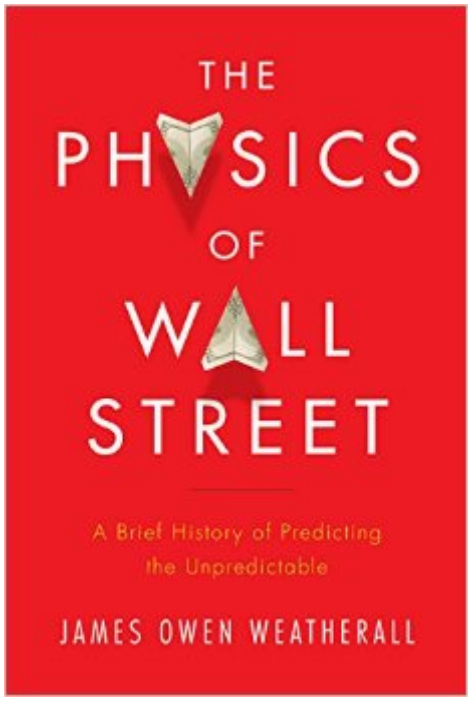
The Physics Of Wall Street: A Brief History Of Predicting The Unpredictable



Synopsis

After the economic meltdown of 2008, Warren Buffett famously warned, â œbeware of geeks bearing formulas.â • But as James Weatherall demonstrates, not all geeks are created equal. While many of the mathematicians and software engineers on Wall Street failed when their abstractions turned ugly in practice, a special breed of physicists has a much deeper history of revolutionizing finance. Taking us from fin-de-siÃ¨cle Paris to Rat Pack-era Las Vegas, from wartime government labs to Yippie communes on the Pacific coast, Weatherall shows how physicists successfully brought their science to bear on some of the thorniest problems in economics, from options pricing to bubbles. The crisis was partly a failure of mathematical modeling. But even more, it was a failure of some very sophisticated financial institutions to think like physicists. Modelsâ ”whether in science or financeâ ”have limitations; they break down under certain conditions. And in 2008, sophisticated models fell into the hands of people who didnâ ™t understand their purpose, and didnâ ™t care. It was a catastrophic misuse of science. The solution, however, is not to give up on models; it’s to make them better. Weatherall reveals the people and ideas on the cusp of a new era in finance. We see a geophysicist use a model designed for earthquakes to predict a massive stock market crash. We discover a physicist-run hedge fund that earned 2,478.6% over the course of the 1990s. And we see how an obscure idea from quantum theory might soon be used to create a far more accurate Consumer Price Index. Both persuasive and accessible, The Physics of Wall Street is riveting history that will change how we think about our economic future.

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Customer Reviews

It is not easy to come up with star ratings for this book. I will split the difference between two and four stars. Here is why...On one hand, I consider it to be a chronology of scientific efforts to predict markets beginning as early as the 18th Century, all the way up to 2012. As such, it is very interesting in terms of some the best known historical names dabbling in it. The storytelling in the book is not very good, but despite that it kept my interest through many chapters.On the other hand, I consider this book to be an attempt to explain (to the layman) how science can be used to predict markets. To that end, the examples of Simons and Sornette (and their spectacular success on Wall Street) are presented without going into details. One cannot justify everything by the brilliance of these men alone. If they indeed were successful based on their knowledge of physics, how they managed to do that should have been analyzed in the book. Instead, the author takes a very long-winded tour of random statistical distributions starting with Gaussians, then he moves on to Cauchy distributions and other fat-tailed distributions, and how they may be relevant to markets. If that was all there is for the scientific methodology of market prediction, you would not need physicists like Simons and Sornette. Anybody with some basic math and statistics will do fine. The physicists do far more than that, and none of that was discussed in the book. They come up with models of dynamic market balance, they convert these models to differential equations to be solved, and they (approximately) solve them (on fast super-computers.) It would have been fascinating if the author had any details available on that subject.

Weatherall tells that contrary to what we know, Warren Buffet is not the US best investor. The best one is Jim Simons, a brilliant physicist expert in String Theory who founded the investment firm Renaissance Technologies and its Medallion Fund. Simons returns have far outpaced Buffet's. During the recent financial crisis in 2008 when Buffet incurred a 50% loss, Simons Medallion Fund returned 80%. Other outstanding investors include Ed Thorp, James Doyne Farmer and Norman Packard. What those better-than-Buffet investors have in common is that they are all scientists instead of financial types. They use complex mathematical models to implement profitable short-term trades instead of holding stocks over the long term based on fundamentals like Buffet.Weatherall develops a philosophy of the scientific method that permeates the whole book. Contrary to Taleb who dogmatically states you can't model anything; so, throw the entire body of modern finance out and just buy insurance (Put options); Weatherall, observes that "The model-building process involves constantly updating your best models and theories in light of new evidence."Weatherall starts the history of modern finance with the French mathematician Louis Bachelier and his revolutionary paper "Theorie de la Speculation" published in 1900. Weatherall

states: "In a just world, Bachelier would be to finance what Newton is to physics." Indeed, Bachelier was the first to figure that stock prices captured all information and moved randomly. He explained the related random walk of stock prices. He was a pioneer in applying probability theory to financial markets. He specified the Efficient Market Hypothesis without naming it. The latter will be articulated by Eugene Fama in 1965.

I come at this review as an occasional worker in the financial world, a former physicist and a larval futures trader.The good: the author has some excellent historical material on Bachelier, MFM Osborne and Ed Thorp, who are (mostly) unrecognized giants in the field. I learned a few things, and think the author had some real insights into the contributions made by these men. Frankly, I'd have bought the book for the Thorp and Osborne anecdotes. Someone really needs to do an authorized biography of Thorp, and one of Osborne would be pretty neat as well. Some of the material on Mandelbrot and the prediction company guys was also amusing, though I have always considered these folks overrated. This book is extremely well written, and despite the problems I had with it, I found myself enjoying the reading.The bad: The subjects of this book are not all people a working practitioner of finance would have chosen. Most of subjects of the book are *known.* Many practitioners of finance (and physics) are only famous because they like publicity and talking to journalists, or because there is somehow a popular book associated with them. I mentioned Mandelbrot and the prediction company guys above: these are accomplished, interesting and talented men. Do they belong in the same league as Ed Thorp or MFM Osborne? I think they'd agree the answer to this question is "no." I've read most of the popular books the author used as raw source material, so most of this book wasn't new. He did reach out to some of the protagonists, and managed to dig up a few things I wasn't familiar with, but the meat of this book exists in several other books out there. Not that there is anything wrong with that; it summarizes about a dozen other books, and does so with considerable style.

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