Notes On Nassim Taleb

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# Fooled by Randomness

General Conclusions

* While hard work and preparation are important, most outsized success in life comes from chance.
* We ascribe talent/skill/explanations to big winners and neglect the role of chance in their success (hindsight/survivorship bias).
* When trying to understand success, we fall prey to survivorship bias by looking only at those in the surviving pool. For example, the “millionaire next door” looks only at characteristics of millionaires, not outcomes of those who had same characteristics but failed to become millionaires.
* Often highly profitable or rewarded endeavors come from the assumption of hidden risk - will eventually blow up.
* Overly calm or steady can indicate an undervaluation of risk and thus a risk of future blowups
* Survivorship bias depends on large sample size. The bigger the sample, the more likely some huge winners will emerge just by luck – “And, at any point in time, the richest traders are often the worst traders.”
* Over longer periods of time, things tend to even out, and probability levels outcomes (ergodicity) – eventually the lucky traders will experience a catastrophic blowup.
* Need to have a stop-loss mechanism in place in advance. Too many people get married to bad positions (sunk cost fallacy, ownership bias)
* “I will use statistics and inductive methods to make aggressive bets, but I will not use them to manage my risks and exposure. Surprisingly, all the surviving traders I know seem to have done the same.”
* Taleb strategy is to make bets on rare thus undervalued events that pay off hugely if they happen

Human Psychology

* Checking your portfolio too frequently (or similar activities like watching the news), causes psychological distress because it a) captures almost entirely variance and b) due to loss aversion, we feel the daily downs more than the up
* “The problem with information is not that it is diverting and generally useless, but that it is toxic.”
* “I noticed that people do not like to insure against something abstract; the risk that merits their attention is always something vivid.”
* “Having experienced the ravages of war, I find undignified impoverishment far harsher than physical danger”
* Don’t live on Park Ave – if you live around people who are more successful than you, you’ll feel like a failure even if you’re in the top 1% of success overall

Applications

* The publishing business is a play on randomness. Publish many titles, the rare one becomes Harry Potter.
* It’s better to have a handful of passionate fans than a larger number of mild supporters
* Avoid trying too hard to figure how the very successful achieved their success – a good part of it is probably luck
* Try to avoid the media (but even Taleb admits it’s hard to do).

# The Black Swan (Second Edition)

How to practically respond to the Black Swan problem:

* Barbell strategy
* “Do not try to predict precise Black Swans—it tends to make you more vulnerable to the ones you did not predict.”
* “Seize any opportunity, or anything that looks like opportunity. They are rare, much rarer than you think.”
* “Trial and error means trying a lot” – so try a lot
* “Have as many of these small bets as you can conceivably have.”
* “Go to parties!”
* Avoid debt
* Redundancy: “unneeded” backups
* Redundancy: secondary functions (a physical book can be used for things other than reading, for example – an ebook cannot)
* Don’t get too big – big is more fragile
* Nature doesn’t like too much connectivity and globalization (how to apply?)
* You need variability and randomness in your life (e.g., intermittent fasting)
* Negative advice – what not to do – is more valuable than positive advice.

PHRONETIC RULES: WHAT IS WISE TO DO (OR NOT DO) IN REAL LIFE TO MITIGATE THE FOURTH QUADRANT IF YOU CAN’T BARBELL?

1. Have respect for time and nondemonstrative knowledge. Things that have worked for a long time are preferable—they are more likely to have reached their ergodic states. At the worst, we don’t know how long they’ll last. Remember that the burden of proof lies on someone disturbing a complex system, not on the person protecting the status quo.
2. Avoid optimization; learn to love redundancy.
3. Avoid prediction of small-probability payoffs—though not necessarily of ordinary ones.
4. Beware the “atypicality” of remote events.
5. Beware moral hazard with bonus payments.
6. Avoid some risk metrics.
7. Positive or negative Black Swan? Life expectancy of humans is not as long as we suspect (under globalization) because the data are missing something central: the big epidemic (which far outweighs the gains from cures). The same, as we saw, with the return on risky investments.
8. Do not confuse absence of volatility with absence of risk.
9. Beware presentations of risk numbers.

The triplet of opacity: man’s three ailments of the human mind meeting history

1. The illusion of understanding, or how everyone thinks he knows what is going on in a world that is more complicated (or random) than they realize
2. The retrospective distortion, or how we can assess matters only after the fact, as if they were in a rearview mirror (history seems clearer and more organized in history books than in empirical reality)
3. The overvaluation of factual information and the handicap of authoritative and learned people, particularly when they create categories

Items that exist in Extremistan:

* Wealth
* Income
* book sales per author
* book citations per author
* name recognition as a “celebrity”
* number of references on Google
* populations of cities
* uses of words in a vocabulary
* numbers of speakers per language
* damage caused by earthquakes
* deaths in war
* deaths from terrorist incidents
* sizes of planets
* sizes of companies
* stock ownership
* height between species (consider elephants and mice)
* financial markets (but your investment manager does not know it)
* commodity prices
* inflation rates
* economic data.
* Intellectual, scientific, and artistic activities

Miscellaneous:

* “I can state the supreme law of Mediocristan as follows: When your sample is large, no single instance will significantly change the aggregate or the total.
* Focus on “anti-knowledge”, what we don’t know – especially the “unknown unknowns.”
* “The problem with experts is that they do not know what they do not know.”
* “In Extremistan, inequalities are such that one single observation can disproportionately impact the aggregate, or the total.”
* In Extremistan “you should always be suspicious of the knowledge you derive from data.”
* “a property of Extremistan to look less risky, in the short run, than it really is.”
* “In some domains—such as scientific discovery and venture capital investments—there is a disproportionate payoff from the unknown, since you typically have little to lose and plenty to gain from a rare event.”
* “Almost no discovery, no technologies of note, came from design and planning—they were just Black Swans.”
* “The reason free markets work is because they allow people to be lucky, thanks to aggressive trial and error, not by giving rewards or “incentives” for skill.”
* “The strategy is, then, to tinker as much as possible and try to collect as many Black Swan opportunities as you can.”
* “You need a story to displace a story. Metaphors and stories are far more potent (alas) than ideas”
* “Read books are far less valuable than unread ones.”
* “I noticed that very intelligent and informed persons were at no advantage over cabdrivers in their predictions, but there was a crucial difference. Cabdrivers did not believe that they understood as much as learned people—really, they were not the experts and they knew it.”
* “If I myself had to give advice, I would recommend someone pick a profession that is not scalable! A scalable profession is good only if you are successful; they are more competitive, produce monstrous inequalities, and are far more random, with huge disparities between efforts and rewards—a few can take a large share of the pie, leaving others out entirely at no fault of their own”
* “In general, positive Black Swans take time to show their effect while negative ones happen very quickly—it is much easier and much faster to destroy than to build.”
* “The narrative fallacy addresses our limited ability to look at sequences of facts without weaving an explanation into them, or, equivalently, forcing a logical link, an arrow of relationship, upon them.”
* “It takes considerable effort to see facts (and remember them) while withholding judgment and resisting explanations.”
* “The way to avoid the ills of the narrative fallacy is to favor experimentation over storytelling, experience over history, and clinical knowledge over theories.”
* “Elders are repositories of complicated inductive learning that includes information about rare events.”
* “Believe me, it is tough to deal with the social consequences of the appearance of continuous failure. We are social animals; hell is other people.”
* “Those who claim that they value process over result are not telling the whole truth, assuming of course that they are members of the human species.”
* “When you look at the empirical record, you not only see that venture capitalists do better than entrepreneurs, but publishers do better than writers, dealers do better than artists, and science does better than scientists”
* “Mother Nature destined us to derive enjoyment from a steady flow of pleasant small, but frequent, rewards.”
* “Humans will believe anything you say provided you do not exhibit the smallest shadow of diffidence; like animals, they can detect the smallest crack in your confidence before you express it.”
* “The lesson for the small is: be human! Accept that being human involves some amount of epistemic arrogance in running your affairs. Do not be ashamed of that. Do not try to always withhold judgment—opinions are the stuff of life. Do not try to avoid predicting—yes, after this diatribe about prediction I am not urging you to stop being a fool. Just be a fool in the right places.”
* “Trial and error means trying a lot.”
* “People who worry about pennies instead of dollars can be dangerous to society.”
* “I am most often irritated by those who attack the bishop but somehow fall for the securities analyst—those who exercise their skepticism against religion but not against economists, social scientists, and phony statisticians.”
* “I worry less about embarrassment than about missing an opportunity.”
* “’I don’t run for trains.’ Snub your destiny. I have taught myself to resist running to keep on schedule. This may seem a very small piece of advice, but it registered. In refusing to run to catch trains, I have felt the true value of elegance and aesthetics in behavior, a sense of being in control of my time, my schedule, and my life. Missing a train is only painful if you run after it! Likewise, not matching the idea of success others expect from you is only painful if that’s what you are seeking.”
* “So being old implies a higher degree of resistance to Black Swans, though, as we saw with the turkey story, it is not a guaranteed proof—older is almost always more solid, but older is not necessarily perfect.”
* “When you walk the walk, whether successful or not, you feel more indifferent and robust to people’s opinion, freer, more real.”
* “Note the unsurprising, but very consequential fact that people with Asperger syndrome are highly averse to ambiguity.”
* “There is no reliable way to compute small probabilities”
* “Positive advice is usually the province of the charlatan.”

# Antifragile

Fragility and Antifragility

* “Some things benefit from shocks; they thrive and grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty. Yet, in spite of the ubiquity of the phenomenon, there is no word for the exact opposite of fragile. Let us call it antifragile. Antifragility is beyond resilience or robustness. The resilient resists shocks and stays the same; the antifragile gets better.”
* “I’d rather be dumb and antifragile than extremely smart and fragile, any time.”
* “Fragility can be measured; risk is not measurable (outside of casinos or the minds of people who call themselves ‘risk experts’).”
* “Sensitivity to harm from volatility is tractable, more so than forecasting the event that would cause the harm.”
* “There is, in the Black Swan zone, a limit to knowledge that can never be reached, no matter how sophisticated statistical and risk management science ever gets.”
* “And we can almost always detect antifragility (and fragility) using a simple test of asymmetry: anything that has more upside than downside from random events (or certain shocks) is antifragile; the reverse is fragile.”
* “Some jobs and professions are fragile to reputational harm, something that in the age of the Internet cannot possibly be controlled—these jobs aren’t worth having. You do not want to ‘control’ your reputation; you won’t be able to do it by controlling information flow. Instead, focus on altering your exposure, say, by putting yourself in a position impervious to reputational damage.”
* “A midlevel bank employee with a mortgage would be fragile to the extreme. In fact he would be completely a prisoner of the value system that invites him to be corrupt to the core”
* “The first step toward antifragility consists in first decreasing downside, rather than increasing upside; that is, by lowering exposure to negative Black Swans and letting natural antifragility work by itself. Mitigating fragility is not an option but a requirement.”

Skin in the Game / Congruence

* The biggest producer of fragility is a lack of skin in the game
* Lack of skin the game: the finance industry became antifragile at the expense of other people. Asymmetric outcomes: upside they keep their bonuses, but go bankrupt and get a taxpayer bailout + get out of jail free card
* “If every plane crash makes the next one less likely, every bank crash makes the next one more likely.”
* “At no point in history have so many non-risk-takers, that is, those with no personal exposure, exerted so much control. The chief ethical rule is the following: Thou shalt not have antifragility at the expense of the fragility of others.”
* “In short, the fragilista (medical, economic, social planning) is one who makes you engage in policies and actions, all artificial, in which the benefits are small and visible, and the side effects potentially severe and invisible.”
* “The cure to many ethical problems maps to the exact cure for the Stiglitz effect, which I state now. Never ask anyone for their opinion, forecast, or recommendation. Just ask them what they have—or don’t have—in their portfolio.”
* “I believe that forcing researchers to eat their own cooking whenever possible solves a serious problem in science. Take this simple heuristic—does the scientific researcher whose ideas are applicable to the real world apply his ideas to his daily life? If so, take him seriously. Otherwise, ignore him.” – for those whose ideas have life applications – theoretical mathematicians excepted, for example
* “Sometimes the divorce between one’s ‘tawk’ and one’s life can be overtly and convincingly visible: take people who want others to live a certain way but don’t really like it for themselves.”
* “Never listen to a leftist who does not give away his fortune or does not live the exact lifestyle he wants others to follow.”
* “[Ralph Nader] he exhibits absolutely no divorce between what he preaches and his lifestyle, none. Just like saints who have soul in their game. The man is a secular saint.”
* “If you take risks and face your fate with dignity, there is nothing you can do that makes you small; if you don’t take risks, there is nothing you can do that makes you grand, nothing.”
* “Note that in traditional societies even those who fail—but have taken risks—have a higher status than those who are not exposed.”
* “First ethical rule: If you see fraud and do not say fraud, you are a fraud.”

Iatrogenics / Via Negativa

* Iatrogenics – harm caused by medical treatment or more generally from doing something – is a huge problem.
* Via negativa – better to take things away than add them. Getting rid of things is much less subject to iatrogenic risks.
* “Removal of something non-natural does not carry long-term side effects; it is typically iatrogenics-free”
* “The first principle of iatrogenics is as follows: we do not need evidence of harm to claim that a drug or an unnatural via positiva procedure is dangerous.”
* “Second principle of iatrogenics: it is not linear. We should not take risks with near-healthy people; but we should take a lot, a lot more risks with those deemed in danger.”
* “So the central tenet of the epistemology I advocate is as follows: we know a lot more what is wrong than what is right”
* “Less is more and usually more effective.”

Smaller >.Larger

* “In spite of what is studied in business schools concerning ‘economies of scale,’ size hurts you at times of stress; it is not a good idea to be large during difficult times.”
* “Have you noticed that while corporations sell you junk drinks, artisans sell you cheese and wine? And there is a transfer of antifragility from the small in favor of the large—until the large goes bust.”
* “A rule then hit me: with the exception of, say, drug dealers, small companies and artisans tend to sell us healthy products, ones that seem naturally and spontaneously needed; larger ones—including pharmaceutical giants—are likely to be in the business of producing wholesale iatrogenics, taking our money, and then, to add insult to injury, hijacking the state thanks to their army of lobbyists.”
* “The centralized nation-state is on the far left of the Triad, squarely in the fragile category, and a decentralized system of city-states on the far right, in the antifragile one.”

Natural Systems / Lindy Effect

* “If there is something in nature you don’t understand, odds are it makes sense in a deeper way that is beyond your understanding.”
* “Religion has invisible purposes beyond what the literal-minded scientistic-scientifiers identify—one of which is to protect us from scientism, that is, them.”
* “I believe in the heuristics of religion and blindly accommodate its rules (as an Orthodox Christian, I can cheat once in a while, as it is part of the game).”
* “Variability causes mistakes and adaptations; it also allows you to know who your friends are.”
* “I follow the Lindy effect as a guide in selecting what to read: books that have been around for ten years will be around for ten more; books that have been around for two millennia should be around for quite a bit of time, and so forth.”
* “As to liquid, my rule is drink no liquid that is not at least a thousand years old—so its fitness has been tested. I drink just wine, water, and coffee. No soft drinks.”
* “Note that if I had to find the anti-me, the person with diametrically opposite ideas and lifestyle on the planet, it would be that Ray Kurzweil fellow”

Redundancy

* “Layers of redundancy are the central risk management property of natural systems.”

Necessity of Variability and Stressors

* “Crucially, if antifragility is the property of all those natural (and complex) systems that have survived, depriving these systems of volatility, randomness, and stressors will harm them. They will weaken, die, or blow up. We have been fragilizing the economy, our health, political life, education, almost everything … by suppressing randomness and volatility.”
* “The problem with artificially suppressed volatility is not just that the system tends to become extremely fragile; it is that, at the same time, it exhibits no visible risks.”
* “Absence of fire lets highly flammable material accumulate”

Barbell Strategy

* The Barbell Strategy: creation of antifragility by a combination of playing it safe in many or most areas while taking many small positive black swan exposed risks on the other.
* “A barbell can be any dual strategy composed of extremes, without the corruption of the middle—somehow they all result in favorable asymmetries.”
* Sample barbell: read a combination of cheap gossip rags and high end literature while avoiding middlebrow
* Sample barbell: “play it safe at school and read on your own, have zero expectation from school.”
* “You make forays into the future by opportunism and optionality.”

# Skin in the Game

Principles for Living

* “Avoid taking advice from someone who gives advice for a living, unless there is a penalty for their advice.”
* “If you do not take risks for your opinion, you are nothing.”
* “Anything you do to optimize your work, cut some corners, or squeeze more ‘efficiency out of it (and out of your life) will eventually make you dislike it.”
* “‘Giving advice’ as a sales pitch is fundamentally unethical—selling cannot be deemed advice. We can safely settle on that. You can give advice, or you can sell (by advertising the quality of the product), and the two need to be kept separate.”
* “It may not be ethically required, but the most effective, shame-free policy is maximal transparency, even transparency of intentions.”
* “One should give more weight to research that, while being rigorous, contradicts other peers, particularly if it entails costs and reputational harm for its author.”
* “Hire the successful trader, conditional on a solid track record, whose details you can understand the least.”
* “Virtue is not something you advertise. It is not an investment strategy. It is not a cost-cutting scheme. It is not a bookselling (or, worse, concert-ticket-selling) strategy.”

Heuristics About People

* “For a rich person isolated from vertical socializing with the poor, the poor become something entirely theoretical, a textbook reference … The intelligentsia therefore feels entitled to deal with the poor as a construct; one they created. Thus they become convinced that they know what is best for them.”
* “Intellectualism is the belief that one can separate an action from the results of such action, that one can separate theory from practice, and that one can always fix a complex system by hierarchical approaches, that is, in a (ceremonial) top-down manner.”
* “Those who talk should do and only those who do should talk”
* “Entrepreneurs are heroes in our society. They fail for the rest of us.”
* “Eponymy [naming a company after yourself] indicates both a commitment to the company and a confidence in the product.”
* “No person in a transaction should have certainty about the outcome while the other one has uncertainty.”
* “People who have always operated without skin in the game (or without their skin in the right game) seek the complicated and centralized, and avoid the simple like the plague. Practitioners, on the other hand, have opposite instincts, looking for the simplest heuristics.”
* “People who are bred, selected, and compensated to find complicated solutions do not have an incentive to implement simplified ones.”
* “Yes, an intolerant minority can control and destroy democracy. Actually, it will eventually destroy our world.”
* “Someone who has been employed for a while is giving you strong evidence of submission.”
* “If the company man is, sort of, gone, he has been replaced by the companies person. For people are no longer owned by a company but by something worse: the idea that they need to be employable.”
* “Risk takers can be socially unpredictable people. Freedom is always associated with risk taking, whether it leads to it or comes from it.”
* “What matters isn’t what a person has or doesn’t have; it is what he or she is afraid of losing.”
* “People whose survival depends on qualitative ‘job assessments’ by someone of higher rank in an organization cannot be trusted for critical decisions.”
* “You can define a free person precisely as someone whose fate is not centrally or directly dependent on peer assessment.”
* “The Intellectual Yet Idiot (IYI) is a product of modernity, hence has been proliferating since at least the mid-twentieth century, to reach a local supremum today, to the point that we have experienced a takeover by people without skin in the game.”
* “Journos worry considerably more about the opinion of other journalists than the judgment of their readers.”
* “Journalists are currently in the most insecure profession you can find: the majority live hand to mouth, and ostracism by their friends would be terminal.”
* “A good rule for society is to oblige those who start in public office to pledge never subsequently to earn from the private sector more than a set amount; the rest should go to the taxpayer.”
* “Someone with a high public presence who is controversial and takes risks for his opinion is less likely to be a bull\*\*\*t vendor.”
* “If your private life conflicts with your intellectual opinion, it cancels your intellectual ideas, not your private life.”

Heuristics About the World

* “Empirically, complex systems do not have obvious one-dimensional cause-and-effect mechanisms, and that under opacity, you do not mess with such a system.”
* “In a strategy that entails ruin, benefits never offset risks of ruin.”
* “Bureaucracy is a construction by which a person is conveniently separated from the consequences of his or her actions.”
* “You can tell if a discipline is BS if the degree depends severely on the prestige of the school granting it.”
* “You will never fully convince someone that he is wrong; only reality can.”
* “Universal behavior is great on paper, disastrous in practice.”
* “What is rational is what allows the collective—entities meant to live for a long time—to survive.”
* “Having an assistant (except for the strictly necessary) removes your soul from the game.”
* “A country should not tolerate fair-weather friends. There is something offensive in having a nationality without skin in the game, just to travel and pass borders, without the downside that comes with the passport.”
* “The ethical is always more robust than the legal. Over time, it is the legal that should converge to the ethical, never the reverse.”
* “Things don’t ‘scale’ and generalize, which is why I have trouble with intellectuals talking about abstract notions. A country is not a large city, a city is not a large family, and, sorry, the world is not a large village.”
* “Modernity put it in our heads that there are two units: the individual and the universal collective—in that sense, skin in the game for you would be just for you, as a unit. In reality, my skin lies in a broader set of people, one that includes a family, a community, a tribe, a fraternity. But it cannot possibly be the universal.”
* “In general, skin in the game comes with conflict of interest. What I hope this book will do is show that the former is more important than the latter.”
* “The minority rule [is] the mother of all asymmetries. It suffices for an intransigent minority—a certain type of intransigent minority—with significant skin in the game (or, better, soul in the game) to reach a minutely small level, say 3 or 4 percent of the total population, for the entire population to have to submit to their preferences.”
* “Purely monotheistic religions such as Protestant Christianity, Salafi Islam, or fundamentalist atheism accommodate literalist and mediocre minds that cannot handle ambiguity.”
* “You can examine markets as markets and individuals as individuals, but markets are not sums of average individuals.”
* “The psychological experiments on individuals showing ‘biases’ do not allow us to automatically understand aggregates or collective behavior, nor do they enlighten us about the behavior of groups.”
* “Society likes saints and moral heroes to be celibate so they do not have family pressures that may force them into the dilemma of needing to compromise their sense of ethics to feed their children.”
* “Explicit communal punishment can be used where other methods of justice have failed, provided they are not based on an emotional reaction, but on a well-outlined method of justice defined prior to the event, so that it becomes a deterrent.”
* “For it will always remain that action without talk supersedes talk without action.”
* “The way to make society more equal is by forcing (through skin in the game) the rich to be subjected to the risk of exiting from the 1 percent.”
* “Any form of control of the wealth process—typically instigated by bureaucrats—tends to lock people with privileges in their state of entitlement. So the solution is to allow the system to destroy the strong.”
* “While our knowledge of physics was not available to the ancients, human nature was. So everything that holds in social science and psychology has to be Lindy-proof, that is, have an antecedent in the classics; otherwise it will not replicate or not generalize beyond the experiment.”
* “When results come from dealing directly with reality rather than through the agency of commentators, image matters less, even if it correlates to skills. But image matters quite a bit when there is hierarchy and standardized ‘job evaluation.’”
* “The highest form of virtue is unpopular. This does not mean that virtue is inherently unpopular, or correlates with unpopularity, only that unpopular acts signal some risk taking and genuine behavior. Courage is the only virtue you cannot fake.”
* “Survival comes first, truth, understanding, and science later.”
* “The only definition of rationality that I’ve found that is practically, empirically, and mathematically rigorous is the following: what is rational is that which allows for survival.”
* “Anyone who has survived in the risk-taking business more than a few years has some version of our by now familiar principle that ‘in order to succeed, you must first survive.’”