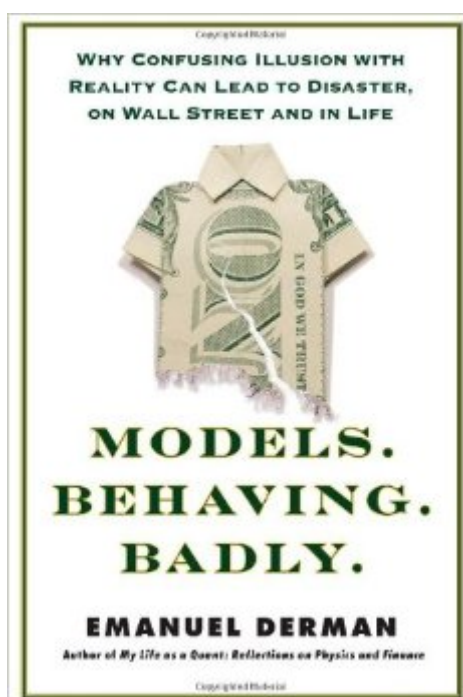


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# Models.Behaving.Badly: Why Confusing Illusion With Reality Can Lead To Disaster, On Wall Street And In Life



## Synopsis

Emanuel Derman was a quantitative analyst (Quant) at Goldman Sachs, one of the financial engineers whose mathematical models became crucial for Wall Street. The reliance investors put on such quantitative analysis was catastrophic for the economy, setting off the ongoing string of financial crises that began with the mortgage market in 2007 and continues through today. Here Derman looks at why people-- bankers in particular --still put so much faith in these models, and why it's a terrible mistake to do so. Though financial models imitate the style of physics and employ the language of mathematics, ultimately they deal with human beings. There is a fundamental difference between the aims and potential achievements of physics and those of finance. In physics, theories aim for a description of reality; in finance, at best, models can shoot only for a simplistic and very limited approximation to it. When we make a model involving human beings, we are trying to force the ugly stepsister's foot into Cinderella's pretty glass slipper. It doesn't fit without cutting off some of the essential parts. Physicists and economists have been too enthusiastic to acknowledge the limits of their equations in the sphere of human behavior--which of course is what economics is all about. *Models Behaving Badly* includes a personal account of Derman's childhood encounters with failed models--the oppressions of apartheid and the utopia of the kibbutz. He describes his experience as a physicist on Wall Street, the models generated, the benefits they brought and the problems, practical and ethical, they caused. Derman takes a close look at what a model is, and then highlights the differences between the successes of modeling in physics and its failures in economics. Describing the collapse of the subprime mortgage CDO market in 2007, Derman urges us to stop the naive reliance on these models, and offers suggestions for mending them. This is a fascinating, lyrical, and very human look behind the curtain at the intersection between mathematics and human nature.

## Book Information

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## Customer Reviews

Here's a quick summary of this review, for those who are short on time: this book lacks focus and I would not recommend it unless you have A LOT of patience. It is a LONG 200 page read. As a cross-disciplinary individual (I studied Finance and English in college), this type of "crossover" book intrigues me. A mashup of philosophy, physics and finance, *Models Behaving Badly* is, at the very least, a very unique book. Indeed, I've never quite read anything like it. While centered around the markets -- and the idea that most of the models used to describe them are garbage -- Derman supports his points with quotes from Goethe, discussions on Maxwell's electromagnetic theory and anecdotes about his own youth as a Jewish boy in the era of South African apartheid. The fields that are of interest to me, likewise, are eclectic, and I think that most of the stuff I was taught in undergraduate Finance was wholly useless. I mention these facts simply because I feel as if I am precisely the demographic Derman targeted with this book. And, unfortunately, he missed the mark. The reason is simple: he never reconciles the three disciplines into any sort of coherent argument. On a broad level, he uses each separate field to show that theories are reflective of reality, whereas models are merely an approximation. He never, however, goes beyond this generalization and provides a good reason WHY he's talking about the philosophy/physics (other than, presumably, that they interest him). I have no doubt that Derman is an intelligent guy; his prose is generally decent and he clearly knows a lot about the markets as well as physics. Unfortunately, there is NO reason to have the physics (and, to a lesser extent, the philosophy) in this book.

Emanuel Derman is a "quant" of illustrious pedigree: not only a 20-year veteran of Goldman Sachs (say what you like about the Vampire Squid but over the last couple of decades Goldman's financial analysts have consistently been the smartest guys in the room), but also a close colleague of Nobel laureate Fischer Black, co-inventor with Myron Scholes of the (in)famous Black Scholes option pricing model. Given that the motion before the house concerns misbehaving financial models you might expect some fairly keen insights on this topic: It has already been well documented that Black Scholes doesn't work awfully well when the market is in a state of extreme stress - that is, precisely when you want it working awfully well. In fact, in those situations Black Scholes can create havoc,

and memorably did during the Russian Crisis of 1998, during which Myron Scholes' pioneering hedge fund Long Term Capital Management catastrophically failed. But this isn't Emanuel Derman's interest: the specific inadequacy of Black-Scholes (that it assumes that market events occur in isolation of each other and are therefore arranged according to a "normal" probability distribution) rates barely a mention. Derman's view is that reliance on \*any\* financial model will end in tears, simply because models are poor metaphors which are not grounded in the same reality as the sciences whose language they mimic. Hmm. Benoit Mandelbrot, whose excellent book *The (Mis)Behaviour of Markets* clearly outlines the "tail risk" inadequacy of Black Scholes, recognises that it is the market, not the model, that tends to misbehave.

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