

HISTORY WRITTEN BY THE LOSERS

FOREWORD TO PABLO TRIANA'S *LECTURING BIRDS* *HOW TO FLY*

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I

January 2009: I am at the World Economic Forum in Davos, looking at the sorry crowd of businessmen, journalists, and bankers. There are also a few finance academics. Many practitioners look like they have just fallen off a bicycle, still confused about how to behave. All these years, they had not realized that their models underestimated the risks of high-impact rare events, allowing the buildup of huge positions that are in the process of destroying free markets, capitalism, and finance. Instead of making probabilistic assessments about Black Swans, they should have insured some kind of robustness to them. I feel sorry for the crowd, as I am certain that most of these people will not be here next year—there is effectively a mechanism called evolution, harsh to humans.

But the academics among them, equally wrong about the models (in fact, they were the ones feeding bankers with bad models), wrong about the world, wrong about the very notion of knowledge, wrong about everything, will be back next year—that I guarantee. Unless they are caught seducing graduate assistants, their jobs are safe. Nobody ever lost his tenure in social science for being wrong (the opposite may be true). There is no such thing as evolution in academic settings.

II

The biggest myth I've encountered in my life is as follows: that the road from practical know-how to theoretical knowledge is reversible—in other words, that theoretical knowledge can lead to practical applications, just as practical applications can lead to theoretical knowledge. After all, this is the reason we have schools, universities, professors, research centers, homework, exams, essays, dissertations, and the strange brand of individuals called “economists.”

Yet the strange thing is that it is very hard to realize that knowledge cannot travel equally in both directions. It flows better from practice to theory—but to understand it you have nontheoretical knowledge. And people who have nontheoretical knowledge don't think of these things.

Indeed, if knowledge flowed equally in both directions, then theory without experience should be equivalent to experience without theory—which is not the case.

The myth may have all started in a Plato dialogue, *Euthyphro*, in which Socrates heckled a fellow who claimed to be pious but could not define piety. The flustered fellow, bullied by Socrates, never replied (according to Plato) that babies drink their mother's milk without being able to define what drinking milk is, or love their mother without being able to explain what *love* or *mother* mean. This led to the thinking in the primacy and overblown importance of what can be called propositional knowledge—with so many side effects.

Alas, it took me a long time to disbelieve in propositional knowledge. Not only do you need to be a practitioner to realize it, but you need to ignore cultural opinions and use the raw, plain, easily obtainable, and somewhat shockingly potent evidence. And if you consider the effect for a moment, you will realize that it is more consequential than you thought.

Let me explain how the problem started screaming at me, around 1998. I was then sitting in a Chicago restaurant with a finance academic, though a true, thoughtful gentleman. He was advising one of the local exchanges on new products and wanted my opinion on the introduction of knock-out options—which I had covered in some detail in my first book, *Dynamic Hedging*. He recognized that the demand for these options was great, but wondered “how traders could handle these exotics if they do not understand the Girsanov theorem.” The Girsanov theorem is about a change of probability measure, something mathematically complicated that was needed to derive a closed-form formula for the options—though in the well-behaved Gaussian world. But you don't need it to understand anything about exotic options. For a minute I wondered if I was living on another planet or if the gentleman's PhD led to his strange loss of common sense—or if people without practical sense usually manage to get the energy to acquire a PhD in financial economics. Nobody worries that a child ignorant of the various theorems of thermodynamics and incapable of solving an equation of motion would be unable to ride a bicycle. Yet, why is it that we made the *Euthyphro* mistake with our understanding of quantitative products in the markets? Why should traders responding to supply and demand, little more, competing to make a buck, do the Girsanov theorem, any more than a trader of pistachios in the Souk of Damascus needs to solve general equilibrium equations to set the price of his product?

Then I realized that there has to be a problem with education—any form of formal education. I collected enough evidence that once you get a theory in your head, you can no longer understand how people can operate without it. And you look at practitioners, lecture them on how to do their business, and live under the illusion that they owe you their lives. Without your theories and your learning they will never go anywhere.

All that can be tested. How? We can look at historical evidence. It is there, in front of our eyes, staring at us.



Let us take what is known as the Black-Scholes option pricing formula. Every person who had the misfortune of taking a finance class is under the illusion that the Black-Scholes-Merton formula is a gift from the three individuals who offered it to mankind and need to be rewarded for their great deed because we otherwise would not have the technology to understand these items. Without it we cannot price options. True?

Well, Espen Haug and I scratched the surface looking for the real evidence going back to the late nineteenth century.¹ And we figured out that traders did much, much better pricing options *before* the option formulas were invented. The solid arbitrages were maintained (put-call parity, no negative butterfly, etc.). Traders, thanks to tinkering and evolutionary pressures, fumbled their way into a heuristic option pricing formula: Those who liked to short out-of-the-money options blew up in time; those who bought them survived. Traders knew what the heuristic “delta” was—about half for an at-the-money option, progressively less for an out-of-the-money option. Indeed, in our paper we interviewed veterans who confirmed that option traders in Chicago priced “off the butterfly,” with “no sheets” (i.e., no pricing formula). I myself was a pit trader in Chicago in the early 1990s and saw that prominent option traders priced options without formulas.

¹Coincidentally, our paper introduced the metaphor: “lecturing birds how to fly.”

Traders were robust to the Black Swans, these sudden events that are the scourge of option traders.

In that respect, Black-Scholes-Merton was a dangerous regression. It was made only to accommodate the financial economics establishment and portfolio theory by showing how dynamic hedging removed the price of risk—a Platonic thought experiment that was beyond the unnecessary, as it proved toxic. The exact formula they used—narrowing down the distribution to the Gaussian—had been around in its exact form since Ed Thorpe and in a different, no less realistic form since Louis Bachelier, which could accommodate any probability distribution. Various accounts of the history of financial theory ignored the point: It is not just

that history is written by the winners; it is written by the losers—those losers with access to the printing press, namely finance professors. I noted while reading a book by Mark Rubinstein how he stuck the names of finance professors on products we practitioners had been trading and perfecting at least a decade earlier. History written by the losers? A prime example is how the historian managed to downplay his “portfolio insurance,” a method that failed miserably in the crash of 1987.

History is truly written by losers with time on their hands and a protected academic position. In the greatest irony, the historical account of *techné* in derivatives pricing that Haug and I wrote was submitted in response to an invitation by an encyclopedia of quantitative finance. The editor of the historical section, proceeded to rewrite our story to reverse its message and glorify the *epistemé* crowd.

I was a trader and risk manager for almost 20 years (before experiencing battle fatigue). There is no way my and my colleagues’ accumulated knowledge of market risks can be passed on to the next generation. Business schools block the transmission of our practical know-how and empirical tricks, and the knowledge dies with us. We learn from crisis to crisis that modern financial theory has the empirical and scientific validity of astrology (without the aesthetics); yet the lessons are forgotten and ignored in what is taught to 150,000 business school students worldwide.

Note that what academics tend to call “practitioners” are often PhD-laden academics who go to practice and fall prey to the *Euthyphro* problem. This is why Pablo Triana was capable of writing this book: Like a minority of people (Espen Haug, myself), he did not go from theory to practice, but did the reverse.

IV

There is another problem with current researchers in financial economics:

They are self-serving—perhaps no more, but certainly no less than other professions. Just as one of the problems with governments is that government officials have an objective function that may deviate from that of the general public, it is a myth, a great myth, that academics are there for the truth. When you hear a tobacco company talk about “health,” you smirk—yet when you hear a finance professor talk about “evidence” and “risk,” you don’t.

Alas, academics claim to look for evidence. But they seem to *select* what evidence they need for their purpose. I have shown that value at risk (VaR) does not work, with mathematical and empirical evidence (20 million pieces of data). But the evidence was ignored. In at least one instance, it was derided. Mandelbrot

was completely ignored and his work was hidden from us. Had I shown that it worked, or had other academics produced evidence that fit their point, it would have been called “evidence” and published.

Traditionally charlatans have hidden themselves behind garb, institutions, and language. Now add fancy mathematics. Robert Merton’s book *Continuous Time Finance* contains 339 mentions of the word *theorem* (or equivalent). An average physics book of the same length has 25 such mentions. Yet, while economic models, it has been shown, work hardly better than random guesses or the intuition of cab drivers, physics can predict a wide range of phenomena with tenth-of-a-decimal precision.

They make you believe that their detractors are quacks by going *ad hominem* and skirting the arguments altogether. For a strange reason, I saw more solid critical thinking on the part of practitioners than academics. One common argument I’ve heard trying to extinguish my criticism of VaR in *The Black Swan*: “This is a popular book,” implying that its arguments lack rigor. Now if all arguments lacking in rigor are popular, it does not follow that all popular arguments are lacking in rigor. You rarely find people outside academia making such a mistake.

The cost of modelization is the loss of open-mindedness, but in some areas—say, engineering—this can be tolerated owing to the low-error quality of the models and their tracking ability.

My point is not that *current* academics are bad, but that there is a tendency by nonpractitioners to idealize Platonism and fall prey to the *Euthyphro* problem – not recognize that knowledge in society aggregates through action (a point made by Hayek but that did not sink in for the economics profession). While Pablo Triana is perhaps the very first person I’ve met who got the point, I highly disagree with his endorsement of the sterile critiques by nonpractitioners such as Derman and others, as their conscience-clearing halfwayness causes more harm than good. I hold that anything that does not start with the basis that *techné* (know-how) is superior to *epistémé* (know what), especially in complex systems, is highly suspicious.

V

One warning before concluding. You are often told, “This is just a model; it is just an aid; you do not need to use it.” I was often told that value at risk was just one piece of information among plenty—so these people providing it could cause no harm. True?

Do not put cigarettes in front of an addict—even if you give him a warning. I hold that information is not neutral. Never give a (fallible) human sterile information. He will not ignore it. These models led to an increase of risk in society, period. The providers are responsible.

VI

What should we do?

Do not waste time trying to convince academics. They will tell you, “Give me a better model or shut up,” not realizing that giving someone *no* map is much, much better than giving him a wrong map. Academia does not like negative advice (what not to do).

Just put them to shame. Ignore them. Put them down. Discredit business schools. Ask for cuts in funding.

We can no longer afford to compromise.

Do what some friends have done: resign from the various associations, such as the International Association of Financial Engineers and the CFA Institute. These institutions were promoting wrong models and will not repent naturally, no more than the tobacco industry would fight smoking in public places. You need to shame members, humiliate them. Make fun of these charlatans.

VII

I thank Pablo Triana for his wonderful lucidity, courage, and dedication in the service of the truth. This is the very first book that looks at the side effects of models, at the harm *caused* by models, and fearlessly points fingers where fingers should be pointed. I am convinced that the reader will come out of reading it much wiser, and that the publication of this book will make society a better, safer, and more risk-conscious place.

—NASSIM NICHOLAS TALEB