

Book Review

Nassim Nicholas Taleb.

The Black Swan. The Impact of the Highly Improbable.

New York: Random House, 2007.

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This book has had quite an impact since it was published in 2007. According to *Wikipedia*, it has sold over 270, 000 copies in its first year, was on the *New York Times* best-seller list for 17 week and had been translated into 27 languages. It is being reviewed here since I believe it directly engages those of us who take an interest in public administration and public sector innovation.

Taleb is a multi-talented person, who has divided his time between the practice of investment and the science and psychology of forecasting and decision-making. He is professor in the sciences of uncertainty at the University of Massachusetts, Amherst. His book is written in an open and accessible style, passing from more general, philosophical and psychological considerations to a technical thesis attacking the usefulness of the statistical bell-curve (when the book becomes very technical the author invites the general reader to skip-over to the next not-so-technical section). Intended also for academics and people already learned in the field, with 18 pages of notes and 27 of bibliography drawn from philosophy, literature, social science and finance, it is a serious study dressed up as a best seller.

There are two main branches to Taleb's argument. First, he argues that there is a lot more randomness than we generally admit. Second, we have trouble dealing with randomness because of the way we think. The "Black Swan" of the title is the one that was discovered to be present in Australia when previously all observations demonstrated that swans were white. This example is used to show that no amount of induction can ever lead to certainty. A single exception invalidates the rule.

For Taleb, a Black Swan has three characteristics: it is an outlier (very improbable); has an extreme impact; and humans create doubtful explanations after it has happened (p. xviii). Examples are the destruction of the "Lebanese paradise" after 1975, the stock market crash of 1987, the breakup of the USSR, 9/11, and the development of the internet. Some Black Swans are fortunate, such as an unexpected monster success of a book, film or record or the luck of the investor who benefits hugely from an unforeseen market swing. In the author's view, the modern world is dominated by Black Swans, not that there are more of them than in the past, but that their consequences are more extreme.

People in general, and social scientists in particular, do not recognize the existence of the realities that Taleb calls Extremistan and Mediocristan (p. 36). Mediocristan is the dull, predictable world that most of us live in most of the time. Jobs in it are rewarded in some relation to the amount of time, effort and skill that earners put into them; extremes of income have little effect on averages; some kind of equality is possible. In Extremistan,

rewards have no relation to time, effort and skill, but are based on luck. Payoffs are huge, but there are few big winners and many losers. As a result, there is no typical member but increasing inequality.

The trouble comes from the refusal of the social sciences to admit the existence of Extremistan and the increasing importance of outliers. Social scientist and many “experts” overestimate what they know, whereas what they don’t know is far more important. They create the illusion of understanding, relying on “the beastly method of collecting selective corroborating evidence” or the thoughts of dead thinkers (p. xxvii).

The origin of the problem lies in how we think. We indulge in story-telling, the “narrative fallacy”, thinking that the world is less random than it is. We also follow the “ludic fallacy” which holds that play approximates life, whereas it doesn’t (p. 127). We artificially divide the objects of our studies into academic disciplines: an outlier like the breakup of the USSR may occur because of events that happened in another discipline’s realm, or a casino may incur big losses by some random event unrelated to gambling. Once we have adopted a theory, we are very reluctant to give it up in the face of new evidence. We overvalue facts at the expense of general knowledge, narrow our focus too much and depend excessively on self-proclaimed experts.

To Taleb, real experts are those who have know-how, such as grain inspectors, test pilots, chess masters and physicists. Those who have know-what or knowledge are not really experts: stockbrokers, judges, personnel selectors, intelligence analysts, political scientists and financial forecasters. He finds that military planners do better, because they leave room for the “unknown unknown” (p. 127). He gives many examples from one of his own fields, investment, to show that we don’t like to admit the place of luck in it. He quotes sarcastically the headlines of the financial press that purport to interpret after the fact some unforeseen market shift. If a forecast turns out to be right, expertise is claimed as the reason; if wrong, it was not the experts’ fault, or they were “almost right”. Taleb cites research to show that in politics and economics, the most experienced experts and the most sophisticated tools of analysis do no better at predicting than undergraduates or simple methods.

In the field on innovation, the author argues that most discoveries are the product of serendipity; people looking for one thing find another (p. 166). He gives the examples of penicillin, the laser and Viagra in support of this (the latter was designed as a blood pressure drug). He adds, “While many worry about unintended consequences, technology adventurers thrive on them” (p.170).

Taleb’s epistemological position is against “Platonicity...our tendency to mistake the map for the territory, to focus on pure and well-defined ‘forms’” instead of the messier reality. His idols are skeptics who question “Platonicity”: Hume, Montaigne, Hayek, Poincaré, Mandelbrot and Popper. He likes Popper’s notion that all we can do with a theory is try to falsify it, and deplors the step that is often taken from observing that no evidence has turned up against an idea or a theory to the notion that the idea has therefore been proven.

Since he seems to believe in luck more than talent and hard work, what does Taleb suggest that we do? In general, we are to adjust to this fact and try to profit from it. Follow the old Bell Laboratory's approach and let talented people work on problems that interest them, while being alert to unexpected discoveries. Planning is alright for small matters; for bigger ones, use trial and error. In planning, do not look at probability so much as to the gravity of possible even if improbable consequences. In investment, put 85% of your money into something sure like Treasury bills and scatter the rest in small amounts in venture capital. The general principle derived from investing is: "...life is convex and to be seen as a series of derivatives. Simply put, when you cut the negative exposure, you limit your vulnerability to unknowledge" (p. 329). In life, seek out as many points of view as possible. Specifically, says Taleb, "go to parties".

What are we to make of this book, we who for the most part are probably dwellers of Mediocristan? As Taleb reminds us that reviewers, like stock analysts, flock together, I should declare that I have read a number of reviews of his book, but all but one after I had determined my own first reaction. In general, there is much in what he says. In many successes there is much more luck than we care to admit. Ronald Wright (2004: 117) made this point about the undeserved advantages that Europeans in North America have had: a sparsely populated continent to exploit and the bonanza of fossil fuels, which took eons to make in the earth. Taleb believes, like Stephen Jay Gould, that evolution was more the survival of the lucky than of the fittest.

He is also right about our weaknesses in thinking. People are very weak on calculating risk: after 9/11 many foresook air travel for the more dangerous highways where the number of accidents rose. We seem to need stories to make sense of things and good anecdotes seem to trump statistics. A neuroscientist who experienced spiritual bliss in the course of a stroke, Jill Bolte Taylor, considers religion to be stories that the left brain tells the right (Kaufman, 2008). I find that plausible. Sneakier is our tendency to retrospective interpretation of events and to seek evidence to corroborate our beliefs. Taleb cites philosophical research that shows that the same facts may be coherently interpreted consistently by completely opposite explanations. I see no answer to these dangers than open debate in which not only theories and evidence, but also underlying values and postulates are examined.

Taleb invites us to be skeptical and it is fitting to take this approach to his book. His exposition has a number of weaknesses. First, while the creature of the title is a vivid image, the black swan does not really meet the criteria he gives of a Black Swan. True, it contradicted all previous known sightings in Europe, but it did not have any dramatic consequences (at least none are advanced by the author), nor was there a scramble to explain the discovery after the fact. Second, the author uses several fictional characters (at least four) to make his points, but the reader would have to read the footnotes or the bibliography to learn that they were not real people. This may be the norm in a certain new kind of writing, but it is not a good thing in a book about the apprehension of reality. Third, as a philosopher pointed out to the author, the first two-thirds of the book uses narrative, mostly in the form of anecdotes, to fight narrative. Taleb's defense is that "You need a story to displace a story" (p. xxvii).

There is more. You can fault Taleb both for his facts and his values. In the matter of facts, several reviewers claimed that his knowledge was imperfect when he stepped outside the field of investment. In the *New York Times*, Easterbrook cited a political science study of 1989 that predicted the fall of the USSR (Easterbrook, 2007). Is this the exception that demolishes the general proposition, or the exception that proves the rule? Also, Taleb did not discuss political scientists' success rate in opinion polling. It is my impression that, despite some notable failures, they generally do quite well. They certainly provide methodological information to let the reader know the odds that they are right. Nowadays, they use various kinds of panels and rolling groups to supplement polling. Even in the field of investment, one reviewer challenged the designation of the 1987 stock market fall as a Black Swan, since within six weeks it had mostly been corrected (Gilger, 2007). For my part, I wondered how 9/11 qualified, when there were convicted terrorists in American prisons for a previous attempt to blow up the World Trade Center, and when there were several indications in the intelligence system that something was afoot.

In three review articles in *The American Statistician*, four statisticians found that Taleb had been "statistically reckless" and "completely ignored those of us who study extremes" (Lund 2007: 189), that he violated Hume's anti-induction principles by assuming that his limited and biased sample of statisticians allowed him to conclude that all statisticians are dwellers of Mediocristan (Westfall and Hilbe 2007: 193), and that properly trained statisticians, contrary to Taleb's claim, do not jump to conclusions but can think as well as compute (Brown 2007: 197). Despite the errors and exaggerations, they all agreed that readers of the journal would be stimulated to clarify their thinking by reading it. In a reply, Taleb said that he was all in favor but, "I fail to see how robust statistics will produce more information about the problem of events that are not in the sample of past realizations" (Taleb 2007: 199).

Public administration would seem to be a perfect specimen of Mediocristan. It is a world of conformity to policy positions coming from elected politicians, moderation in speech and action is required of the public service and one is not supposed to become fabulously rich during one's career. But all is not as polarized as it might seem. Public administration has a good supply of something Taleb praises highly, the thinking practitioner. These pearls help to keep professors of the subject honest by giving them feedback on their ideas. The field is quite familiar with, even if vulnerable to, fads and fashions that Taleb says can be Black Swans. It is a practical world, where theories are viewed with suspicion (Gow, 1994), but success stories are held in high esteem. Few of us are so foolhardy as to make specific predictions in such a contingent world; but we do a decent job of finding trends and observing conditions, increasingly on comparative terms. Finally, public servants have a duty to be good stewards of the public purse. Certainly, their predictions are often wrong and the media have fun with these lapses. But as Jose Sandoval wrote, "Should you be basing your future on something that is not likely to happen in the whole history of the universe? Probably not" (Sandoval, 2007). In contrast, the reform of contributions to the Quebec Pension Plan was a good case where politicians were led to do something unpopular on the basis of the best forecasts of the experts.

As far as innovation goes, it may well be that no significant discoveries came directly from programmes intended to find them, but, as Taleb recognizes, it is possible to structure creativity. Moreover, while Taleb may prefer skeptical empiricism, skepticism is an impediment to creativity if allowed to enter the process too soon. Much more creative solutions are likely to emerge if the critical analysts are allowed to do their work once new ideas have emerged (Gow 1994: 11). Finally, Taleb's *bête noire*, the Bell Curve may be useless in many cases, but the S-curve of adoption of innovations identified by the late Everett M. Rogers seems to hold up and is useful information (Rogers, 2003).

While I agree with those who found the book stimulating, I fault the author most for his values. He pretends to deplore the unfairness of the world: "I find writing these lines painful; I find the world revolting" (p. 215). Don't you believe it. He is having a wonderful time telling his stories of his own success and pulling the beard of so many eminent academicians. While he deplores "epistemic arrogance" in others, personal arrogance is his trademark as many reviewers have noted. He scorns the dull suits who go to offices every day and apply the rules strictly. He prefers his imaginary "Fat Tony" who has no office, works out of restaurants and makes a fortune in real estate. This is not particularly important, as Taleb likes to play the gadfly, and shrugs off being shown up by those like his philosopher friend who pointed out that he was using narrative to fight narrative.

What matters most to me is Taleb's idea of success in life. Only hitting it big financially seems to matter. Writing Harry Potter is a successful Black Swan, but making a regular living selling a few hundreds or thousands of books does not cut it with him. Similarly, the idea that people working in universities or the public service cannot have a successful life unless they are superstars seems a very stilted one, one that misunderstands creativity in daily life. If, as Gilder (2007) says the narrative fallacy is what makes us human, I would add that creativity in the arts is completely foreign to Taleb. The creativity was there in Van Gogh, even though he failed on the art market in his lifetime. Disasters will occur, he is right, but it is creativity that will allow us to foresee some and to compensate and correct others. This creativity is not found with investors (although some are no doubt highly intuitive). It is found by people juggling with ideas, patiently teasing out a story, as Timothy Findlay put it, or listening closely for the music in their head, as Phillip Glass has said. It is a child dancing spontaneously, the essential part of human nature.

Overall, Taleb is convincing about the unpredictable nature of our lives and of the folly of complacency in thinking that we can avoid this. He rightly points out some serious weaknesses in the way we try to look ahead and back. However, his disdain for people in Mediocristan is unappealing (especially to such a denizen as I) and his ignorance of creativity is self-defeating.

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