



Nassim Nicholas Taleb on Accepting Uncertainty, Embracing Volatility

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The day before a big game, regardless of the sport, a team's coach or star player is often asked, "How will you stop the opposing team tomorrow?" The answer typically goes something like this: "We can't worry about the other team. We just have to play our game."

That, in a very simplified nutshell, is the essence of Nassim Nicholas Taleb's highly polemical, always thought-provoking new book, *Antifragile: Things That Gain from Disorder*. Here, though, the opponent is not another team's slugger, quarterback or point guard, but the future and change. The defining characteristic of future change, according to Taleb (who continues a line of argument developed in previous books like *Fooled by Randomness* and *The Black Swan*), is that it is impossible, and foolhardy, to try to predict it. Instead, the author argues, it is essential to make peace with uncertainty, randomness and volatility. Those who do not -- who insist not only on trying to predict the future, but also on somehow trying to manage it -- he disparagingly calls "fragilistas."

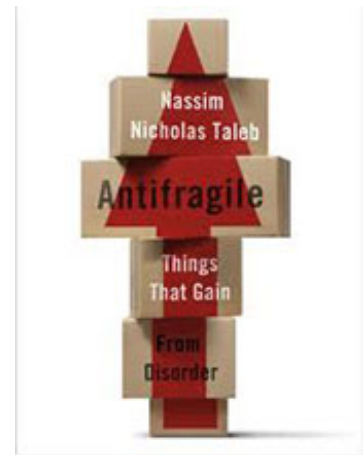
Antifragile is divided into seven sections that Taleb calls "books." In a prologue, he explains that each is, in a sense, a long personal essay, "mixing autobiographical musings and parables with more philosophical and scientific investigations." The author introduces fictional characters such as Fat Tony, who epitomizes the straight-talking "street" knowledge of the practitioner as opposed to the fragilista. In addition to "fragilista," he coins or adopts a number of other terms; delves into extended asides on Greek philosophy and mythology; and in general fashions a thoroughly idiosyncratic approach to his subject matter. The result is a work that is readable and entertaining, if at times a bit unwieldy.

A Future We Can't Predict

Taleb advocates what he calls "nonpredictive decision making" focused on the ability of the unit in question (whether that be an individual, institution, industry or society) to withstand unexpected change. Yet to simply survive is not enough. Taleb is interested in things that actually thrive on uncertainty. To merely avoid harm is, in his terms, to be *robust* -- and at times this is an acceptable result. Robustness falls in the middle of a continuum he calls The Triad. At the far left is *fragility* -- that which requires tranquility, certainty and predictability -- and at the far right, in the absence of a better word for it, is *antifragility*.

Antifragility, it should be pointed out, doesn't mean that volatility will always be experienced positively. It simply means that the antifragile has more of an upside than downside from random events. As Taleb notes, "Some things benefit from shocks; they thrive and grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty."

Another sports analogy, one Taleb himself uses, effectively illustrates the idea of benefiting from shock. When we go the gym and lift heavy weights (barbells later become a key image in the book), we intentionally apply stress to our body. Muscle tissue is strained and even broken down. The body's response is to overcompensate to the trauma and emerge stronger than before. This process of overreaction to stress and setbacks, the author argues, is intrinsic to our very being, to all of evolution, to nature and to every human system that has survived. It is the process of life itself. The reverse holds true as well: Remove stress from a system, and that system grows weak; it becomes fragile. Stay in bed for three weeks instead of lifting weights, and muscles atrophy.



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The Cat and the Washing Machine

A key distinction for Taleb is that between the *organic* and the *mechanical*, and the title concept is central to this. Organic entities are intrinsically antifragile, while artificial creations are at best robust and likely fragile. The split corresponds roughly, but not entirely, to the living and the non-living. Taleb argues that certain man-made things like ideas, technologies, businesses and even the economy operate more by organic principles than mechanical ones: "They are closer to the cat than to the washing machine but tend to be mistaken for washing machines."

Nature and natural systems are an ongoing reference for Taleb -- not just as illustrative analogies, but as part of the very fabric of his worldview. For him, nature is the ultimate model for how to deal with uncertainty. Nature does not need to predict the future in order to deal with its unexpected turns. The information volatility provides is digested and adapted as part of the evolutionary process. In this sense, nature "loves small errors."

Nature is also not "safe." It accepts short-term loss for long-term gain. For example, Taleb cites the natural cycle of forest fires that clear the forest of highly flammable material and weed out weak and vulnerable growth. Suppressing these fires artificially (i.e., suppressing volatility) imposes a false short-term stability while increasing long-term risk. We get fewer fires but more devastating ones. This basic principle can be applied to human systems as well. Government bailouts that prevent certain businesses from going under, for example, only increase the possibility of system-wide collapse. Error and failure, Taleb insists again and again, are essential sources of information as long as they are limited and localized. Every plane crash brings us closer to safety. Attempts to eliminate error and volatility will backfire in the long run. Paradoxically, there is no long-term stability without short-term volatility.

Black Swans

A concept Taleb developed in a previous book, Black Swans are game-changing, world-altering events he contends are the driving force in history. Though they are impossible to predict, fragilistas (especially the policymakers and academics Taleb loves to ridicule) make the mistake of trying to impose a clear narrative on them in retrospect. With that narrative in place, they tell themselves the Black Swan could have, and perhaps should have been, anticipated, and they set about trying to successfully predict the next one. For example, events in the Middle East that have caught the U.S. government by surprise (such as the 2011 Egyptian uprising or the 1979 Islamic Revolution in Iran) are labeled "intelligence failures." The solution, according to fragilistas, is simply better forecasting.

This approach misses the point, which is to assess the fragility of a system, not the particular event that will expose that fragility. In a discussion of the earthquake and tsunami that produced the 2011 Fukushima nuclear disaster in Japan, Taleb writes: "Not seeing a tsunami or an economic event coming is excusable; building something fragile to them is not." And in the case of the Fukushima disaster, authorities seem to be responding appropriately: not by developing better predictive models, but by building smaller and less vulnerable reactors.

It is important to point out that Black Swans are not always negative, destructive events. The explosion of the Internet and the rise of Google are examples of positive Black Swans. What cultivating antifragility does, Taleb says, is enable us to minimize the potential harm from negative Black Swans while capturing the benefits of positive ones. It is all about developing a productive and flexible relationship with volatility.

Nonetheless, the dominant impulse among policymakers and so-called experts is to try to reduce volatility, rather than deal with it more productively. These fragilistas overestimate the reach of scientific knowledge and the possibilities of human control. Intolerant of the messiness of trial-and-error volatility, they avoid small errors and the essential feedback those errors provide. The end result is to create something that is steadier and more predictable, but fundamentally fragile. Risks are hidden and suppressed, and the stimulation of randomness and stressors is denied. But the effort to avoid small mistakes and minor pains makes larger ones more severe. Ironically, the imposition of false stability with the intention of avoiding Black Swans makes them more likely and more dangerous.

Narrowly, the fragilista is marked by a preoccupation with theory, risk assessment and strategic planning -- all of which Taleb disdains. More broadly, the fragilista is symptomatic of the fundamental shortcomings of modernity, which the author defines as "humans' large-scale domination of the environment, the systematic smoothing of the world's jaggedness, and the stifling of volatility and stressors." Modernity has made a religion of rationalism, optimization and efficiency. By contrast, Taleb invokes Nietzsche and his embrace of the "Dionysian": the "dark, visceral, wild, untamed, hard to understand."

Knowledge and Practice

Epistemology, the inquiry into the nature of knowledge, is a central concern for Taleb, and an eminently practical one as opposed to a theoretical one. In a world ruled by uncertainty and unpredictability, and in which precise causes are impossible to isolate, abstract and theoretical knowledge is of limited use. His own encounter with these limits came when, as a recent graduate of business school and then the recipient of a doctorate in management science, he did a stint on a foreign exchange trading floor. The professional traders he worked with had no background in theory, and they didn't read economic reports or forecasts; they simply had a nose for when to buy and when to sell. They knew what worked; they didn't need to know why.

Ever since, Taleb has had a deep respect for practitioners as opposed to theorists. Real, usable knowledge emerges from doing, not studying. Technology is often described as the application of scientific knowledge to practical projects, implying a hierarchy with priestly "science" on one level and mere "practice" far below. Taleb lists numerous examples in the development of technology, and medicine as well, demonstrating how theory and knowledge emerge from practice, not the other way around. Key advances grow organically (and sometimes randomly) from individuals the author likes to call "tinkerers" engaged in hands-on trial-and-error experimentation.

Accordingly, Taleb embraces the apprenticeship model of learning as opposed to the academic model. He doesn't oppose formal education, but says its purpose should be learning for learning's sake, and that education should not be justified as an engine of economic growth. He cites studies by economists who call into question an assumed causal link between education levels and productivity. Instead, he argues, wealth and economic growth eventually result in good education systems.

The logical conclusion of Taleb's preference for practice over theory is to question the classical Socratic ideal of truth in the first place. Being right, knowing how to define things, understanding the difference between what is true and false: None of this is the point. What is important is to understand the results of events, not the events themselves. An even deeper implication of this approach is that real intelligence lies not in the individual, but in the evolutionary process -- the ongoing process of trial-and-error. In this process, he argues, options (essentially, the freedom to experiment with uncertainty) can be more important than knowledge or information. Options allow you to benefit from the feedback trial-and-error provides. And knowing how to apply that feedback to future decisions can be the highest form of wisdom: "wisdom in decision making is vastly more important -- not just practically, but philosophically -- than knowledge."

Medicine and Barbells

The practice of modern Western medicine is a topic of great interest to Taleb in its own right. But it also provides him with a set of clear examples of the perils of the fragilista's tendency toward what he terms "naïve interventionism." This is a category of intervention that produces small (or no) visible gains, while creating the possibility of large (but often not immediately visible) harm. Examples include statin drugs to treat high cholesterol (where fifty patients have to be treated, at uncertain cost, to prevent a single cardiovascular event) and annual mammograms for women (which actually increase all-cause mortality for the test group).

In opposition to this approach, the author cites the part of the Hippocratic Oath that cautions, "First, do no harm." Unfortunately, the pervasiveness of professionalization in our society creates a bias toward intervention -- in other words, the restraint of inaction is not likely to be rewarded. Nonetheless, in medicine and other areas, he asserts that the first rule should be to "avoid interference with things we don't understand," which, in Taleb's view, covers a lot of ground.

Taleb is a fan of barbells as an exercise tool. But he also uses the image to convey the "bimodal" approach he suggests is the best way to deal with uncertainty and cultivate antifragility. In keeping with the image of the barbell, the idea is to avoid the wishy-washiness of the supposed "Golden Middle" and instead concentrate on two contrasting but complementary strategies: extreme risk aversion on one side, and extreme risk loving on the other. For example, in the area of personal investment, you might invest 90% of your funds in something as radically safe as cash, while putting 10% toward extremely high-risk, high-reward investments. Your maximum loss would be capped at 10% of your assets, whereas putting 100% of your assets in so-called "medium" risk securities carries a danger of losing everything. Strive to be 90% accountant, 10% rock star, Taleb cheekily suggests.

He applies this model across a variety of arenas. For example, in medicine, we should treat the healthy or near-healthy with an extremely conservative, less-is-more approach, while treating the seriously ill much more aggressively. In socio-economic policy, it would imply aggressive intervention for the very weak while letting the very strong alone -- in contrast to the current policy of focusing on the creation of minor gains for the middle class.

Skin in the Game

For Taleb, the barbell is a tool for engaging risk and uncertainty in a way that is both responsible and vigorous. He praises those who take risks, whether they be entrepreneurs or poets, as adventurers and doers essential to the continued evolution of society and the economy. At the other end of the spectrum are those who talk or act without any risk or exposure. Taleb has nothing but disdain for policymakers or pundits who enter the fray of public policy without any personal stake in the issue at hand. They have no "skin in the game," as he likes to put it.

In a final section devoted to the ethics of fragility and antifragility, Taleb laments that this kind of disconnect between influence and personal risk is only growing: "At no point in history have so many non-risk-takers, that is, those with no personal exposure, exerted so much control." Here, the author takes the gloves off and names names -- with columnist Thomas Friedman and economist Joseph Stiglitz among those singled out. Taleb is particularly troubled by corporate managers who don't own the businesses they run. They have incentives (bonuses) without disincentives (penalties), upside without downside. Robert Rudin, for example, earned nearly \$120 million in bonuses from Citibank, but suffered no personal consequences when the bank collapsed and required a multi-billion-dollar government bailout.

Taleb characterizes this as essentially a "transfer of antifragility," with certain individuals exerting influence without cost (remaining antifragile) while others bear the consequences (increased fragility). Such a transfer is, he asserts, a kind of theft, and it raises a profound ethical question, perhaps the dominant one of our time. Somehow, he writes, we have to "make talk less cheap."

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