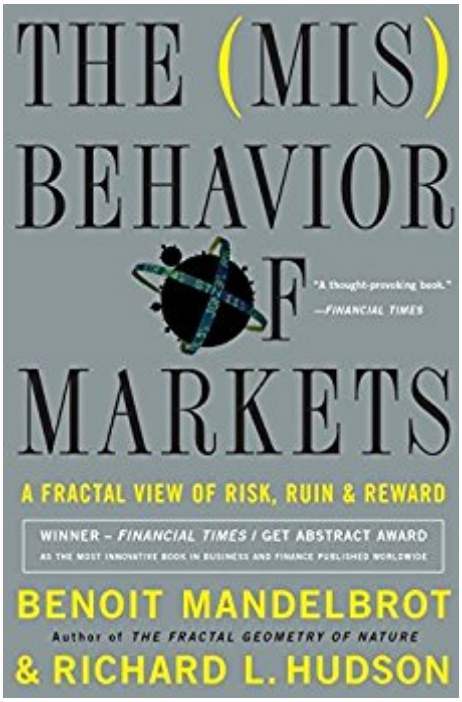
The Misbehavior Of Markets: A Fractal View Of Financial Turbulence



Synopsis

Mathematical superstar and inventor of fractal geometry, Benoit Mandelbrot, has spent the past forty years studying the underlying mathematics of space and natural patterns. What many of his followers don’t realize is that he has also been watching patterns of market change. In The (Mis)Behavior of Markets, Mandelbrot joins with science journalist and former Wall Street Journal editor Richard L. Hudson to reveal what a fractal view of the world of finance looks like. The result is a revolutionary reevaluation of the standard tools and models of modern financial theory. Markets, we learn, are far riskier than we have wanted to believe. From the gyrations of IBM’s stock price and the Dow, to cotton trading, and the dollar-Euro exchange rate--Mandelbrot shows that the world of finance can be understood in more accurate, and volatile, terms than the tired theories of yesteryear.The ability to simplify the complex has made Mandelbrot one of the century’s most influential mathematicians. With The (Mis)Behavior of Markets, he puts the tools of higher mathematics into the hands of every person involved with markets, from financial analysts to economists to 401(k) holders. Markets will never be seen as "safe bets" again.

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Customer Reviews

"...forty years after I started battle on the subject, most economists now acknowledge that prices do not follow the bell curve, and do not move independently. But for many, after acknowledging those points, their next comment is: So what? Independence and normality are, they argue, just assumptions that help simplify the math of modern financial theory. What matters are the results. Do the standard models correctly predict how the market behaves over all? Can an investor use Modern Portfolio Theory to build a safe, profitable investment strategy? Will the Capital Asset Pricing Model help a financial analyst, or a corporate financial officer, make the right decision? If so, then stop arguing about it. This is the so called positivist argument, first advanced by University of Chicago economist Milton Friedman."Isn't it this positivism that the majority of practitioners of finance exhibit? I myself, though not a practitioner, held such thoughts. My reasoning had been based however more upon majority's acceptance -- if everyone else is acting upon the assumptions of normality and independence, I thought, what good will there be adopting a new theory? Isn't finance more akin to social sciences than to natural sciences after all?It is these beliefs that Mandelbrot sets out to dispel with this monograph. He does so convincingly with great confidence and tenacity. The book consists of three parts, first the examination of the current theories (CAPM, MPT, Black-Scholes), next explanation of his methodology (fractal analysis), and finally of posing questions that should be answered (Mandelbrot asserts that virtually all the current theories should be reexamined under more realistic assumptions).

The author renders a brilliant critique of modern finance theory. He criticizes all its components, including CAPM, the Efficient Market Hypothesis, and the Black Scholes model as being flawed. All these theories rely on two main assumptions. The first one is that market prices are normally distributed. The author, using price charts, demonstrates that market prices do not follow a normal distribution; but instead a Cauchy distribution. Such a distribution is associated with fatter tails. This means that catastrophic drop in market prices happen more frequently than a normal distribution suggests. The second assumption of modern finance is that market prices are independent of each other. Yesterday's prices have no influence on today's. The author makes a case that even if prices are not correlated, their volatility is correlated over time. Thus, big price swings tend to cluster. If a stock moved by 10% yesterday, it is likely it will move by an above average amount today even if we don't know the direction of that change. He calls this correlation of volatility (instead of price) long-term dependence.Because the two main assumptions of modern finance are flawed, all related models are flawed as they understate risk. If such models understate risk, they actually overprice stocks and underprice options, and also understate the capital financial institutions should hold to

withstand market risk.If the author had stopped there, I would have given him a 5 rating. However, such a rebuttal of finance theory would make no more than a great essay. Instead, he attempts to build an entirely different edifice of modern finance over 300 pages. And, his theoretical foundation lacks any robustness. That's why I call it a castle of cards.

A few months ago, I found almost casually an editorial by Nassim Nicholas Taleb, introducing this essay by Benoit Mandelbrot (you can find it on Wilmot Magazine,2005 pag.50-59 - downloadable from his webpage)As most readers, I vaguely knew about Mandelbrot and his studies on fractal geometry - but simply it was not my peculiar field of interest, so when I saw the ad of his new book, it went ignored.*Taleb's editorial aroused my curiosity.He was stressing the significance of this essay in challenging the current orthodoxies on finance and in recommending new tools for risk management.*In a sense Taleb's recommendation represents a guarantee.He is a famous edge fund manager and the author of "Fooled by Randomness - The hidden role of chance in the Markets and in life", a book that impressed me with the wide culture, multi-disciplinary approach and the sheer acumen.*"The (mis)Behavior of the Market" was up to my expectations.The book is interesting, and not just for the economic views it advances. Mandelbrot is extremely learned - not just in his field of expertise - and his approach is challenging while retaining great plainness of exposition.*The book is organized in three parts.The first part deals with the old theories of finance and with the state of the art, to show how all of the old tools are mostly inadequate to control investment risk and how they leave investors with a false sense of safety.In the second part - the most specific and technical - Mandelbrot proposes his view of how the markets behave, suggesting a multi-fractal approach as a substitute for the random walk/efficient market theory.The third part proposes some conclusion based both on Mandelbrot's views and common sense.

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