Savage, Sam L. - The Flaw of Averages

John Wiley & Sons, 2009, [Surrounding Knowledge] Grade 

"Consider the state of a drunk, wandering around on a busy highway. His average position is the centerline, so the state of the drunk at his average position is alive, but the average state of the drunk is dead." Turn on your computer, picture-google "The flaw of averages" and take a look at the brilliant picture that illustrates the quotation above. The insight behind this picture could have saved investors a lot of grief during financial history. Sam Savage is a consulting professor of management science and engineering at Stanford, a risk management software entrepreneur and the son of statistician Leonard Jimmie Savage who pioneered bayesian statistics in the 50's and 60's. With this book Savage follows in his father's footsteps and explores how risk and uncertainties can be understood and managed.

Savage presents a strong and a weak form of "the flaw of averages" where the weak form is to use a single number to represent an uncertain outcome instead of letting a distribution of possible outcomes guide you and the strong form states that the average of expected inputs doesn't always result in average or expected outputs. The essence of Savage's insights is that no one should base their view of events on an average number but instead should use estimated probability distributions. When doing the analysis interrelationships, constraints and hidden options must be taken into account or else the decision made will be based on faulty assumptions. Savage points to the numerous mistakes made in a wide array of areas when it comes to truly understanding the implications of the various options presented. The solution presented is to accept uncertainty and manage it through appointing a Chief Probability Officer who can make use of the ever growing computing power and appropriate software solutions. As it happens Savage is also a supplier of such software.

This is actually a hard book to grade. On the one hand I have the deepest sympathies for the many aspects Savage discusses. They are extremely important in the financial world. On the other hand I find the book unnecessarily bantering, unstructured, a bit too self-promotional and Savages constant effort to distance himself from statistical academia frankly becomes a bit juvenile after a while. As this book is in part written as a biography of the author it becomes clear that he is brought up in the epicentre of the academic explosion of modern portfolio theory. The family's friends included Milton Friedman, Harry Markowitz, Bill Sharpe, John Taylor etc. Savage is in part rebelling against the simplistic use of normal distributions which in my view is excellent, but that doesn't motivate his somewhat petty need to downplay academia.

The financial industry is a continual villain when it comes to the use of simple averages when taking decisions. In asset allocation we often use the average historical return as the future expected return of an asset class and we use the average (and normally distributed) volatilities and correlations to estimate the robustness of the portfolio we are constructing. In doing this we too seldom consider if we can withstand the consequences of what fat tails imply and we are oblivious to the fact that correlations are totally different in shifting environments. Interrelations that on average are insignificant can kill you in times of trouble (take a long look at the drunk on the highway again). Further, very few understand the option imbedded in cash as capital preservation in times of trouble gives you the chance to reinvest when other assets have become really cheap and their expected return hence has become high. Letting software visualize the uncertainties by displaying the distributions of outcomes could be a great help.

The flaw of averages is a manifesto promoting understanding and management of uncertainties – we should all adhere to this. I just wish the book could have done the topic justice.

Mats Larsson, April 22, 2012