

*Trusting sophisticated financial models is tempting and dangerous*

BY MARSHALL JAFFE

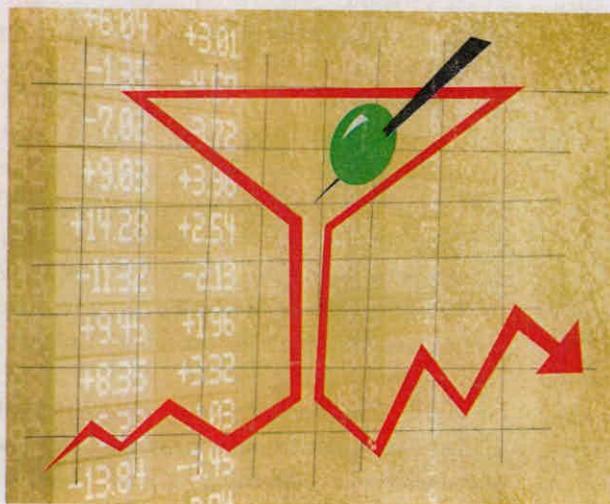
# Model Behavior and Real World Hangovers

**H**AVE YOU EVER BEEN IN A CAR with a GPS that is trying to send you the wrong way up a one-way street, or leading you to make frustrating circles around your destination? We all have had similar experiences, because our GPS was using a map that didn't quite correlate with the reality on the street. Even those who rely completely on their GPS for getting from one place to another *know* that they can never be 100% perfect.

Yet there is a disconnect between how sensibly we manage the valuable but imperfect GPS in our normal lives, and our inability to apply the same common sense to the valuable and imperfect tools in our investment lives. That situation has led investors to considerable grief in the past, and continues to threaten us today.

It is April 1998 and Long-Term Capital Management stands alone on the summit of the investment world. It is the most famous and successful hedge fund firm on the planet, with a four-year track record of outstanding

and consistent returns. The LTCM partners are among the sharpest minds in finance, including two Nobel laureates. The sophisticated and complex mathematical models they have created give them what appears to be an unsur-



passable edge versus the competition in finding and exploiting investment opportunities. Yet four months later they are history, after nearly taking down the financial system with what turns out to be a collection of massively overleveraged and illiquid investments.

LTCM did not fail because of the hubris or greed of the partners. It did

not fail because of a rogue trader's mistake or any of the other dramatic reasons that normally lead to Wall Street flame-outs. What made LTCM's principals stand out was their quiet, methodical and totally academic demeanor. They believed in their models, and did not deviate from them; even if markets moved severely against them, they quietly kept investing.

It always worked. And that was their undoing. Their quiet confidence led them to make a simple, avoidable and rather mundane oversight: They confused their models with real life.

The LTCM partners were legitimate geniuses, and we might forgive them for thinking that maybe they were just a bit smarter than anyone else and therefore their models were that much better as well. In fact their models *were* a lot better than anyone else's; but at the end of the day they were *just* models; that is, they were abstract representations of the real world.

Long-Term Capital Management

might still be in existence today had there been posted throughout its offices this wonderful piece of wisdom from George E.P. Box: “All models are wrong, but some are useful.”

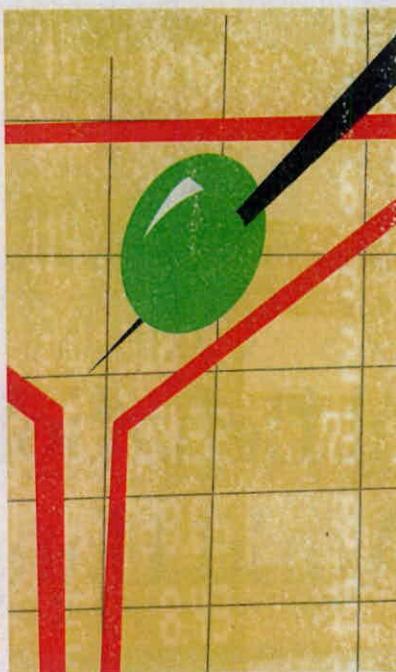
### Still Overconfident

Fifteen years after the LTCM disaster the investment world is not merely ignoring the lesson, it is promoting the mistake. Conventional wisdom today is that investment success is directly related to finding and sticking to a successful model; and the more successful the model, the more you need to rely on it (and only it) as a guide for your investment decisions.

The model of choice over the last 30 years has been modern portfolio theory and its most popular iteration: the mixing and matching of *asset classes*. Asset class investing has proven itself as a useful and effective tool for creating and managing portfolio risk. Yet even as its status in academic circles is diminishing, asset class investing continues to be the de facto standard in the mainstream investment world—recommendations for its use can be found everywhere.

Asset class investing has worked so well for so long helping investors diversify that even its failure during the market meltdown of 2008 has been discounted as an aberration. On the surface, it appears to be hewing quite reasonably to the old adage “Don’t put your eggs in one basket.” But I’m not so sure of that. Asset class investing, driven by modern portfolio theory, defines exactly what those baskets are and what goes in them. As a result, the very nature of what diversification means, and how it should be used, is driven solely by modern portfolio theory’s vision of the world.

Aren’t new asset class securities appearing regularly? And isn’t the expanding universe of asset choices creating more possibilities for diversification? And aren’t the permutations that an investor could create among



all the asset class securities now available almost endless? Yes, yes, and yes. But that model universe pales next to the *real world* universe of an investor’s choices: tens of thousands of investment choices, whether individual securities or funds, dozens of investment philosophies, strategies and their variations; diversification by type, by asset, by correlation, by volatility, by holding period, by valuation, by concentration, even to invest or not to invest. I could go on and on. The choices are limited only by our imagination.

The great success and wide acceptance of the asset class model, in combination with the rise and popularity of ETFs, has led investors to increasingly pursue similar patterns of diversification—offsetting the very benefits they are seeking. The investment industry benefits from delivering similar messages because they play to our normally useful instincts that conclude, “If everyone is doing it, they all can’t be wrong.” But, in investing, when everyone does the same thing, the result is herding—which reduces market efficiency and leads investors to make irrational choices.

### Stay Grounded

Models are wonderful tools that make our lives easier and more productive. Their magic is achieved by reducing the enormous complexity of the real world into a manageable and understandable form. A map is a kind of model. And while I doubt there is anyone who would confuse a map of New York with the actual place, there is a rich history of investors who regularly made that mistake with their models—and, as we see, some of them were among the smartest, brightest and most successful investors of their time.

But they ended up making choices that, in retrospect, had little relationship to the facts on the ground—which reminds me of an old joke:

After drinking most of the night a man staggers out of a bar. He walks towards a light pole, gets down on his hands and knees and begins to examine the sidewalk. A pedestrian stops and asks, “Do you need some help?” The drunk looks up and says, “I lost my car keys in the parking lot.” The other guy says, “If you lost your keys in the parking lot, why aren’t you looking for them there?” The drunk says, “The light is better here.”

All models are flawed in some way—that is their nature. That doesn’t mean we shouldn’t continue to benefit from their use; but our trust in even the best of them can never be total—no matter how brilliantly they have been conceived or how successful they have been. Keeping one foot in the real world will make things a little messier and less certain—but it will also make it less likely that we make foolish choices at critical moments—whether we are world-famous hedge fund managers, or just poor drunks. **B**

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