



Do You See a Pattern Here?

An open letter to the wizards of Wall Street
from **Benoît Mandelbrot**, father of the fractal.



By any measure, the late 1990s was a time of extraordinary growth and prosperity in much of the world – and yet, the global financial system still managed to lurch through six crises: Mexico in 1995; Thailand, Indonesia, and South Korea in 1997 and 1998; Russia in 1998; and Brazil from 1998 to 1999. The Indonesian crisis was especially severe: The country's quarterly real GDP plummeted 18.9 percent, and its currency fell into a hole 526 percent deep. Each of these upheavals spread to most parts of the globe, destabilizing currencies, knocking gaping holes in bank balance sheets and, in many cases, causing a wave of bankruptcies. The fact that each country recovered and the global economy roared on again is testament not to good financial management but to good luck.

Fortunately, bankers and regulators now realize the system is flawed. The world's central banks have been pushing for more sophisticated risk models – but what they need is one that takes into account long-term dependency, or the tendency of bad news to come in waves. A bank that weathers one crisis may not survive a second or a third. I thus urge the regulators, now drafting the New Basel Capital Accord, to regulate global bank reserves, to encourage the study and adoption of more-realistic risk

models. If they do not, the number of crises will just keep growing.

Even the most cursory glance at the economics literature will yield a perplexing cacophony of opinions – and, more invidious, contradictory “facts.” Consider one example. Proposition: Share prices are dependent over (a) a day, (b) a quarter,

STEP 1: MORE REALISTIC RISK MODELS

(c) three years, (d) an infinite span, or (e) none of the above. All these views have been presented as unassailable in countless articles reviewed by countless worthy peers, and supported by countless computer runs, probability tables, and analytical charts. Wassily Leontief, a Harvard economist and 1973 Nobel winner in economic sciences, once observed: “In no field of empirical enquiry has so massive and sophisticated a statistical machinery been used with such indifferent results.”

It is time to change that. As a first step, ➔

WE MAPPED THE HUMAN GENOME. WHY CAN'T WE MAP THE BUST?

◀ I issue a challenge to Alan Greenspan, Eliot Spitzer, and William Donaldson – Federal Reserve chair, New York attorney general, and SEC chair, respectively. In the April 2003 settlement of postbubble fraud charges, the biggest Wall Street firms agreed to cough up \$432.5 million to fund “independent” research. Spitzer’s office amply documented that what passed for investment research before was not only wrong but fraudulent. Since then, a long line of media and ratings firms have launched independent businesses. But there has been little discussion of what exactly these researchers should research.

I suggest just a small fraction of that sum – say, 5 percent – be set aside for fundamental research in financial markets. Let the vast bulk of the money go where it usually does: ephemeral and contradictory opinions on which stocks to buy, which to sell, and whether to buy or sell at all. But let at least a widow’s mite go to furthering the understanding of how stocks behave in the first place. Let the Wall Street settlement

help to fund an international commission for systematic, rigorous, and replicable research into market dynamics. Of course, \$20 million is not enough: Even if doctoral students are cheap, proprietary data are not. But with that starting amount and wise leadership, such a commission would quickly draw contributions from others, magnifying its impact.

A well-managed corporation devotes some portion of its research and development budget to basic research, in fields of science that underlie its main business. Isn’t understanding the market as important to the economy as understanding solid-state physics is to IBM? If we can map the human genome, why can’t we map how a man loses his livelihood? If millions can contribute a few cycles of their PCs to the search for a signal from outer space, why can’t they join a coordinated search for patterns in financial markets?

Excerpted from The (Mis)Behavior of Markets by Benoît Mandelbrot and Richard Hudson, available in bookstores in August.