

The Econophysics Blog

This blog is dedicated to exploring the application of quantitative tools from mathematics, physics, and other natural sciences to issues in finance, economics, and the social sciences. The focus of this blog will be on tools, methodology, and logic. This blog will also occasionally delve into philosophical issues surrounding quantitative finance and quantitative social science.

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The Black Swan ... "Well, That's Life!"

The late, great Polish journalist, **Ryszard Kapuscinski**, wrote -- in his book on the last days of the Soviet Union, **Imperium** -- that the genius of the Russian people can be summed up in their oft-repeated phrase, "Well, that's life!"

A young boy finds that his hometown is no longer a part of Poland but is, instead, a part of the Soviet Union due to the extremely improbable (and brief) courtship between Hitler and Stalin. *Well, that's life!* Shortly thereafter, that same boy finds many of his friends and neighbors being carted off on trains to Siberia by the NKVD (the forerunner to the KGB) for no apparent reason. *Well, that's life!*

On some perverse whim, Stalin decides to (literally) starve ten million Ukrainian peasants -- almost a third of the population -- to death. *Well, that's life!* At the death/work colony of Kolyma -- a place that gave birth to another phrase of relativist consolation, "Don't despair, it was worse in Kolyma!" -- Beria's henchmen gave their victims the 'choice' between dying of hunger, hard labor, sleep deprivation, disease, sadism, hopeless despair, (literal) freezing, and, for the fortunate few, being shot. *Well, that's life!*

All of a sudden, the mighty Soviet Union -- which had terrorized, humiliated, enslaved, and froze people to death -- collapses and disappears from the maps ... its red tzars going the way of the tzars of old. *Well, that's life!* Just as unexpectedly, there are new nations and quasi-nations that arise out of the Imperium that virtually no one -- including the people who are part of these would-be nations -- had known had existed. *Well, that's life!*

The genius of **Nassim Nicholas Taleb** -- on masterful display in his new book, **The Black Swan: The Impact of the Highly Improbable** -- is that he has managed to capture what Kapuscinski calls the "essence of truth," as represented by the aphorism "Well, that's life!", in an even more succinct









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(but no less scientific) concept/turn-of-phrase: "The Black Swan."

This being (in part) a book review, I feel compelled to offer up some sort of recommendation for the book buying public. So here it is: Buy this book. Read this book. Read it carefully. Read it again.

The Black Swan, the book, is the most important book in social science since Adam Smith's [The Wealth of Nations](#). Nassim Taleb's book also happens to be the most significant contribution to the science and philosophy of uncertainty since [Andrey Kolmogorov](#) axiomitized probability theory (which along with Bayes, gave us the solid foundation necessary to *think* clearly about chance) and made progress (with contributions by Chaitin and Solomonoff) towards a more mathematically precise definition of randomness. In terms of epistemology, reading The Black Swan gave me a sense of intellectual kinship that I have not felt since reading [Isaiah Berlin](#)'s "[The Hedgehog and the Fox](#)."

The rest of this essay will be dedicated to explaining, at least in part, why I am heartily endorsing Nassim Taleb's latest book. As a bonus, I will explain why I started The Econophysics Blog.

"Amen," Platoncity, and 'The Little Prince'

I am slightly embarrassed, but not too embarrassed, to admit that reading The Black Swan was an almost quasi-religious experience, full of sublime epiphanies. There were parts of this book where I found myself muttering "amen" -- in the fashion of many in the plebeian parts of Protestantism -- in delighted agreement with the sentiments of its author. (I don't know whether the [Reverend Thomas Bayes](#) ever generated an amen from his congregation, but I'm sure he would have given a hearty amen to Nassim Nicholas Taleb.)

All of this genuine enthusiasm is despite the fact that I was expecting to be slightly disappointed by the latest book. After reading his previous book, [Fooled By Randomness](#), I had the impression that Taleb's next book, which became The Black Swan, would be a book that would be geared toward a more technical audience and would be something akin to an anthology of NNT's more formal writings with a sprinkling of more accessible material. Instead, The Black Swan, the book, that we have before us is targeted toward more-or-less the same audience as Fooled By Randomness had, and follows a similar format and tone. But this superficial similarity is (unintentionally) deceptive.

The Black Swan goes into intellectual territory that Fooled By Randomness almost but did not ultimately tread. The best way to distinguish the two books (and contrary to some book reviews out there, there definitely *is* a distinction) is via the following: Fooled By Randomness raised important and discomfoting (which is precisely why it is important) questions about our understanding of, and decision making under, uncertainty; that book inspired the creation of The Econophysics Blog (more on this in the next

section). The Black Swan either answers many of the questions raised by the previous book and/or it provides a solid road map to arriving at whatever solutions (and there may ultimately be no solutions) that may exist to the fundamental problem of living in a world where changes in time and chance profoundly affect us all.

In other words, The Black Swan, the book, is one of the best maps available to help us navigate through a world of uncertainty. The idea of distinguishing between useful versus misleading maps is one of the themes that stood out in my mind as I read the book.

Nassim Taleb mentions the analogy to maps in relation to his disdain for what he calls "Platonicity." Taleb defines Platonicity (named after the philosopher Plato) as "our tendency to mistake the map for the territory, to focus on pure and well-defined 'forms,' whether objects, like triangles, or social notions we privilege them over other less elegant objects, those with messier and less tractable structures ..." The cardinal sin of Platonicity is that it "makes us think that we understand more than we actually do."

As he makes clear throughout the book, Taleb is *not* absolutely against the use of intellectual 'maps' (i.e., idealized forms, concepts, methodologies, etc.); what he is opposed to is the uncritical acceptance and use of such Platonic maps and to the use of wrong or misleading maps for inappropriate situations.

Taleb's idea about the foolishness and dangers of Platonicity reminded me of the observations Kapuscinski made about the map used by [Antoine de Saint-Exupery](#) as recounted in Saint-Exupery's book, [Terre Des Hommes](#) (the English translation: [Wind, Sand and Stars](#)). Saint-Exupery was an aviator, adventurer, and writer, who is best known for writing a book that is considered by some to be a classic in children's literature and by others to be a fascinating work of philosophical fiction, [Le Petit Prince](#) ([The Little Prince](#)).

In 1926, Saint-Exupery was to make a flight from Toulouse (in France), across Spain, to Dakar (in north Africa). Kapuscinski sums up Saint-Exupery's predicament in the following manner (from Imperium):

Saint-Exupery studies the map of his route, but it tells him nothing; it is abstract, general, "vapid." He decides to consult his older colleague, Henry Guillaumet, who knows this route by heart. "But what a strange lesson in geography I was given!" the author recalled. ". . . Instead of telling me about Guadix [Cadiz], he spoke of three orange-trees on the edge of town. 'Beware of those trees. Better mark them on the map.' " And those three orange-trees seemed to me thenceforth higher than the Sierra Nevada." "I also assumed a defensive posture vis-a-vis the thirty sheep scattered as in a loose battle formation on the slope of a hill. . . . 'You think the meadow empty, and suddenly bang! there are thirty sheep in your wheels. . . .'"

When Taleb is warning us against the Platonic confusion between maps and

territories, what he is suggesting is that we are all in the same predicament that Saint-Exupery found himself in. Just as Saint-Exupery needed a good map to help him navigate in the highly dangerous and risky world of early aviation, we need good maps to help us navigate through a world full of high impact but difficult to predict risks (i.e., Black Swans, the concept). Yet, like that French aviator/writer, we are given useless and/or misleading maps by the so-called experts.

Platonic 'maps' based on (Gaussian) bell-curve probability/statistical distributions (what Taleb calls the "Great Intellectual Fraud (GIF)") are like Guillaumet's map; they are (as Kapuscinski would have put it) 'map-mementos.' Platonic maps are too devoid of detail, too vapid, to serve as a useful guide when navigating a world shaped by extreme, catastrophic risk; those maps exaggerate non-dangers (like Guillaumet's 'giant' orange trees and the platoon of 'fearsome' sheep) while totally ignoring (or severely discounting) very serious dangers (like the actual mountains and platoons of hostile natives that Saint-Exupery was really worried about).

One of many examples that Taleb dissects of a pseudo-expert promoting Platonic/Guillaumet maps of risk is the book on catastrophic risk written by Judge Richard Posner, a highly controversial U.S. federal appeals court judge, law school lecturer, and public 'intellectual' (I use the term loosely here). I can't think of someone who is less qualified by temperament, education, training, skill set, life experience, etc., to claim to be an expert on catastrophic risk. So what does he do? He writes a book about it! (Presumably, it sold well enough.) At least Henri Guillaumet had the decency to be qualified to make his map.

Posner, along with a rogue's gallery of pseudo-experts (and, to be fair, real experts), advocate the use of Platonic Gaussian models of probability and risk despite the fact that one doesn't need to be [Ramanujan](#) or [Karl Friedrich Gauss](#) to figure out that events like 9/11 and many financial market crashes are double-digit sigma events, i.e., essentially impossible in the bell-curve, GIF world. Frankly, even from a textbook Gaussian perspective, many of these would-be Platonic 'mapmakers' are creating more confusion than clarity by their attempts to over-simplify the risky world we live in. Platonizers, like Posner, are essentially dismissing the possibilities of Black Swans, the concept; because they have seen thousands of white swans, they severely discount or completely dismiss the possibility that 'all swans aren't white.'

What Nassim Nicholas Taleb does so well in this book is to offer up an intellectual map of our risk-filled world (an a-Platonic map) that is more accurate and realistic than the pedantic view of chance that routinely misses the black swans. In *The Black Swan*, Taleb embraces the emerging scientific field of complexity theory -- especially the fractal mathematics of Benoit Mandelbrot. Power law-Zipf-Mandelbrot-Pareto-Levy-whatever one wants to call it probability distributions, self-similarity / self-affinity, scale-free structures, undefined (or infinite) statistical moments, and 'wild,' fractal randomness, are what Taleb calls "Grey Swans of Extremistan," and they

serve as viable alternatives to the Platonic models when it comes to understanding the high impact, almost unpredictable nature of extreme and catastrophic Black Swan events.

I was GIF'ed (and Why Crowds Can Never Be Wise)

When I took my first class in statistics (this was before Nassim Taleb started writing books), I faced an intellectual crises of confidence. I felt I was reasonably good at mathematics (at least the marks I received in math courses and exams said so), but some of what I was being told in my statistics class sounded daft to me.

My biggest dilemma was over the concept of 'outliers.' In a nutshell, outliers are observations or data points that are considered to be so far outside the range of the expected (or hoped for?) bell-curve Gaussian density distribution that they could be ... ney, they should be! ... dismissed. I had a very serious problem with this cavalier dismissal of outliers. Why? It wasn't because I was too dull (or perhaps I was) to understand what the lecturer was saying or what was written in my introductory statistics textbook. I could deal with dogma as well as anybody. No, the problem went much deeper than that.

I'm from a rough working class background. The 'outliers' -- what NNT calls Black Swans, the concept -- that my statistics class so easily waved away are what shaped my life and what shaped the lives of the people I was familiar with. The outliers ... the Black Swans ... are what we -- for better or worse (usually the latter) -- lived by. Most of the Black Swans people like myself faced were ugly: the spectre of poverty, humiliation at the hands of 'betters,' crappy hand-me-down clothes, illness and injury with no time or money to fix it, abusive families, alcoholism, tyrannical bosses, dead-end jobs, hopeless despair, fear. What kept us going was the possibility of a good outlier for a change: winning the lottery, hearing our favorite song on the radio, dreaming of a better life, and a down-on-his-luck kid somehow getting a fancy education.

So I'm sitting in my statistics class trying to get a fancy education, and I'm in the grips of an intellectual (and, almost, moral) dilemma. On the one hand, every fiber of my blue-collar common sense being wanted to point out that it is ridiculous to dismiss some infrequent or improbable event when it is *precisely* such events that may have the biggest impact in the real world (keep in mind, this was well before NNT started writing books and I had heard of Sextus Empiricus, et al.). From where I came in life, you'd have to be a dummy to think that some out-of-the-blue thing wouldn't change (usually, mess up ... I'm trying to avoid profanity) your life. On the other hand, I knew I would be considered an idiot or a worm by those 'better' than me if I seriously challenged the pedantic notion of outliers.

So I kept my mouth shut (for once in my life). I was a good boy and accepted the 'wisdom' of the bell-curve, along with the idea of outliers. But this always bothered me.

So a few years ago, I bought and read a book by some guy named Nassim Nicholas Taleb titled, *Fooled by Randomness* (the second edition). This book was usually shelved in the business section in most bookstores, which automatically made me suspicious and reluctant to buy the book since I find most business books by business 'gurus' to be too vapid to be worth my time (I'd rather read a book by [Kafka](#) or a book on neuroscience, particle physics, or poker). I was pleasantly surprised to read Dr. Taleb's book. Here was someone who was my social 'better' giving me permission to think the way I always wanted to think. To me it was a proclamation of intellectual freedom.

That is why I started blogging about a year ago and started The Econophysics Blog, which you are reading if you got this far. My original intent was to promote the *spirit* of Nassim Taleb's ideas ... basically, because the way he thought is basically the way I thought. On the masthead for this blog I could have put, instead of the nerdy stuff I have up there, the motto "I'm an intellectual explorer searching for truth in a world of uncertainty inspired by Taleb, Popper, et al.," but that sounded a bit too soft-in-the-head.

That is also why I am writing this ringing endorsement of Dr. Taleb's latest book, *The Black Swan*. As I wrote in the previous section, *The Black Swan* picks up where *Fooled By Randomness* left off. Any would-be intellectual explorer searching for truth in a world of uncertainty *must* buy and read this book.

There is one book out there that I will never give a positive review to. I agree with the idea that a book should not be judged by its cover, but some things on the cover, in this case the title, are so odious to me that I can't possibly like it. There is a book out there called *The Wisdom of Crowds*; the title is daft. Crowds can't be wise. They can *never* be wise.

Yes, crowds can often have more information and, even, knowledge, but they may also be more ignorant than even the most marginalized individual. Crowds, or 'swarms,' can be more correct than individual judgments, but they can also be terrifically and terrifyingly wrong. But even if crowds were almost always better informed and almost always right, they can still never be wise.

Wisdom is an outlier; wisdom is a Black Swan. By its very nature, wisdom goes against the grain. Wisdom cannot be manufactured by groupthink, or by a swam of *bildungsphilisters*, or a *bildungsphilister(s)* that happens to get a publishing deal.

The Black Swan is full of that extremely rare and improbable quality, wisdom. As the book jacket states, *The Black Swan*, the book, is itself a Black Swan ... the good kind, the kind that is wisdom itself.

Black Swan Virgins (or Did They *Really* Get It?)

Needless to say, I have no serious criticism of *The Black Swan*, the book and the concept, or its author. But, since this is a (sort of) book review, I suppose I am expected to say something critical. In that case, the only criticism I can have is directed toward the potential readership of the book.

Most of the book reviews of *The Black Swan* (with one unfortunate exception) have been positive. As of the time of writing, the book is number five on the New York Times Bestsellers' List. Someone not having read, or not understanding, the book might conclude that all of this good news is confirmatory evidence that the public gets it ... they really understand the *Black Swan*, the concept and the main point of the book. Unfortunately, as much as I love the book, I am skeptical about whether the reading public *really* gets it or will get it.

The problem is not with the book, its author, or its editors. The book is well-written and well-thought out. There aren't any major errors or typos in it ... certainly, nothing that would cloud someone's understanding of the main points of the book. No, the problem lies with the readers themselves.

As I wrote in the last section, reading Dr. Taleb's previous book opened up intellectual vistas for me. But this made me wonder, "How can this guy with a fancy pedigree understand things that cab drivers, auto mechanics, factory workers, janitors, truck drivers, et al., understand but those socially 'better' than them not understand?" I eventually got the answers when I read Malcolm Gladwell's [excellent profile of NNT](#) in *The New Yorker* (you can get a similar biography by reading *The Black Swan* book). Taleb got it 'because' he had experienced Black Swans -- homeland and culture torn apart due to an out-of-the-blue event, and health problems that the GIF-prone mind couldn't have foreseen.

I want to take a slight digression here. I want to make it clear that I do not want to make the same logical mistake the southern Italian professor makes in chapter six of the book. This mistake is something that the book constantly challenges. The mistake -- which Taleb calls "the round trip fallacy" -- is really the idea of the sufficient condition being confused with the necessary condition in formal logic (e.g., "all poodles are dogs" does *not* make all dogs poodles). The mistake that the Italian professor makes in chapter six is a variant of this fallacy -- with the twist that the notion of assigning causality is involved along with the problem of sufficient vs. necessary.

(By the way, I strongly object to the Italian professor's characterization of Protestants as being incapable of appreciating Black Swans. As Rev. Thomas Bayes and [Sir Dr. Karl Popper](#) could have attested to, being Protestant is no impediment to believing in Black Swans.)

Clearly *not* all Lebanese Orthodox Christians who experienced the civil war and wound up becoming financial traders are Black Swan believing skeptical empiricists. What I am saying is that -- while it is not sufficient to

have experienced (suffered) Black Swans to become a Black Swan believing skeptical empiricist -- it is ***absolutely necessary***.

It is interesting to note that the two people that Nassim Nicholas Taleb expresses the highest respect towards -- **Benoit Mandelbrot** and **George Soros** -- are men who experienced Black Swans in their lives (escaping the Nazis during World War II). It is also interesting to note that my hero and the father of modern probability theory, the mathematician, Andrey Kolmogorov, experienced Black Swans in his life (lost both of his parents at an early age and was raised by his maternal aunts).

One of my other heroes, Ryszard Kapuscinski, would have loved Nassim Taleb's book. Kapuscinski would have *really* gotten it. It's not because of any quantitative ability; Kapuscinski wasn't **Stanislaw Ulam**. I doubt Kapuscinski could have solved a stochastic differential equation to save his life, or had the foggiest notion of what a power law or a fractal was.

But, time and time again, Kapuscinski experienced Black Swans. In fact, he made his career out of Black Swans by telling the stories of Black Swans that took the form of armed revolutions, ethnic conflict, **deposed Middle Eastern shahs** and **African emperors**, fearful and fleeing colonists, disintegrating empires, and **wars fought over football (soccer)**.

This leads me to another set of fallacies that are directed toward NNT. Many people claim that Taleb and those who are like minded are advocating taking *no* risks whatsoever. Nothing could be further from the truth!

Obviously, Nassim Taleb, as a financial trader, has had to take a tremendous amount of risks in his professional life. Ditto for George Soros.

Benoit Mandelbrot has taken on a tremendous amount of risk intellectually. Instead of taking the safe and intellectually deadening route of most academics, he has worked at the margins to make the idea of fractals a viable academic discipline. A similar sort of thing could be said about Andrey Kolmogorov.

As for Ryszard Kapuscinski? He once asked the rhetorical question of why he did what he did, "Why do I risk my life time and time again?" Why did he risk his life time and time again when faced with murderous rebels, soldiers, and policemen? The answer: He was on a "mission" ... the mission was to get the story behind the story ... to get to the "essence of the truth."

So those who believe in the Black Swan often take incredible risks ... they've stared the Black Swan in its face and they often want to do it again and again. As Nassim Taleb has so eloquently answered his critics, it's not that he wants people to take no risks, it's that he doesn't want us to take risks in ignorance or blind to the reality of 'wild,' discontinuous randomness.

Other criticisms directed towards NNT -- that he is denying all causality (no, he is not; he believes that assigning causal links should be based on

skeptical empiricism -- which can include applying Einsteinian 'thought experiments'), or that he is opposed to all reductionism (i.e., Platonicity) in science (again, no; he -- as Einstein would have put it -- wants 'science' to be as simple as possible but no simpler) -- can be addressed in a similar fashion. But I must end this essay.

In closing, why am I so skeptical that potential readers (recognizing the fact that buying a book is not the same thing as reading it) won't *really* get it? Because many readers of this book -- especially the MBA totting types (or want-to-be's), and, I suspect, even people with solid scientific backgrounds -- are Black Swan virgins. They've won't *really* get it 'because' they have never *really* experienced Black Swans. I'm not saying these people have never experienced problems or challenges, it's just that the problems they have faced belong in Mediocristan while Black Swans are creatures of Extremistan (read the book and you will know what I mean).

I think Nassim Taleb makes the point about the importance of distinguishing between those who are experienced with Black Swans versus the Black Swan virgins eloquently in the Prologue of The Black Swan (p. xxiv):

I don't particularly care about the usual. If you want to get an idea of a friend's temperament, ethics, and personal elegance, you need to look at him under the tests of severe circumstances, not under the regular rosy glow of daily life. ... the normal is often irrelevant.

There used to be a time when -- even in the swankiest professions and socio-intellectual circles -- there were some old-hands and young 'Horatio Algiers' that had experienced Black Swans ... i.e., those who had been tested under severe circumstances. It might be a financial trader who had been affected by the Great Depression or had to flee their homeland with only a suitcase or two. It might be a scientist (natural or social) who survived a war, revolution, genocide, or a famine. It might be a student whose parents didn't know the *lingua franca* (usually English) and *really* knew what hardscrabble meant without ever having heard that word because he or she lived it.

But those times have passed. It is ironic that -- as I wrote in my previous blog post, [Tyranny of the Power Law](#) -- that the very thing that brought the 'elite' success in life, the power law -- a symptom of the Black Swan, makes people blind to Black Swans by allowing the Black Swan blind to 'protect' themselves by entrenching their privilege.

Anyone who reads and understands The Black Swan, the book, will realize, however, that this can't last. Black Swan virgins -- especially those who are responsible for billions of dollars (or pounds, or Euros, etc.), or those responsible for the lives of millions (or even billions) of innocent people -- will eventually experience the Black Swan. Sadly, for innocent pension holders or even more innocent peace-loving, law-abiding citizens the world over, these Black Swan virgins won't know what to do. They'll fumble at the moment of destiny because they were blind to the fact that life is punctuated by extreme risks and they were blinded to that reality by the Platonized idea

that risk can be 'managed' or controlled ... "risk leaps not glides."

Even a book of rare genius like Nassim Nicholas Taleb's book -- unless read carefully and with humility -- can do much to prepare these Black Swan virgins. When they face their Black Swan -- what the truly great historians and thinkers used to call 'destiny' -- it will be too late. *Well, that's life!*

Labels: [Black Swan](#), [complexity](#), [finance](#), [fractals](#), [logic](#), [power law](#), [probability](#), [risk](#)

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