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Publisher: Routledge
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Quantitative Finance
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/rquf20

# Antifragile: Things That Gain from Disorder

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Published online: 21 Nov 2013.

To cite this article: Jeff Holman , Quantitative Finance (2013): Antifragile: Things That Gain from Disorder, Quantitative Finance, DOI: 10.1080/14697688.2013.829244

To link to this article: http://dx.doi.org/10.1080/14697688.2013.829244

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*Quantitative Finance*, 2013
http://dx.doi.org/10.1080/14697688.2013.829244

Routledge
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# Book review

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**Antifragile: Things That Gain from Disorder**, by Nassim Taleb, Random House (2012). ISBN 978-1400067824.

By nature of my profession, Nassim Taleb thinks that I'm a scam artist, a charlatan and a turkey. But do not feel bad for me, because if you are reading this publication you likely either carry out quantitative research or work in finance, and so Taleb thinks the same of you. Of course, if you read *The Black Swan*, this is not news. But Taleb's newest work, *Antifragile*, repeats many of The Black Swan's allegations against the quantitative finance community, namely that our fragile models lead to portfolios that are doomed to explode every few years when a 'once-in-a-century' event destabilizes markets.

*Antifragile*, though, is much less focused on finance than *The Black Swan* is. In fact, Taleb addresses finance only briefly in introducing his main thesis. Specifically, he notes that call options have bounded losses but unbounded gains and increase in value with the variability in the underlying asset; he introduces the term 'antifragile' as the property of benefiting from variability. This may not be the most novel insight, but more interesting are Taleb's extensions of this idea outside of finance, and his grand thesis: that human-engineered systems resemble short option positions in that they are designed with a specific (bounded) benefit in mind, but with insufficient consideration of the (unbounded) side effects. Contrast this with nature, where progress is driven by trial and error that produces technologies whose side effects have been uncovered. This process of natural selection is the ultimate long option position—the higher the rate of random mutations and the wider their distribution, the more likely a natural system is to improve itself. Taleb's key piece of advice, then, is that one should seek antifragility everywhere in life.

Let's get to specifics: how does one 'seek antifragility' in the real world? Given that Taleb's experience is tilted toward finance, and since this publication's readership has a revealed preference for that domain, let's look there first. It almost seems too obvious—you get long optionality in finance by getting long options, right? Well, sort of, says Taleb, with the caveat that 'you are only harmed if you repeatedly pay too much' for financial options. Huh? I thought one of the key implications of The *Black Swan* was that deep out-of-the-money options were persistently underpriced because the simpletons who dominate option

markets cannot fathom the length of the tails. I thought it was a matter of faith to Taleb that the tails are inherently untestable because one can never observe their extent? Taleb's clarification only further obscures: 'Financial options may be expensive because people know they are options and *someone* is selling them and charging a price.' With this line, Taleb takes us back to the sad days before *The Black Swan*, when we couldn't just assume options were a priori cheap and when we quantitative finance professionals were often tasked with determining their fair values.

At this point in *Antifragile*, Taleb loses interest in finance and moves on to other domains (with a brief recommendation of a barbell strategy, which I discuss below). But let's stay on the topic a bit—what could have led to such a repudiation of a key implication of his prior thesis? One possibility is the performance of tail hedging funds, which thanks to the market trauma of 2008 (and to Taleb's proselytizing) experienced a surge in interest; JP Morgan estimated aggregate AUM going from $500 m in August 2008 to more than $40b by August 2011. The simplest version of a tail hedging strategy involves systematically buying and rolling out of the money puts on risky assets. Versions of the strategy that utilize views on cheapness or richness either across time or across assets can be viewed as the mechanistic strategy with some market timing overlaid; these versions are not pure plays. But regardless of the specifics, tail risk funds have bled at an alarming rate following 2008, as volatility (both priced and realized) has collapsed. Of course, one cannot fairly evaluate tail risk strategies by starting *after* the steepest market crash in the past 75 years—but even if one starts the clock immediately before the crash, the performance has been poor. One way to illustrate is with S&P's VIX futures indices; the VIX's construction handles formulaically rolling S&P options positions based solely on strikes and time to expiry with no timing overlay. A $1 investment on January 1, 2007 in a strategy of buying and rolling short-term VIX futures would have peaked at $4.84 on November 20, 2008—and then subsequently lost 99% of its value over the next four and a half years, finishing under $0.05 as of May 31, 2013. A strategy involving mid-term VIX futures would have performed similarly, peaking at $3.36 in late 2008 and finishing at $0.62 in May, 2013. Strategies directly buying index puts rather than VIX futures require specification (where to strike, how much to buy, when to roll) but fared little better.

So in practice, the cleanest implication of *The Black Swan*, that options are persistently cheap due to market participants' cognitive biases, at best lacks any empirical support. Taleb, who almost certainly knows this fact, does not advocate option buying in *Antifragile*. Instead, he supports what he calls a barbell approach to portfolio construction: 'If you put 90% of your funds in boring cash (assuming you are protected from inflation) or something called a "numeraire repository of value," and 10% in very risky, maximally risky, securities, you cannot possibly lose more than 10%, while you are exposed to massive upside.' As with put buying, this sounds attractive at first glance (everyone loves protected downsides and massive upsides), but let me push a little bit on what this strategy entails. First, what exactly are those maximally risky securities, deep out of the money options? Refer to the prior paragraph on why this strategy has not shown itself to be a very good one.

More importantly, show me this 'cash' that has no possibility of loss and is protected from inflation. Is it suitcases of $100 bills? Clearly not, as those are not inflation protected. And besides, they can be stolen. TIPS? Weimar Republic TIPS did not exist so we cannot be sure but I am guessing they would not have served Taleb's purpose. A warehouse filled with non-perishable commodities? They are subject to decrease in value and again prone to theft. On this point about theft, one could stash whatever instrument one comes up with in a Swiss vault and decrease risk, but does risk ever really go to zero? Would not the Black Swan, then, be that the Swiss bank defaults on its promise of safekeeping? This has not happened in the long, illustrious history of the Swiss banking system, but would not counting on past data put one (to borrow a recycled Taleb analogy) in the unenviable position of being a turkey on a farm, feasting blissfully unaware of the upcoming Thanksgiving? I am being deliberately pedantic here, but to illustrate a key point: that this idea of a barbell strategy is a farce. There is no such thing as 100 per cent certainty of safety against loss, and once we acknowledge this fact we are forced back down the dirty path of considering potential losses and their probabilities, and trying our best to incorporate potential left tail events by considering stress scenarios and fat tailed distributions. That is, we are forced to practise quantitative finance.

*Antifragile* delves into a number of other fields that strike Taleb's fancy, and he spends substantial space on health and medicine. I will leave the discussion of that subject matter to the experts. (Surely JAMA is clamouring to publish its own review of *Antifragile* given Taleb's experience and stature in the medical field). But I will comment that I found notable points of similarity and dissimilarity between Taleb's writing on topics outside of his field of expertise, and the writing of Malcolm Gladwell. First, like Gladwell, Taleb's choice of applications is interesting (at least it was to me). Second, like Gladwell, Taleb's lack of rigour and balance in dealing with an existing scientific literature is galling, with citations plucked from isolated studies in support of a central thesis, and with no discussion of opposing points of view. In the other direction, Gladwell comes across as someone with the type of intellectual levity that would produce an enjoyable conversation over a beer. I cannot say the same for Taleb. He repeatedly congratulates himself on his personal wealth ('I reached the "f… you money" stage in my twenties, at the time when it was much, much rarer than today'), his extensive self-education (he spends nearly an entire page listing the authors he has read), and even the subtle nature of his own thesis ('Nietzche's potency as a thinker continues to surprise me: he figured out antifragility'). Really? Who does that? The result of this schtick is a needlessly oppressive 500 pages that read like 5000.

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