Managing the Downside of Active and Passive Strategies: Convexity and Fragilities

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Question of the day: how to manage a large (or small) portfolio in low interest rate conditions, while equity markets bear significant draw-down risk? More generally, how to build an "antifragile" portfolio that can weather the most extreme market scenarios without impacting long-term performances? Do active strategies systematically create or increase already existing market instabilities?
By analyzing in depth markets behavior during past speculative bubbles and credit crises, we aim at addressing these questions. Our goal is to describe as faithfully as possible the major mechanisms at stake, avoiding the trap of mapping the complexity of financial markets into a single mathematical model, which would necessarily be wrong at some point. Starting from Minsky's "Financial Instability Hypothesis", we try to disentangle the complex relation between dynamics and randomness, including the presence of "fat tails". We provide methods to monitor the evolving probability of a forthcoming crisis through the measurement of "market instability". Scalable investment strategies result from the application of these methods.