

The Price of Risk and the Heisenberg Uncertainty Principle

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Back in the early days of the recovery from the unpleasantness of 2001–2002, we heard a lot of talk about entering an era of low expected returns. Investors usually respond to low expected returns by getting out of the market and waiting for better valuations that promise higher expected returns. But not this time around. Instead of bailing out, investors have piled on (at least as of this writing in mid-January). As a result, annual rates of return since the end of 2002 have been handsome, with return lined up with riskiness: 6.2% a year for the S&P 500 but 12.5% for S&P Small Cap, over 16% for the Bear Stearns High-Yield Index, and much higher figures for foreign securities, including over 25% for the MSCI Emerging Market Equities Index.¹

The low expectations of five years ago have collided with the hunger for returns to meet longer-term obligations. The combination has driven investors into a headlong rush toward riskier securities. These have taken the form of either inherently risky bets or bets where illiquidity provides a premium—or some commitments involving both inherent risk and illiquidity. The result has been a wave of rising valuations and a compression in spreads in risk premiums. The errors of the past in return expectations have made their predictions come true five years later, to a point where expected returns are probably lower now than they were when everybody began to expect low returns.

And why not? The price of risk should fall in a world where risk in the real economy has shrunk significantly as a result of globalization, deregulation, and vigilant central banks.

I can accept that argument and still take the position that the dramatic compression in valuation spreads has driven the price of risk below what the state of the world would justify. The explosion in the size of the financial sector around the world is testimony to the hunger to both borrow and lend, to take on equity risk and to sell it off in congenial markets, and to outperform one's peers for fear of losing one's job in this hectic environment.

Here is where I call upon the sad history of Long-Term Capital Management to make my point. The designers of risk management at LTCM were perhaps the most skilled people anywhere at that process, but they had only past experience on which to build their models. Past experience could not have included LTCM, because LTCM was not in that data bank. Once the high-powered managers at LTCM became active in the market, and especially as they got into trouble, the responses of other investors began to depart from the patterns of the past.² Hence, the models failed at crucial moments.

The point really goes back to Werner Heisenberg and his Uncertainty Principle, which asserts that you cannot *simultaneously* measure the position of an object and its momentum. By the same token, you cannot measure the risk of an asset on the basis of past data at a time when so many investors are piling into it and compressing spreads—in equity markets as well as in bond markets—in a manner never seen before.

Covariances throughout the markets have leapt to levels well in excess of past experience. What looked like alpha bets over 15 years ago when David Swensen first moved a chunk of Yale's assets into illiquid alternative investments have become beta bets as so many investors have followed in the path Swensen carved through the wilderness. Indeed, although there is almost no argument today about the low risk in the world economy, near-unanimous viewpoints have a habit of fooling all their adherents.

Financial crises seldom develop from problems in the real economy. In the financial sector, crises are endogenous. They are homemade in well-baked pies.

¹The array is less neat than it looks. Long Treasuries scored 6.8% per year versus the S&P 500's 6.2%.

²I am grateful to Rick Bookstaber's excellent forthcoming book, *A Demon of our Own Design* (John Wiley & Sons), for this analysis of the dilemma at LTCM.