

## Sortino Ratio

This page contains a research paper by Stephen Satchell at Cambridge University

I would like to make it clear that it was not my idea to call this the Sortino ratio. It was Brian Rom's idea at Investment Technologies. This came out of research I did in the early 80's. The first reference was in the Financial Executive Magazine, August 1980. The first calculation was in the Journal of Risk Management, September 1981. I think it was an improvement at that time in that it measured risk as deviations below the investor's MAR. The numerator measured return in excess of the MAR. Thus, it is goal oriented, in that it measures performance relative to the goal the investor is trying to achieve rather than measuring performance relative to the market. For that reason I believe it is better than the Sharpe ratio or the information ratio which measure how well one is doing relative to the t-bill rate and market index respectively.

It is one thing to have a better concept of measuring performance. It is quite another to obtain reliable estimates of the risk and return measures. Many people are now measuring downside risk as deviations below some number other than the MAR. Also, almost all of them use the manager's actual returns instead of using returns from the manager's style blend. I think these are serious errors. One may only have a few years of returns for a manager but if you know the manager's style blend you could use 20 years of returns on the indexes that account for the manager's style. This would provide much more stable estimates of risk. Using actual manager returns results in underestimating risk at the top of a market cycle and overestimating risk at the bottom of a market cycle. Finally, I think there is a better way to measure performance that is explained in the Upside Potential Ratio article on this web site.

The following example will illustrate my concerns.

	Fund U-P ratio	Style U-P ratio	Fund dsDev	Style dsDev	Fund Upside Potential	Style Upside Potential
<b>Large Growth</b>						
T Rowe Price Growth Stock	0.6	1.1	12.6%	9.3%	7.9%	10.2%
Diversified Inv Equity Growth	0.2	1.1	20.0%	9.7%	4.1%	10.8%
<b>Large Value</b>						
T Rowe Price Equity Inc	0.5	1.6	11.6%	6.8%	5.0%	10.6%
Dodge & Cox Stock	1.4	1.5	8.2%	7.4%	11.6%	11.3%
Davis NY Venture	0.4	1.3	13.1%	8.3%	5.3%	10.6%
<b>Small Growth</b>						
Fidelity Adv Eq Grnls	0.4	0.9	18.9%	10.7%	6.9%	10.0%
Vanguard Explorer	1.2	0.6	15.7%	15.1%	19.1%	8.5%
<b>Small Value</b>						
Fidelity LowPriced Stock	1.8	1.1	5.7%	7.2%	10.6%	7.9%

Using the fund manager's returns for the three years prior to the 1st quarter of 2000, Diversified Investors Equity looks much more risky than T.Rowe Price Growth (20% vs 12.6%). However, if you employ Bill Sharpe's style analysis to capture each manager's style blend and then measure the downside risk of the manager's style...they are almost the same. More importantly, both would appear to have much more risk than is inherent in their style. This led people to think these funds were much more risky than they actually were. The opposite was true at the top of the market in 1999.

Failure to use style analysis to capture the inherent risk in any given portfolio leads to performance measures that encourage investors to bet the farm at the top of the market and scares them out of equities at the bottom of the market.

But isn't that what everybody does??? Could that be one of the reasons investors buy at the top and sell at the bottom?

That having been said, you can download this article by Steve Satchell that supports the claim that the Sortino Ratio is consistent with MPT.

[satchell.pdf](#)