The Black Swan: the impact of the highly improbable. Nassim Nicholas Taleb

Two contrasting summaries:

Summary 1.

This is an interesting read which is very abstract in nature. The book has made me think in a very abstract way in looking at past events that happened and trying to work out if we could have known that this was to happen . There are all sorts of theories which are very personal and which are effectively opinions . The theme can be summated as being the ' known unknowns.'

I have honestly never heard of the author Nassim Nicholas Taleb, and following reading the book I feel that he would be offended by such comments! He does like to labour a point and self indulge in recollections of meeting certain people with constant name dropping. But amongst this are nuggets of interesting concepts from a chap who is really quite philosophical.

The name the *Black Swan* is not the sighting of the first Black Swan but illustrates limitations to our learning as human beings. The book takes its title from the story that says prior to the discovery of the Australian black swan, everyone in the world assumed all swans were white. The importance of the black swan - something that falls outside the realm of regular expectations -- is that a single such sighting can invalidate a general statement. A Black Swan is an outlier, as it is not within our realms of expectations as nothing from previously can convincingly point to its possibility. It carries an extreme impact and thirdly humans try and deduct explanations for its occurrence after the fact to try and almost rationalise and explain it. An example Taleb uses is World War One and to try and imagine if you could second guess the events following 1914. Also the rise of Hitler, the rise of Islamic Fundamentalism etc... He describes this combination of low predictability and large impact as the Black Swan.

One of these nuggets of thoughts is that Black Swan logic makes *what you don't know* far more relevant than what you do know. Many Black Swans can therefore be caused and exacerbated by their being unexpected.

The book follows three parts in which Taleb focuses in part one on the Psychology. This is of how we perceive historical and natural events and what distortions are present in such perception. Part two explores more of the business and natural science. This is about errors in dealing with the future and the unadvertised limitations of some sciences and what to do about these limitations. Part three discusses extreme events and discusses the ideas that natural and social sciences labelled under the heading ' complexity '.

PART ONE "Umberto Eco Antilibrary – or how we seek validation "

Umberto Eco is a writer who has a personal library of 30 000 books. Of these Taleb calls the large rows of unread books the 'antilibrary'. Taleb suggests that read books are far less valuable than unread ones?? This is really the ethos of the Black Swan in which the Black Swan comes from our misunderstanding of the likelihood of surprises – those unread books because " we take what we know a little too seriously".

Part one in a long winded fashion goes on to look at the question of how humans deal with knowledge with the suggested preference as the anecdotal over the empirical. Initially the discussions are regarding Talebs personal understanding and opinions of the Black Swan. He goes on to discuss randomness and the concept of the 'known unknowns' . Taleb follows this with discussing that humans tend to generalise from what they see. Then Taleb presents three facets of the same Black Swab Problem: - *The error of confirmation* (the tendency to look at what confirms our knowledge, not our ignorance)

- *The narrative fallacy* (how we fool ourselves with stories and anecdotes)
- *How emotions get in the way of our inference*
- *The problem of silent evidence* (The tricks history use to hide The Black Swan from us)

PART TWO "We Just Can't Predict"

This part of the book is about unplanned and unpredicted events . The examples are the computer, the Internet and the laser . These were all unplanned, unpredicted and unappreciated upon their discovery and remain unappreciated upon their discovery and remain unappreciated after their initial use. They were consequential and examples of Black Swans.

The examples could go on and on. More related to our health care profession, *Pfizer's* Viagra (which was originally developed as a drug to treat hypertension) is an example of a black swan. The latest example, of course, is the Internet. As *Google* has amply demonstrated to the advertising, newspaper, and television industries, even new applications of existing technologies can catch executives and investors flat-footed.

Taleb gives some more useful nuggets as tricks. In situations in which you cannot predict the next occurrence in business strategy:

Make a distinction between positive and negative contingencies

A negative Black Swan business is one where the unexpected can hit hard and hurt severely. For example in banking, surprise outcomes can be negative for you. You lend money and at best you get your money and a return but if the borrower defaults you lose all your money.

In the event that the borrower makes lots of money he is not likely to give the banker an extra share.

Don't Look for the Precise and the local

Do not be narrow minded. Do not try and predict Black Swans. It can make you more vulnerable. So invest in preparedness and not in prediction.

Seize any Opportunity

Seize any opportunity or anything that looks like opportunity. Many people do not realise that they are getting a lucky break in life when they get it. He talks of working hard, networking, taking opportunities and continuing to maximise exposure to these opportunities.

Beware of precise plans by governments

The Achilles' heel of capitalism is that if you make corporations compete, it is sometimes the one that is most exposed to the Black Swan that will appear to be the most fit for survival.

PART 3 "Those Great Swans of Extremistan"

In this Part Taleb focuses on his opinions that suggest that the world is moving deeper into Extremistan – that is it less and less governed by Mediocristan. He suggests that this has helped to shape the formation of inequality. Secondly he describes the Gaussian bell curve as a contagious and severe delusion. He goes on to clarify his idea of the Black Swan not having to be a rare event or wild but has to be unexpected and has to ' lie outside our tunnel of possibility' . He goes on to suggest turning the black Swan to a Gray Swan - to reduce the surprise effect. The notion of a Grey Swan is one which we can get some grasp on using alternative tools such as fractal analysis. So the current Global Financial Crisis is a Grey Swan rather than a Black Swan.

A key feature of this book was its ability to challenge conventional wisdom. One of the best examples was Taleb's claim that too much news -- especially financial news -- is not only bad for you, but can actually be toxic.

To make his point, Taleb shared the story of a widely publicised study in which a large number of people were provided with fuzzy pictures of a fire hydrant. Counter-intuitively, the people who were given more pictures (each of which became progressively clearer) performed worse at guessing what the object was than those who were given fewer pictures.

One reason this occurred is because the people who were given more information often formed a wrong opinion of what the object was early on, and then clung to that idea tenaciously, even in the face of new and better evidence.

One nugget from this analogy is that people often treat financial news in a similar manner. Rather than accept the new information at face value, people instead select portions of the news to support what they think they already know.

There are a number of solutions to this problem of seeing only what we want to see. One approach is to actively seek out viewpoints that contradict our own.

Overall

All these ideas and philosophical thought processes are combined into a useful nugget in the final chapter with regard to statistical analysis in which Taleb comments on how annoyed he gets with people who moan about a *miserable day* or a *bad meal, cold coffee* or *rude reception.* He goes to say that people do not see the true odds of the events that run one's own life:

" We are quick to forget that just being alive is an extraordinary piece of good luck, a remote event, a chance occurrence of monstrous proportions."

The bottom line is that we can't know what we don't know. And while it might seem hard to operate in such an environment, acknowledging that you don't know everything can actually give you a leg up on those people who instead prefer to go through life confidently knowing the wrong things.

"The difference between embracing your ignorance and holding your misconceptions in front of you as a shield won't allow you to prevent black swans" - it can help you learn how to profit from black swans as well as turn some black swans into gray swans -- which aren't nearly so damaging.

Sachin Patel 2009

Summary Two

Prologue:
In his prologue Taleb introduces the concept of The Black Swan. Until they were discovered after the exploration of Australia Black Swans were not thought to exist and all swans were believed white. The appearance of the Black Swan event was an Outlier because it could not be predicted or expected, to carry Extreme Impact and to carry Retrospective Predictability in that we naturally after the event develop explanations for them. Examples of Black Swan events include the First World War the rise of Hitler and the invention of the Internet. He also points out that the highly expected non-occurrence of an event is also a Black Swan.

The author says we rely on predicting the minor average events ignoring the possibility of major shocks which change the world, thus the art of prediction is usually fatally flawed in most circumstances. He believes if we acknowledge the importance of Black Swans we have

more chance of taking advantage of them when they occur. Our minds are not adapted to the complex modern world with myriad interconnecting feedback loops.

The influence of extremes is emphasized in preference to the study of the normal or average. He coins the term Platonicity for our habit of creating mental maps or systems to explain what we encounter which only therefore deal with known events and fail to deal with the unknown. Our obsession with the predictable average event ignores the unpredictable one which alters the world and so narrows our imagination.

The book is in four parts. Part One deals with our mistakes in interpretation of current events, part two with our inability to predict, part three looks more deeply at extreme events and the end is part four and promised to be short.

Part One: "Umberto Eco's Library"

To explain Umberto Eco is a scholar admired by Taleb because he has a huge library which he sees as a research tool of thousands of unread books-"Read books are far less valuable than unread books".

Chapter 1

Deals with the author's background growing up in Lebanon during the Civil War –which he saw as a Black Swan to the people of Lebanon. Being mortared every night. He then moved to finance in New York and experienced the 1987 Stock Market crash but subsequently made what he calls" **** you money" so he did not have to work. In this context he develops a theme that experts are no better than taxi cab drivers at predicting the future.

Chapter 3

He introduces scalability in work .For a Dr for example who is paid according to the number of patients he sees there is a finite limit to his pay whereas if you can produce something which sells widely you can add zeroes to your earnings without any further effort once the product is released e.g. J. K. Rowling. He does point out that due to its grounding the former is less subject to wild variation and Black Swan influence than the latter. The advent of the latter scalability pursuits are attributed mainly to the recent influence of mass media. Mediocristan is where everything behaves according to statistically expected norms. Extremes affect the averagely expressed characteristics only minimally and all is ordered and expected. In Extremistan the inequalities are so large that one single example can "disproportionately impact the aggregate or total". WMD exist in Extremistan, clubs and swords in Mediocristan.

Chapter 4

The turkey example is given-a bird that might have concluded that the farmer who fed him every day was a caring friend until the last day of his life when the farmer slaughters the turkey for the pot. Similar examples are the First World War, and various stock market crashes. Tells us about Hume, Sextus Empiricus and Al Ghazel multicultural skeptics who doubted established belief systems of their times. Taleb concludes arguing we try and systematize from the known into the unknown, behave as though the Black Swab does not exist, and fail to keep an open mind for what we do not know.

Chapter Five

Because a Zoogle is a Boogle it does not mean all Boogles are Zoogles eg Criminals are often described as wearing hoodies but just because you wear a hoodie this does not necessarily mean you are criminal. Positive evidence is flawed as a basis for theory because we could only consider the known and therefore miss the unknown. The modern world is too complex to judge it with the tools adapted for life on the African plane. Among thousands of random mediocristan events one extremistan event can change our world.

Chapter Six
We are adapted to over simplify facts and events into narratives which by over systematizing (Platonicity) we miss the more complex unknown.
System one thinking is instinctive immediate and appropriate to life on the Serengeti but ill suited to the complex modern world which requires system two cognitative thinking-which we use more rarely.

Chapter Seven
Contrasts living with steady returns to 9 years of desert with one year of plenty happiness is in the years of steady income. Example of a trader who lost consistently until he won during the 1987 crash –often mentioned in the book.

Chapter 8
Silent evidence is described as for example the Phoenicians who were thought of as traders only until it was realized that they used a perishable brand of Papyrus which could not survive through time so they did write but their records were destroyed. Cicero was shown a picture of survivors of a shipwreck praying to the gods and commented that we do not see those who prayed but were lost. The successful millionaires are singled out as geniuses when in fact they are just ordinary people in lucky situations cf traders in the markets who win or lose on similar bases (nb the reader might be interested in Outliers by Malcolm Gladwell for a slightly different take on this). Unknown criminals who have not been caught may prove that crime does indeed pay only we don't know about those who are not caught. Unknown casualties of directing funds to known deserving causes are discussed eg directing funds to victims of Katrina are compared with the loss of funds to cancer research charities. Casanova is described as an example of luck-he survived a series of calamitous events in life which he kept rising above due to some chance encounter. Taleb points out he could just be the random lucky one among a series of individuals who we do not hear about because they randomly did not happen upon the saving opportunity. Taleb goes further describing every one of us as a Black Swan survivor of a chain of random evolutionary events right from the correct planetary conditions through to our survival as a species and then as an individual while countless alternative circumstances or species failed along the way. He criticizes us for searching for cause in education when we should consider that events are "conditional on survival" eg why did Casanova bounce back- instead of believing the cause is less important or even exists over randomness. Taleb does not want us to ignore causality simply accept just that history is "not so simple" and to "*be suspicious of the because* ".
The concept of what we do not know is further considered later which can be summarized as *unknown unknowns.*
Casinos expend a large amount of money preventing cheating in Las Vegas but their most recent major losses have been on bungled tax returns and damages for a tiger running amok

in the Siegfried and Roy show. When dealing with uncertainty "focus" on narrow areas blinds us the uncertain breadth of the unknown.
"Its tough to make predictions especially about the future" Yogi Berra.

Part Two: "We Just Can't predict"

Experimental evidence is presented to illustrate that People when asked to predict any future unknown often over estimate the accuracy of their predictions , particularly relevant to various professionals on economic data.
84% of Frenchmen estimate their lovemaking abilities to be above average.
Furthermore excess information can cause confusion eg two groups can be shown a gradually clearing fuzzy picture of a fire hydrant and the group which is shown the fewer pictures will identify it faster than those shown more. The author mentions that he has been the victim of false reassurance of a Doctor telling him he had a low chance of having cancer on the basis of lack of evidence- he did.
"The problem with experts is they do not know what they do not know"
Experts' defenses against criticism of prediction failure are cited as threefold:

- "You tell yourself you were playing a different game"-eg failure to predict the collapse d Soviet Russia may be put down to wily Russians concealing economic data.
- "You invoke the outlier" e.g. the thousand year flood by definition you would not predict (sfk note: the Cumbrian floods last year and the Met office excuses).
- "The Almost Right Defense" e.g. The Kremlin backlash against Gorbachev would have succeeded if they plotters had not been drunk or Yeltsin had not been so brave.

The possible error rate in prediction is described as "don't cross a river if it is on average 4 feet deep". The inference being no allusion has been made to the variability in water depth that might be even more important than the average. He then lists a number of examples of forecasts including the price of oil which have been way out because error rates have not been taken into account.

A discussion of great advances in human knowledge emphasizes the unpredictability of discovery e.g America, penicillin, the electronic white noise left behind by the Big Bang and so on. Going on Taleb concludes that great discoveries must be unpredictable otherwise we would have discovered them already. Complexity is touched upon with an example of how a simple event like the second bounce of a billiard ball is greatly affected by small errors in the first one and expanded to the extent by the ninth bounce one would have to take into account the gravitational pull of an observer by the table to predict the direction of travel of the ball. The author then rails at corporations and governments who persist in making predictions in the far more complex and variable areas of economics and sociology.
Relevant to modern medicine Taleb seems to concur with the approach of evidence based medicine which he says is based on the approaches of ancient empiricists who resisted theorizing and simply observed what worked, tinkered and applied methods. He compares this with old fashioned medics resisting Semmelweis' advise to hand wash because it "made no sense" to them. This he compares to some Doctors' resistance to acupuncture because no explanation exists.

Taleb then spends some time expanding on the theme that economists mistakenly tried to make a science of their craft missing the point that people are not predictable because they cannot be trusted to act rationally.

We are left asking why we plan at all. The author answers that the ability to plan is what puts us above evolution and we save time by sharing knowledge and using experts for this. One has to say this view is against the run of his book so far!

It was at this point I started to lose my suspension of disbelief. So far throughout the book the author quotes philosophers and writers of which in my ignorance I had never heard, which became irritating (his bibliography spans nearly 30pages). I waited for a strategy for coping with all this ignorance and lack of predictability in the modern complex world and Taleb at this stage produced the idea of investing 85% of ones wealth in government stocks as they were the least likely to suffer negative Black Swan events and the rest in more speculative investments which would be more likely to experience positive Black Swans. The theory being that you look for the consequences of a chance happening rather than its likelihood. To me this represents a stunning about face on the first two thirds of the book as we need to use the very skills he has criticized to make these choices.

Part Three:
"Those Grey Swans of Extremistan"

1. world is complex and increasingly subject to extremes.
2. Gaussian bell curve distributions delusional
3. Not all Black swans as unpredictable as we may think- grey swans
4. Some areas of phony uncertainty

Taleb gives examples of inequity and scalability again citing examples of how success goes to success and seems unduly sensitive about how one good review leads to another in writing. English is given as an example of how positive feedback works in the modern world clustering success –English becoming the default language worldwide. The demise of over 80% of America's largest companies over the last 40years is n example of the instability of modern capitalism. The influence of the internet on book publishing giving unknown authors the opportunity to flourish compared to the old publisher reviewer dominated system seems to have personal resonance for the author.

In his section on globalization he prophetically warns of the similarities of the banks across the world all working on the same risk assessment systems which makes global financial collapse more likely and picks out JP Morgan. Ironic that the author of the futility of making prediction makes a particularly prescient one as the book was published in 2007.

There is an optional chapter on the Gaussian bell curve showing the lack of coverage of outliers. This measure only works for distributions that are relatively uniform and does not allow for extremes. Casinos do not allow any single gambler to make one large bet preferring many to make lots of capped ones which will average out to give the casino a predictable profit.
He gives a detailed critique of reliance on standard deviation and correlation. The growth of the Gaussian distribution of human physical characteristics through to social parameters is

discussed in political terms as related to Marxism amongst other ides and the concept that the average is virtuous (-a concept we suffer from when assessing referral rates!).
There then follows a detailed description of the development of the Gaussian curve and a reassertion that it only works for variables which differ narrowly from the average and does not cope with extremes. Critiques of the Gaussian- based on coin flipping assumes each throw is independent of the last, previous history does influence the outcome of an event – if the coin is loaded the result will be influenced.

In his next chapter Taleb describes his acquaintance with Benoit Mandelbrot who first described Fractals and has some space devoted to complimentary description of his atypical unassuming character and modesty. The author clearly approves of him and also of the ease with which he converses with him. Echoes again of Taleb's own feelings of exclusion and rejection. Subsequently he goes on to endorse in highly technical terms Mandelbrot's application of Fractal geometry to randomness which handles extremes better than the Gaussian bell curve. Memorably he says "complexity theory should make us more suspicious of scientific claims of precise models of reality".
And "We don't have the luxury of sitting down to read the equation that governs the universe"

Mandelbrot's fractal randomness predicts some Black Swans which lie too far from the average for Bell Curves. I do not claim to understand this but suffice to say some events would be covered; say for example the 1987 Stock market crash alluded to earlier. Again we have the conflict between the quotes about complexity and subsequent statements. To reconcile this the author comments that only some randomness is conquered by Mandelbrot.
The descriptions of the Bell Curve , Mandelbrotian randomness and the application of the book to financial variables are said to be optional.

An example of extremistan type phenomena is the one about there being ten days in the last fifty years of the stock market that represents half of the returns. Using Gaussian distribution the 1987 crash would occur once every several billion lifetimes of the universe.
He then goes on to indulge in a rather polemical review of the Nobel prize system and conventional economic academia's lack of acceptance of the randomness theories in his book which without specialized economic knowledge was a bit wasted on me and felt rather self serving.
The reference to the collapse of Long Term Capital Management, an investment company founded by statistical experts who failed to understand risk adequately and who had been working to the Gaussian Bell Curve discipline is interesting in that this event which at the time had huge importance across the financial world apparently failed to cause reform in risk management. Uncomfortable echoes from the past to 2007.

He gives us a contrast between the Platonic approach of the top down systematisers and producers of narrow theories vs the skeptical empiricists who are bottom up observers and craftsmen.
The next chapter is another critique of experts and our failure to be skeptical of particularly financial and philosophical ones. The phony philosophers.

Part Four: "The End"
Be aggressive to gain exposure to positive Black Swans the consequence of a failure would be small and conservative when a negative one is in the offing.
Great advice but implies the ability to predict the Black Swan the nature of which is in itself unpredictable.

My Conclusion:
I enjoyed the book for all its repetition it did add the appreciation of uncertainty in life. General Practitioners are often said to manage uncertainty and risk in Medicine and are judged against Gaussian Bell Curves so the subject matter is particularly relevant to us.
The author began life suffering the effects of a massive Black Swan of the Lebanese Civil War which must clearly have affected him and then in his financial career experienced another in the 1987 Stock Market crash. His occasional rants against groups who he feels have slighted him in the past are a little wearisome but do add humanity to an otherwise dry subject.
Finally my summary would be his quote of "unknown unknowns".
The full version comes from Donald Rumsfeld Defense Secretary for George Dubya Bush during the second Iraq War.
There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know. ***Donald Rumsfeld***

And I never thought I'd quote him.
Sean King
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