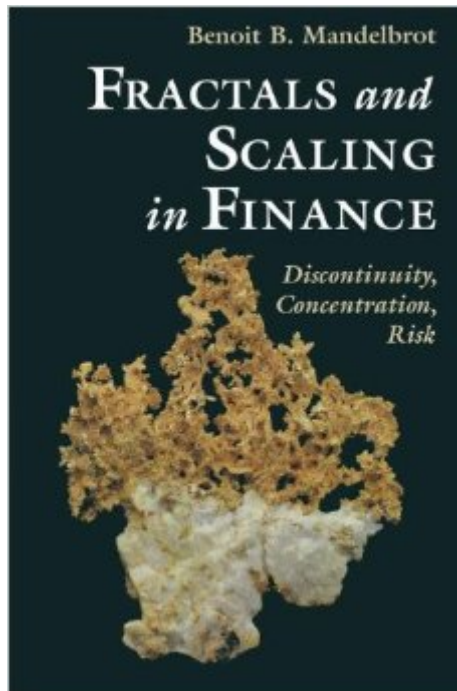


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# Fractals And Scaling In Finance: Discontinuity, Concentration, Risk. Selecta Volume E



## Synopsis

Mandelbrot is world famous for his creation of the new mathematics of fractal geometry. Yet few people know that his original field of applied research was in econometrics and financial models, applying ideas of scaling and self-similarity to arrays of data generated by financial analyses. This book brings together his original papers as well as many original chapters specifically written for this book.

## Book Information

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## Customer Reviews

This book deserves to receive 6 stars. Mandelbrot serves up overwhelming empirical, statistical, and historical evidence that financial decision makers are dead wrong in assuming, contrary to the available evidence, that a normal probability distribution describes the outcomes accurately in financial markets. In fact, the Cauchy distribution is substantially more relevant than the normal distribution. Mandelbrot's work simply means that the standard theoretical models taught in all colleges and universities, the CAPITAL ASSET PRICING MODEL (CAPM) and the BLACK-SCHOLES equation, give correct answers if and only if the relevant probability distributions about the movement of prices in financial markets over time are all normal. However, the evidence shows that they are NOT normal. Mandelbrot confirms, by massive data analysis, Keynes's original 1921 objections to the misuse in application of (by merely assuming the applicability of such a distribution without examining the actual data) the normal probability distribution made in chapters 29 and 30 of the *A Treatise on Probability* (1921). Unfortunately, it appears that little, if any, of

Mandelbrot's scientific approach and analysis is being integrated into economics and finance.

in this book, Mandelbrot is trying to prove that first, the price movement's distribution is scaling invariant, meaning a security's log price-change's distribution is same as with its 5-min's or with its daily's(or even monthly); second, price movement is not purely random/normaldistribution/brownian/random walk on street(they are all same description), meaning if u use normal distribution as one of ur bases for ur model, u will not only be theoretically wrong, but also be punished in real-life trading, such as the case of long-term capital. third, price movement does have cycle, but it length can not be determined in trading time, meaning u will not be able to decide when those cycles are going to start or end; fourth, changes of price movements do concentrate, meaning big moves will happen continuously, or very closely to each other. the major implication to me is that many current financial theories are wrong, specially, those using normal distribution(such as option model) as basic assumption for security price movement. it also may prove that some of current price-based models(such as some trend following system) have some merit. but many systems based on channel(such as bollinger bands)will not work in long-run. with those in mind and many available mathematical tools, one should be able to build a good financial model.

To read this book you need truly to understand math and the markets. There is no questions that Mandelbrot is one of the greatest figures of our time. What he claimed based on his studies on cotton trading in the early 60s might not be close to the reality of today, but the way he approached it makes you think twice about the markets. Cotton trading is so different from stock market trading because it is either spotting trading or futures trading, and it is based on margins. The market usually has poor liquidity and with few players in it. The conclusions the book made could poorly extend to the general markets. The hard-to-follow math notations kept distracting me from following the main subjects. Anyway, this book will teach you something new, but you have to understand math and the markets, deeply.

This was an interesting perspective from Mandelbrot about the inept models already used in the financial industry. I would love to find time to try these new ideas out in my models. The book is quite technical and is really a collection of many research papers. So it is not for those who don't like calculus in their face.

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