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A Review of Emanuel Derman's New Book: Models.Behaving.Badly.

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A mentsh tracht und Gott lacht.

A person plans and God laughs.

Yiddish proverb.

Emanuel Derman's *Models.Behaving.Badly.*, reads like an assemblage of storytellling, memoir, and mathematics meant to explain how, in his words, the financial crisis was a failure of both qualitative and quantitative models.

Emanuel Derman leads the program in financial engineering at New York's Columbia University. He started his career as a Ph.D. in theoretical physics. Derman worked at Bell Labs but was lured to Goldman Sachs as one of the first "quants". At Goldman he rose to the level of Managing Director and co-invented the tool for pricing options on Treasury bonds with Goldman colleagues Bill Toy and the late Fischer Black, of Black-Scholes formula fame.

Derman's first lesson on the failure of models requires him to define *model* versus a *theory*.

> "Models try to squeeze the blooming, buzzing, confusion into a miniature Joseph Cornell box, and then, if it more or less fits, assume that the box is the world itself. In a nutshell, theories tell you what something is; models tell you merely what something is like."

More than a description of what went wrong with models during the financial crisis, Derman describes what's gone wrong with the use of them by those who infused models with omniscience. Derman says, "You can be disappointed only if you had hoped and desired. To have hoped means to have had preconceptions – models, in short – for how the world should evolve."

The book starts by explaining the tragic social construct that Derman lived with as a child: apartheid in South Africa. "Racial classification was a tortuous attempt to impose a flawed model on unruly reality."

An extensive biographical sketch of his childhood and youth in Cape Town, son of Jews who fled Poland in the mid-30's ahead of the Holocaust, serves as an introduction to financial models and the crisis. Many of Derman's extended family, including his maternal grandparents, were not as fortunate as his parents.

> "Had my mother been certain her father was dead by 1945, I would have been named Nahum Zvi. Sixteen years later, in Jewish tradition, my nephew was given his name."

Derman's deep familiarity with unruly reality explains his disdain for financial models as all-knowing Gods. It also says a lot to me about why he'd rather teach than continue playing "master of the universe" at Goldman Sachs.

> "You can count yourself lucky," he says, "if your model of yourself survives its collision with time."

How can you not like a guy who injects Nabakov's *Lolita* into a discussion of personal responsibility? Derman uses Humbert Humbert's passion for Lolita, even when she is no longer a nymphet, to explain the failure of those who saw only their models and not the world around them.

> "One has to treat people as responsible for their actions and yet also recognize they can't help what they do."

Derman rests much of his current world view on the writings of philosophers Arthur Schopenhauer and Baruch Spinoza. He loves their frameworks for understanding, or at least coming to terms with, love, passion, desire, pain and death. He found Spinoza when he started to realize the repercussions of his ambitions as a physicist. He even finds a choice passage by Schopenhauer that compares, "life to finance in a universe that must keep its books balanced."

Derman pauses in a long discussion of Spinoza's *Ethics* to compare action based on understanding rather than passion as the capacity to be an underlier rather than a derivative.

The book is full of such compositions – a *mélange* of high finance and high culture. To be honest, I had a tough time with Chapter 4 which covers quantum electrodynamics. That's not a criticism of Derman but evidence of my lack of science education. High school chemistry and earth science were the end of the scientific line for me.

Derman introduces Chapter 5, the one with a primer on the virtues and vices of classical financial models, with a smackdown:

> "Financial modeling is not the physics of markets."

By the time he's finished, I'm not only convinced but I have the tools to discuss the subject much more intelligently.

If you're looking for a textbook on financial engineering and quantitative finance, this is probably not it. Although there are enough formulas and technical discussions to tease most geeks, the book is so much more. In a way, it's a semi-surreal continuation of Derman's first book, *My Life As A Quant*. BusinessWeek described that book as "an idiosyncratic memoir, a grab bag of the author's interests." The same Joseph Cornell box approach is applied to this book, too. But when it comes together at the end it's something much greater than the sum of its eclectic parts.

Derman tells us near the end that, "after twenty years on Wall Street, I'm a disbeliever…In physics you're playing against God and he doesn't change His laws very often. In finance you're playing against God's creatures…"

In Emanuel Derman's experience, God's creatures have been gloriously, but consistently, messy and unpredictable.

Photo is by Joseph Cornell, American, 1903–1972

Untitled (Sun Box), c. 1955

In the permanent collection at the Art Institute of Chicago

Box construction with painted glass
6 3/8 x 9 3/4 x 4 1/8 in.
Inscribed and signed on back on paper labels: blue marble in glass. / Joseph Cornell
Lindy and Edwin Bergman Joseph Cornell Collection, 1982.1864

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