

Sharpe Thinking in asset ranking with a benchmark

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Abstract

As we leave behind the assumption of normality in return distributions, the classical risk-reward Sharpe Ratio becomes a questionable tool for ranking risky projects. In the spirit of Sharpe thinking, a more general risk-reward ratio suitable to compare skewed return distributions with respect to a benchmark, is introduced. The index captures two types of asymmetrical information on: (1) "good" volatility (above the benchmark) and "bad" volatility (below the benchmark), and (2) asymmetrical preferences to "small" and "large" deviations from the benchmark. The former goal is achieved by using one-sided volatility measures instead of the two classical two-sided measures, the mean and the standard deviation. The latter by choosing appropriate orders for the one-sided moments involved. The Omega Index (see Cascon et al. (2002)) and the Upside Potential Ratio (see Sortino (2000)) follow as special cases. Eventually, compatibility of this ranking rule with the expected utility framework is proved.

JEL : G0,G1,G2.

Key words: Sharpe Index, One-Sided Risk Measures, First Order Risk Aversion.

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References

- Cascon A., Keating C. and W. Shadwick "Introduction to Omega." *The Finance Development Centre*, 2002.
- Dowd, K. "Sharpe thinking." *Risk*, Risk Management for Investors, Special Report, June 2001, S22-S24.
- Farinelli S. and L. Tibiletti. "Upside and Downside Risk with a Benchmark." *Atlantic Economic Journal*, Anthology Section, vol. 31, n. 4, December 2003, forthcoming.
- Goovaerts, M.J., Kaas, S R. and J. Dhaene "Economical Capital Allocation Derived from Risk Measures." *North American Actuarial Journal* 7(2), 2002, 1-16.
- Leland, H.E. "Beyond mean-variance: performance measurement in a non-symmetrical world." *Financial Analyst Journal*, 55, 1999, 27-35.
- Markowitz, H.M. "Portfolio Selection." *Journal of Finance*, 7, 1, 1952, 77-91.
- Nawrocki, D.N. "A Brief History of Downside Risk Measures." , *Journal of Investing*, Fall 1999, 9-26.
- Raj, M.; Forsyth, M. and O. Tomini "Fund Performance in a Downside Context." *Journal of Investing*, Summer, Volume 12, Number 2, 2003, 50 - 63.
- Satchell, S. and F.A. Sortino " *Managing Downside Risk in Financial Markets*." Butterworth-Heinemann; 1st edition, 2001.
- Sharpe, W.F. "Mutual Funds Performance." *Journal of Business*, January 1966, 119-138.
- Sharpe, W.F. "The Sharpe Ratio." *Journal of Portfolio Management*, Fall, 1994, 49-58.
- Sortino, F. "Upside-potential ratios vary by investment style." *Pensions and Investments*, 28, (22), 2000, 30-35.