UPDATE: this was written before the subprime mess –enough evidence on the irresponsibility of the view that "only on Wall Street do people seem to give proper credence—not too much, not too little—to very unlikely events".

Note: I was at a Boston workshop organized by Harvard's School of Government in Nov 2007. A speaker before me was the former Treasury Secretary Lawrence Summers (also former Harvard President). An economist by training he announced that: "out-of-the-money options are too expensive and need to be sold". He made the statement *after* the debacle. Only an economist would have the intellectual arrogance to think that rare events are understood and priceable. Only an economist!

Brief Discussion of Empirical and Logical Mistakes in Tyler Cowen's Review of *The Black Swan* in *Slate*

Nassim Nicholas Taleb
Second Draft, June 2007 –I have been adding data & graphs (JPY, ES) etc.

Also note a mathematical appendix Note the appendix: www.fooledbyrandomness.com/options.pdf

Unlike the other, more technical critics, I do not think much of Cowen's intellect, abilities, & understanding of probability & random payoffs, but that irresponsible fool was the first to advertise the contribution of "prediction markets" in high moment applications, heavy-tailed environment. "Prediction markets" fail in fat-tailed domains because of a huge estimation error. Also note a blogger who got my point about predicting in Extremistan.

I -The Grass, not the Trees

First, the empirical & logical[1] mistakes:

"Oddly, Taleb's argument is weakest in the area he knows best, namely finance. Only on Wall Street do people seem to give proper credence—not too much, not too little—to very unlikely events (...) Stock and bond markets offer simple ways to bet on black swans. (...)These investments pay off precisely when the rest of the market does not anticipate the scope for surprise. Yet "long-shot" strategies are well-studied, and they do not yield extra profit."

A brief summary of what I will discuss next:

> 1) Selling long shots have yielded (monstrous) extra losses since those selling them (credit, options) go bust periodically. Saying **"long-shot" strategies (...)do not yield extra profit"** requires removing too many "outliers" from the data and confining the studies to a narrow subset of instruments. In my analysis in *TBS* I took a long history of all the businesses that depended on a large move: derivatives, credit instruments, bank loans, reinsurance. Betting *against* large deviations in type-2 randomness does not pay.
>
> 2) The market may be collectively able to guess type-1 variables, like the number of beans in a jar, not price instruments that depend on a single unpredictable large event.

The results Cowen refers to may hold solely in a very narrow subset of index options (not stock options), which **requires excluding the crash of 1987**, and ignoring the *impact* of the errors. Recall from TBS that I became financially independent after the crash in 1987 –options were cheapest before the event, and I stocked up on "long shots" not because of any forecast of a possible event, but because they were incredibly cheap. As figures 1 and 2 show, the crash of 1987 represents between 95% and 99.9% of the total variations in an option portfolio over the past 20 years. Removing it from any analysis is dishonest.

Cowen's discussion reveals a far more fundamental flaw but I can use it to rephrase my main arguments. I wrote an entire book on confirmation (*absence of evidence v/s*

[1] This is extracted from my paper on prediction markets & why derivatives cannot predict anything in the tails.

evidence of absence) –and the reviewer of the book fell for the error of confirmation in his counterargument. I explained that statisticians and economists have tendency to find quiet periods to confirm that the data is well behaved –like someone having breakfast with O.J. Simpson and using this as "evidence" that he is not a killer because he did not kill anyone during the episode. Killers do not kill all the time, and wild randomness is very rarely volatile.

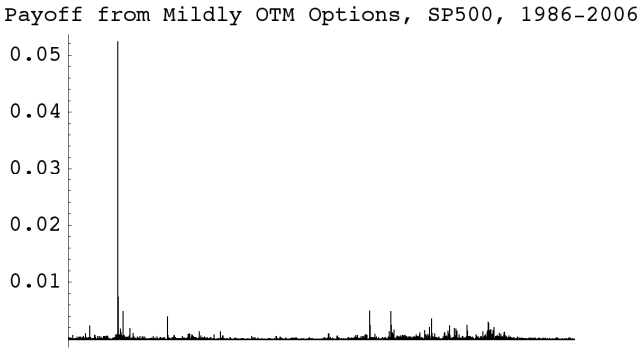

Figure 1 You miss 1987, and ... (To use the analogy from the great Benoit Mandebrot: they can see the grass, not the trees).

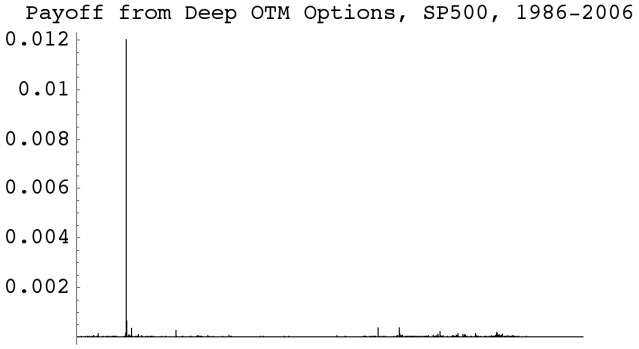

Figure 2 It can get worse for far out-of the money options.

Let us go through the following exercise. Assume that you are some finance academic who wants to "show" that long shot strategies **"do not yield extra profit"**. You would have to remove a lot of large deviations and do a lot of "confirmation"[2]:

- **To prove that point, do not use credit instruments[3] over the past century**. Money center banks lost in the aftermath of 1982 all previous profits ever made (for instance, the 8 largest money center banks had a capital of $22 billion and loans to Argentina Brazil, Mexico and Venezuela for >$50 billion, not counting Ecuador, etc. This applies to other smaller ones as well as total losses were >$240 billion.) Also, lenders blew up again in the S&L crisis, losing >100% of cumulative profits –the RTC needed funding of between $500 Bil and a trillion. So banks have only been OK for a brief period (since 1992) – and... I can't wait for the next episode. It should not take long to cancel all previous profits.
- **To prove the Cowen point, do not include the stock market crash of 1987** (for downside puts on SP), do not use far out of the money options[4], and do not use calls on single stocks. Further, US indices represent <.3% of traded derivatives. Really, to agree with this statement, you need to massage the data in a very, very dishonest way. But it gets worse:

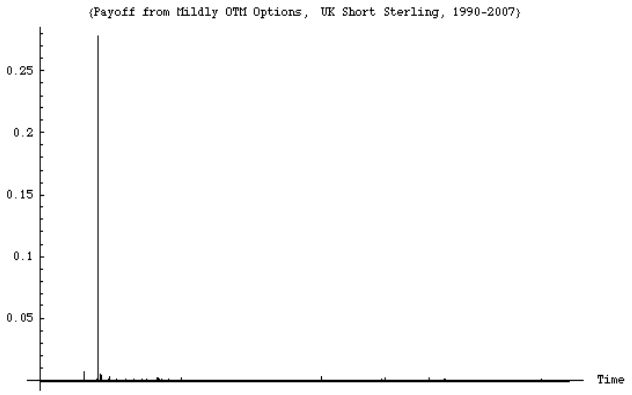

Figure 3- Return on Sterling Caps and Floor Derivatives –including the 1992 crisis. The same for PIBOR, Eurolira, etc. {it gets boring}

- **Do not include fixed income options in ANY period except 2004-2007**. The ERM crisis showed some 50 sigma moves in short-sterling, PIBOR, and of course EuroLira (clearly non priced as options were at the lowest then). It takes close to 1000 years to amortize the shock in option P/L.
- **Do not include emerging markets debt intruments.** Remember 1998 and where the spreads were then? How about 1994? How about the Asian crisis of 1997? Cumulatively credit

[2] I used more mathematical arguments in my Poisson buster see www.fooledbyrandomness.com/blackswandebates.htm and my complexity paper. For the collective to converge in reasonable time requires mild randomness –the rate of convergence of an unbiased estimator (how to get the average when n increases) with an exponent <1 is zero; derivatives in the very far tail have an exponent <1.

[3] A credit instrument maps to a put: you make steady money and blow up once in a while.

[4] Close to the money and at the money options can be chronically overpriced.

spreads and emerging market instruments have not predicted anything.

- Do not include G7 currencies for any period up to 1998.

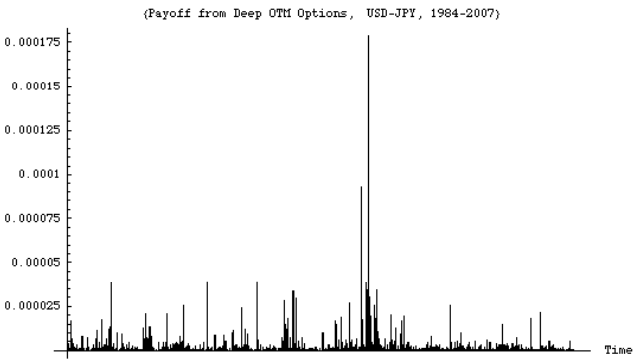

Figure 4-USD-JPY -The mildest of currencies. For entertainment, look for fatter tails with the BRL. DEM-ITL, or...the Russian ruble.

- **Do not include reinsurance products any time in history.** Reinsurers has been losing money even *without* a large event.
- **Worse, assume that the system allows option traders to take long shots.** A trader who does not make steady money is rapidly fired. The trading strategies depend on a short window which favors selling options.
- Forget that markets never correctly predicted a single war –and have overreacted to rumors of wars when peace prevailed.

Now the point of TBS is that *even if we never saw a crash*, absence of evidence is not evidence of absence –if an instrument leaves you exposed to downside – all you need is a simple possibility of a large deviation.

I can understand that (some) economists may want to show **the virtues of prediction markets**. But to show that markets can predict collectively, you need to cheat a lot –not just with data, but by changing the mathematics. My point is that rare events are, by their nature, unpriceable, because the smaller the probability, the larger the impact, and the greater the estimation error of the rectangle probability times consequence. We may be collectively smart, but not smart enough to predict rare events –or get their properties right.

Furthermore, out of the money options do not reflect prediction, but inventory. And the bias comes from the frequency of the bonus period: traders and hedge funds get a yearly bonus when the properties take a long time to reveal themselves –so their pricing is severely impacted by such structural constraint.

I discussed the point with James Surowiecki an insightful and open-minded reviewer: type 2 randomness has too high a sampling error; derivatives have another subtlety: they depend on squares or cubes of the random variables, therefore will have at least four to nine times the sampling error you can expect (in the rosiest of circumstances).

II

Now the more minor factual mistakes. There are two king of readers: those who read a idea fresh, and others who try to fit it into what they already know –squeeze it into their pre-packaged categories. This may work with something written by some economist or academic prisoner of a well-defined discipline. Invariably, with me, they miss the point.

Cowen writes: **"Taleb does insist on the originality of his work—regarding it as a black swan, of course"**

I wonder whether Cowen read my book with any care. The Taleb *en question* does not insist on the originality of his work since he explains that he had to spend 20 years in libraries and *microfiches de la Bibliotheque Nationale* ferreting out such a long list of predecessors: Menodotus, Sextus Empiricus, Antiochus of Laodicea, Pyrrho of Ellis, Theodas, Herodotus of Tarsus, Sextus Empiricus and Saturninus, Algazel, Pascal, Huet, Foucher, Bayle, Brochard, Favier, etc. (in philosophy, not counting the better known Hume, Popper, Mill, Goodman and some modern academic philistines), Pareto, Yule, Richardson, Levy, Zipf, Tsallis, Simon, the great Mandelbrot, etc. (in statistics, among some 25 names), Makridakis (in econometrics), Sornette, Bouchaud, (statistical physics), Hadamard, Poincaré, D'Arcy Thompson, Polya (in mathematics among many), Slovic, Kahneman, Tversky, Gigerenzer, Fishhoff, Erev, Barron, Tetlock, etc. (in psychology, among 76 names), Shackle, Hayek, etc. (in the so-called "economic" sciences but no other name), etc.

I just described how the idea came to me hiding in basements then how I became committed to it after the stock market crash. It does not mean claiming originality. As a matter of fact I show in the process how the ideas we attribute to Popper & Hume are not theirs.

"[Taleb] refers to opposing views as the "GIF: Great Intellectual Fraud."

What your Taleb fellow calls GIF is the use a probability distribution outside of its natural domain, i.e. the Gaussian outside Mediocristan.

"why you should become a speculator rather than a prostitute"

He gets it backwards. I explain that it is better to NOT be a speculator because there is a lot of randomness in scalable professions. I recommend becoming a dentist because payoff is more directly linked to skill.

Same error of mistaking my purpose:

"Incremental progress is a hard enough achievement, and it is to be applauded with vigor."

Tell me something I don't know. I want this to happen. But we can't change the world. The Soviet have tried; the French have tried –a libertarian should know what previous attempts resulted in.

More:

"Why venture capitalists make more than inventors (inventors pursue black swans, but they often die too soon to see the biggest payoffs)"

Maybe right, but not my point. In *The Black Swan* I wrote that writers, researchers, inventors and artists living in the antechamber of hope are less diversified than investors (publishers, venture capitalists, etc.) hence weaker at the bargaining table. (I studied it with De Vany but we never published it.)

"The Black Swan **also encounters some problems when it attempts to map out a metaphysical philosophy. (…) Virtually by definition, the bulk of what goes on is ordinary events determined by ordinary processes—mixed in, of course, with some extraordinary influences."**

That is not the point of TBS –it frowns on the metaphysics the review claims that I am mapping. TBS is about the unpredictable *that we can do something about*. It is about how not to be a sucker. And it is about the class of random variables that is dominated by the tails –i.e., Black-Swan prone.

In 1921, economist Frank Knight drew a distinction between unquantifiable and radical uncertainty and the risk of flipping a coin or playing a roulette wheel.

Knight, I explain in Chapter 16 and in the notes, is NOT the originator of the difference. And I reject the difference: probability for me is (as I wrote 4 times) **epistemic**. Such objectively computable RISK does not exist in a subjective metaprobability framework.

"If these ideas have not always been part of the mainstream, it is because they can quickly prove intractable, not because they have been suppressed by an arrogant scientific community."

Yes, they have been suppressed by an **"arrogant scientific community"** –albeit only by economists -- because most academic economists like to tell you what they know, not what they don't know. Like quack doctors, they do not accept that NO remedy can be better than the best available one –and that NO measure of uncertainty can be better than a wrong one if it prevents you from taking a certain class of unbounded risks.

This explains why I am an academic libertarian.

"The late G.L.S. Shackle, a Scottish economist"

Sorry to nitpick (though my erudite father taught me that small mistakes reveal shallowness in someone's culture), but the Shackle I talk about was born in Cambridge, England, in 1903 and worked in England all his life (London, Liverpool).

"the area he knows best, namely finance". This is not a big deal but I am irritated when people equate me with finance, trading etc. It was (is) only a day job. Finance is something for philistines. I just know finance **data** and financial payoffs (like most derivative professionals) but it is not my principal interest, as I state in the book. The area I know best is French literature, ancient & medieval Mediterranean history & languages, probability theory, medieval Judeo-Arabic philosophy, &... the **"the confirmation bias"** & its consequences.

III

To conclude, Cowen is a "prominent economist" (which does not mean much), so his review provided me with the opportunity to deliver a broader response and rephrase the points of the book that (unlike almost all other reviewers), he missed.

Let me explain what my idea is about (I repeat that the review completely missed the central point): it is not about wholesale **skepticism** or "**angst**". It is not about metaphysics. It is about fine-tuning your behavior to be less skeptical in some domains and more in others. It is a very simple map based on the boundaries between Mediocristan & Extremistan –and how to navigate in a world that we do not understand. And to enjoy every minute of it.

Note the appendix:

www.fooledbyrandomness.com/options.pdf