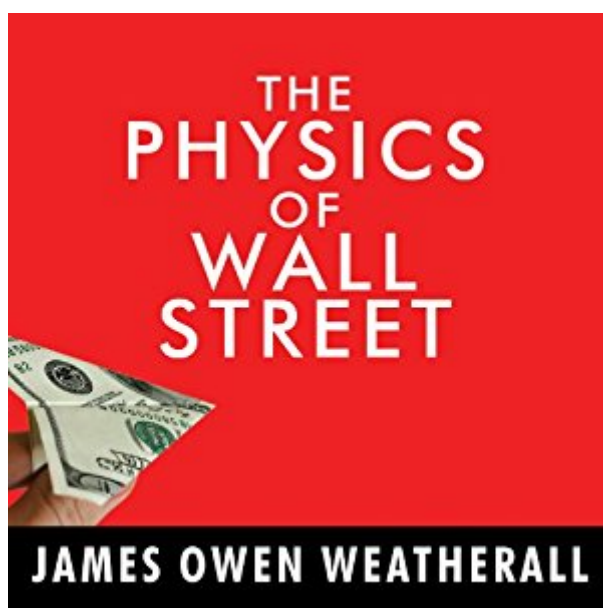


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The Physics Of Wall Street: A Brief History Of Predicting The Unpredictable



Synopsis

After the economic meltdown of 2008, Warren Buffett famously warned, "beware of geeks bearing formulas." 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-si  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. Models-whether in science or finance-have limitations; they break down under certain conditions. And in 2008, sophisticated models fell into the hands of people who didn't understand their purpose, and didn'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.

Book Information

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Customer Reviews

I realize that a title 'The Mathematics of Wall Street' would not attract the desired readership, but it's still irritating (to me as a mathematician) to see mathematics being called physics. The book seeks to trace the history (over the last hundred years) of some of the mathematics relevant to finance. But, in a common modern style of writing, it relies on stories about individuals' lives with only rather superficial verbal description of the intellectual content of their ideas. As one extreme, a whole chapter seems built around the notion that "gauge theory can be used to solve economic problems", but there's no indication whatsoever to tell us what that actually means. This style and some of the content is similar to the recent *Pricing the Future: Finance, Physics, and the 300-year Journey to the Black-Scholes Equation*, which contains more of the pre-20th century history. My own hobby of reviewing such "popular science" style books makes me an atypical reader, in that many of these individuals (Bachelier, Mandelbrot, Thorp, Black and Scholes) have featured with similar stories in other books, so only a few details about those individuals struck me as novel. Two positive features were the accounts of less well known individuals (Maury Osborne, James Farmer and Norman Packard, Eric Weinstein and Pia Malaney), and the scholarly end notes and references. And of course this style of writing is undemanding to read. Aside from being over-credulous about recent ideas -- the ability of Sornette-type models to predict earthquakes or financial crises, or the relevance of gauge theory -- there is nothing bad about this book. But it just doesn't have any coherent theme. The whole point of mathematics is that a given piece of math may apply to different things. Saying that theoretical physics uses mathematics and quantitative finance uses mathematics, and these mathematical techniques sometimes overlap, is true but trite. The claim is made that insights from physics (rather than from the underlying math) have had noteworthy impact on finance and economics, but the author hardly even tries to justify this claim. Bottom line: if you're interested in brief biographies this book is fine; if you're interested in ideas about quantitative finance then there are many better books out there, for instance *Fortune's Formula: The Untold Story of the Scientific Betting System That Beat the Casinos and Wall Street* and *Red-Blooded Risk: The Secret History of Wall Street*.

I am tempted to call the book, "The Physicists of Wall Street." I did enjoy the anecdotes and insights. We also read how many people goof up when trying to predict stock prices. For instance, many stock price models still use the Gaussian distribution (even the Black-Scholes model), yet stock prices and changes are not Gaussian and the use of such can create big losses. Weatherall does show examples where physicists created and used much more complex formulae, and did beat the others for a good stretch, but when you lose, you lose big. Another case explained how

Didier Sornette modeled the market as earth tremors. One can sometimes guess when an earthquake would occur by a formula that takes the pre-quake tremors into account and equations, and he showed how Sornette predicted a market drop. But I used the same equations later and they do not appear to always work. The anecdotes, stories, and equations were entertaining, but the author still kept discussing using physics and math to predict the markets. That just does not work. The market is too complex and chaotic (as is weather; one cannot predict the weather a few days out due to the fact that it is a complex chaotic system). If this book intends to be a method of using physics and complex math to predict the market, it fails.

I've been a student of price action in numerous kinds of markets for over 30 years. I have an interest in this material. I also have a B.S. in Physics. and this is a really good view of the market from the REAL technical view; not lines and patterns on a chart. You don't need a technical background to get a wealth of insight from this book. Once I clear through about a dozen other books in my queue for this year, I'm going to re read this. It's worth it. Of other interest if you like this book might be *The Hour Between Dog And Wolf*, which takes this topic in a totally different direction.

This book is an intelligent explication about the financial phenomena. The author so follows several models of important economists, whom have tried to read inner those aspects. Particularly it is interesting as the fractal mathematics had had the possibility to arrive at this level of knowledge, in a better way than the tradition related to the Black-Scholes theorem. Economists as Taleb and Krugman, with mathematicians as Poincaré, Mandelbrot, Lévy, represent the foundations of a new science which knows the economy in similar way of quantum physics. Quantum mathematics and this new economics must be given by exact axioms, and that will be the next job of mathematics.

About some of the scientists who went into finance, and some of the ideas they brought to bear on the subject. The book, however, has many problems. One is that a lot of the material is covered at length elsewhere (fortune's formula and the eudaemonic pie come to mind), and the author does not see fit to cite this work. Nor does he cite Mandelbrot's the misbehavior of markets, despite a considerable portion of the book being devoted to Mandelbrot's work on finance. Second, the author's hero worshipping approach is quite annoying - many of the people covered are well-known for their considerable talents in marketing themselves, and the author swallows the pitch hook, line, and sinker. For more on this, check out the low-star reviews of Sornette's 2009 book (and no,

Mandelbrodt DID NOT discover fractals - they were studied by Julia before Mandelbrodt was born). Thirdly, the author does not appear to be a practicing financier, since his comments on finance proper are quite shallow.

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