.

An executive maxim, "Measuring is managing." This is also true for diversification.