

A Risk and Liquidity Primer for Asset Management

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Banking Versus Asset Management

The first thing to focus on is the difference between risk management in a banking setting and risk management in an asset management setting. Hedge funds are often in the middle on this spectrum, but we should at least understand the issues. **This is the biggest mistake people make.**

Banks invest firm capital and are highly leveraged with liabilities at call (a run on the bank). They are worried about bankruptcy and regulatory problems. *It is an issue of firm survival.*

Asset managers are investing other people's money. Those other people are typically long term investors such as pension funds whose liabilities are not at immediate call. Their liabilities are commitments for future payments, not immediate ones. Even in a life insurer, people aren't going to try to kill themselves to collect early if the insurer is in financial trouble.

Whose Risk Are We Worried About?

In setting up a risk management system, we need to make an explicit choice about what risk we care about. Do we really care about the risks for our investors, or do we really care about how risky our revenue stream is as asset managers? Do we really care about helping investors meet their financial goals, or are we more worried about being fired as a manager by a customer because we have a period of poor performance?

Obviously, there is an ethical issue here, but in many firms the revenue aspect takes precedence. *My suggestion is to focus on the client's portfolio risk needs, but asset managers should consider hedging some of the risk to their revenues from broad market declines.* Hedging client active risk is a clear ethical problem since you would be hedging the risk of screwing up the services for which your clients are paying.

You Have to Define Investor Risk Clearly

Assuming we're paying attention to our investor's risks, we have to figure out what those risks are. The predominant risk for long term investors is that the more volatile a portfolio's return is, the degree of wealth that is created through the compounding of returns is reduced. *In the long run, it is the compounding that makes investors most of their money.* This is the risk that Markowitz mean-variance optimization is all about.

The second risk investor's may run is that they have to spend some of their wealth from time to time to fund consumption. To the extent that we have to liquidate investments at times when their value is down, we have less wealth available for future investment than if we were liquidating at a time when the portfolio value was high. *This is the risk that most investors mistakenly focus on even when they are investing for the long term.* Unfortunately, this sort of short-term thinking fits in better with the VaR kind of risk systems that banks are used to having.

The issue of “fat tails” is part of this same discussion. Big down events are much more frequent in financial markets than would be predicted by a normal distribution assumption. This means a lot to investors with drawdown concerns, but less to long term investors. One way to incorporate this issue is to use the Cornish Fisher expansion method to adjust volatility estimates for kurtosis.

The critical problem is that the first kind of risk is a linear function of the variance of portfolio returns, while “drawdown” risk (e.g. VaR or CVaR) is a function of the volatility rather than its square. **Long term investors should be paying more attention to variance, while investors with potential consumption needs should be focusing on drawdown risks.** When you start thinking about decomposing portfolio risk by asset class, or sector or individual position, you need to understand what kind of algebra makes sense and what doesn't.

Absolute Returns or Benchmark Relative

Asset managers are typically evaluated on “benchmark relative” (or peer group) returns, but actual investors can't pay their bills with *benchmark relative money*. For very, very long term investors the issue of inflation adjusted returns is also important. Once you know what the investor's objectives around risk really are, you can mix cash or TIPs into the benchmark index to proportionately represent concerns for benchmark relative, absolute or real returns.

Liquidity is a Big, Big Issue

As we have seen in the mortgage securities crisis, liquidity is a big deal. In banking, we can “haircut” asset values for the purposes of assessing capital adequacy. No such analog exists in most asset management applications (e.g. mutual funds) because computations of net asset value must be fair to both present shareholders of the fund, and future shareholders who may be independent parties.

Simplistic risk systems that just look at historic price movements just won't work at all for illiquid instruments. The price movements that are observable are just too muted by illiquidity to represent the true risk. Consider how much you would have to discount if you want to sell your house in a couple days, rather than a few months? Most experts say around one third. At a minimum, the risk system should be able to answer questions like “What would it cost to liquidate one third of this portfolio in five trading days, while keeping the same asset allocation?”

Framing the problem in this fashion leads to the approach of Acerbi and Scandolo (2007), wherein assets have prices, but only portfolios have economic values. In essence, they argue that portfolio risk measures must be derived not only from percentage composition of a portfolio of assets, but also the size of the positions, and a fund specific liquidity policy.

The implementation of such measures requires the estimation of a classic supply/demand curve for the assets within the portfolio as the true measure of liquidity. This process is often problematic for position sizes larger than can be easily assessed through examination of the current state of the market (i.e. the limit order book). Sophisticated market impact models, estimated under appropriate boundary conditions are required.