

Bullet Points for Day 14

Value at Risk, Extreme Values, Risk-Adjusted Returns

When the time comes to quantifying risk, you almost have to turn to the alleged Yogi quote: “In theory, theory and practice are equivalent. In practice, they are not.”

The somber truth is that our tools for measuring financial risks are crude — and they may never get much better. Still, there is a huge demand for a deeper understanding of financial risks, and there is a genuine benefit to taking whatever steps are possible. Our goals are to (1) understand the basics, (2) look at some intermediate techniques to understand their promise, and (3) consider the limitations of these methods.

- VaR or “Value at Risk”
 1. What is it, and how is it used?
 2. An intrinsic limitations to empirical risk measures: *The Peso problem*
 3. Ultimate confounder of VaR: *Increased correlation at the extremes*
- Extreme Values
 1. Why everyone is interested — hey, it’s October!
 2. The Extreme Model: Gumbel’s $G(x) = \exp(-e^{-x})$
 3. How Gumbel differs from the CLT — glacial convergence
 4. Monte Carlo Opportunity: Gumbel and the inverse transform
 5. Does Gumbel really work? Yes — except when it matters
- Tools for Adjusting Returns for Risk
 1. The Sharp Ratio and Some Variations
 2. Riskmetrics.com and a bizarre table of Sharp ratios
 3. Volatility Drag — not perfect but better than most
- Generic View on Uncertainty
 1. Tukey’s Take on Uncertainty
 2. Hedge fund manager comments from a recent Wharton Conference
 3. Unquantified uncertainty — the next challenge

OPTIMISM AND THE REAL WORLD

A statistician (or quant) in the financial services walks a fine line. Managers expect optimism and a robust “can do” attitude. Many managers are amazingly trusting of quantitative techniques that they may not fully understand. This witches’ brew foments situations where, if one is not careful, one can commit to tasks that simply cannot be done. In a nutshell, we are challenged to project optimism, to get real stuff, and either to duck low or to buck back when faced with the unrealistic expectations (or impossible hopes) of others.