CONTROLLED BURNS

"Forests that never have fires are likely to be completely eradicated by fires when they happen. Forests that have regular fires are much more stable," says Nassim Taleb, explaining his views on investing, industry stability, and systemic risk.

By Rhea Wessel

Nassim Taleb, best-selling author and former trader turned professor, is known for making provocative statements. In this interview, Taleb boils down many of his ideas into rules of thumb for investors. He talks about his new book, *Antifragile: Things That Gain from Disorder*, and how to apply the antifragility concept to portfolios. The distinguished professor of risk engineering and co-director of the Research Center for Risk Engineering at the Polytechnic Institute of New York University also considers how conventional compensation structures lead to distorted incentives and looks at ways to make the investment industry more trustworthy.

I have heard you say in various interviews that you feel you or your ideas are misunderstood. What's that about?

For one thing, don't connect me with fringe finance. This is a mistake. I'm a completely orthodox economist. I'm as orthodox as you can get, but it's just that I believe that economic models aren't powerful enough and reliable enough to manage risk.

How could the models be made more reliable?

This is the whole point. You cannot make them more reliable. People say that small events—tail events—are overpriced. I respond that we don't know how to price them. There are two types of tail events for an investor. There's a tail event that is catastrophic, that can hurt you, like Fukushima [the nuclear reactor that experienced catastrophic failure after a tsunami struck Japan in 2012]. And there are tail events that can help you—for instance, being an early investor in Facebook. The point that I've made is that I proved mathematically and empirically that you cannot predict these tail events. The measurement of probability is completely off.

I wrote a 2008 paper using 20 million pieces of data that show a complete instability of the properties. Empirically and mathematically, you can show that small variations in a model can cause very big divergences. My point is that tail events matter and play a very large role in economic variables. They're not predictable, and they come in two "colors."

If you take the stock market since inception, we've got about 12,000 companies (plus or minus 2,000) that are listed. Of these companies, between 100 and 300 often represent half the capitalization and hence half the returns, roughly. And then you have a lot of companies that went bust. That tells you that over time, a very small number of companies have made the bigger returns. And you cannot miss on these companies. So, this is what I call the "fat tails" [effect].

It's the same in the drug industry. Hundreds of thousands of drugs are authorized, and most

of the profits come from a handful of them. In wealth too, the 1% of the 1% control a bulk of the wealth on the planet. You could even argue that within that, it's the 1% of the 1% of the 1%. The numbers are shocking: concentration. These are tail events. They play a large role.

And what's the second "color" for tail events?

You cannot reliably predict these events. Nor can you [accurately measure] their probabilities. The entire idea of the "black swan" was completely traduced by people thinking they could predict the next 10 black swans. People got focused on this instead of on understanding what is robust and what is not.

We live in a world with a high degree of unpredictability. Past history and econometric methods have been below par—not subpar, no, but sub-sub-sub-sub-subpar.

All these methods of measurement of risk in economics don't work, whether value at risk or the risk–return implied by the stock ratio.

So, what to do?

What to do is very easy. After the black swan [concept], I came up with a very modest proposal. We know what is robust. For example, a 1/*n* strategy for an investor is vastly more powerful than portfolio theory. Think about it in these terms: If you invest today for 30 years, less than 1 in 100 companies will represent half your returns. You cannot afford to miss that company, so you need to be as broadly invested as possible.

Markowitz's portfolio theory makes you optimize your model on a small number of companies. In fact, you need to be broad, broad, broad—broader than you think. Think broad and go broader.

This is already the first practical statement we can make about being more robust. If you're investing for the long run, you're in trouble if you miss a good company. You need to be much broader.

You have talked about the barbell. Where does that come in?

We are not good at computing risk, so we don't know what medium risk is. Instead of investing in a portfolio composed of medium-risk securities, one that could possibly drown you, it's vastly better to break it up into two parts. For instance, you could invest 70%–90% in something that is inflation adjusted and that doesn't deliver any returns for a large section of your portfolio and place the remaining 10%–30% in high-risk securities. In whole, you achieve a medium-risk portfolio but with a built-in floor that will never go bust. You put the floor on how much you're willing to lose.

Is this something you practice in your own portfolio?

Let me insist on my ethics. In my book *Antifragile*, I write that I believe in skin in the game. I think nobody should be able to give advice without getting harmed by his mistake.

And also, never invest in a company in which the owner doesn't have mega-skin in the game. This is both ethical and moral. There is evidence that if I give you a forecast, people will take more risk. I'll be harming you by giving you a forecast that is going to be perceived as much less random than it actually is.

The point is that whatever advice I give, I'm applying it to myself first. Therefore, I get harmed first. "Skin in the game" means having both positive and negative incentives. You have to be harmed by the loss to satisfy my skin-in-the-game heuristic. You have to pay a price for your mistake.

This is the reason that economic models don't predict anything. Incidentally, it's the same problem for risk. Risk managers and economic modelers and security analysts are not harmed directly by their own mistakes.

How could you change the system so there's real skin in the game?

You cannot force someone to have skin in the game, but you as an investor can talk only to people who have skin in the game. I don't listen to some professor of finance, but I listen to Ray Dalio or George Soros because they tend to be harmed by their mistakes. And people who are harmed by their mistakes tend to do a lot better.

After my book came out, I got a letter from Brazil saying that the safety record for helicopters had improved after forcing helicopter repair people to take rides on a recurring basis.

What about fragility and antifragility as applied to investment professionals?

It hit me after years that fragility corresponds to volatility and variability. If you take the extreme case of fragility, like the coffee cup I'm drinking from right now, you see it's not going to benefit from an earthquake. That means the cup is maximally fragile and doesn't like volatility.

What doesn't like volatility has wonderful attributes: It doesn't like time; it doesn't like variability; it doesn't like error; it doesn't like imprecision; it doesn't like disorder; it doesn't like uncertainty; it doesn't like model error; it doesn't like anything. And of course, there's a category of objects that have opposite attributes. They like disorder.

Fragility, a quite central property, can come from nonlinear responses. If you jump 10 meters, you're harmed a lot more than if you just jump 1 meter 10 times.

And this is what's central: You realize that every additional meter you jump harms you more than the previous one. Hence, with this, you can figure out if you are fragile. To translate this to investments, if a drop of 10% in sales of a company will harm it more than a drop of 5% in sales two times, the company is fragile.

What I have described is a very simple heuristic. And I insist on the word *heuristic* for two reasons: (1) because it's going to be useful and (2) because the very notion of finding heuristics is vastly more powerful than modeling.

It's a pity that heuristic is such a hard word for the layman.

You're right that heuristic is a hard word for the layman, but the layman will take words that have a Greek origin more seriously than those that have an English origin. You can sell it for more money. You see? Heuristic is a common

word now. Actually, I like "trick." If you use "trick" rather than "rule," it can work.

I have a simple trick. When I'm analyzing a company, I look at this—the more the losses accelerate, the more fragile it's going to be. The more linear the response, the more robust it's going to be. This is a very handy way to detect fragility.

Some portfolios, for example, have accelerated losses. Let me give you an example with Fannie Mae. When I looked at the mess in 2003, I realized that it was going to the cemetery simply because as default rates or interest rates or whatever rates they had would rise, the losses would accelerate. And effectively, it's all these firms that had accelerated losses that were harmed. So, now we have a definition of fragility, and it's quite central to have a definition of fragility.


Nassim Taleb

What about antifragility?

Antifragility means that you benefit from volatility, disorder, all these things. And it's beyond the concept of resilience. There's no word for it, except option traders have the term *long gamma*. Antifragility means that if you have variation in the world, you do better. People don't realize that this property is very distinct from resilience.

Let me give you a thought experiment: If I have a long straddle position and I wake up in the morning and there's turmoil in the world, my portfolio is going to increase. That's not resilient. That's beyond resilient.

As an investor, you have to understand that some companies actually benefit from turmoil. They benefit from squeezes while other companies are completely harmed by instability.

The rule of thumb is as follows (let me use "rule of thumb" instead of heuristic): You are antifragile if the market goes up 10% and you make more than twice [as much as you would] if the market went up 5%. Alternatively, if the market went up 10%, you would make more than if the market went down 10%. You can measure these. You can classify things as fragile, robust, and antifragile.

Is there an investment strategy that fits with the idea?

I will get there. Let me make some investment rules in general.

Number 1: I introduced earlier the 1/*n* rule—be as broad as you can in whatever risky assets you are investing in to minimize the risk.

The second trick, or rule, [is to] implement that barbell to reduce your fragility. Because if you see the barbell, then no fragility is in the tail. In other words, if you are "barbelled," putting a floor on your losses at 90%, the maximum you could lose is 10%. If the markets go down 20%, you don't lose twice as much as [you would] if the market went down 10%. You lose much less. That puts you in the antifragile category. [For a third rule] I'd say, look for companies that have optionality.

What is optionality?

Optionality means to have more upside than downside because the company has options. An "option" in this sense acts like a financial option, and a financial option is an instrument of antifragility because you pay a premium and you have all this upside and very little downside.

The companies make more from the upside of something than from the downside. Make sure the optionality is not priced by the market. And of course, go away from companies that have negative optionality.

An optionality that is priced in the market is, for example, buying energy companies and gold companies before a rally in gold. Instead of investing in gold, people invested in companies that made a lot more than gold. But after a while, this got priced in. In other words, if you're wrong on gold, you do a lot better than those who invested in gold outright. If you're right on gold, you do a lot better than those who invested in gold.

You have to avoid the lottery-ticket effect of investing in companies that are overpriced because people are looking at the big upside.

So, now we have three rules [1/*n*, implement the barbell, and pursue optionality].

Let me make one more—never invest in company stocks or strategies that have very low volatility without ascertaining that there's a floor on the return.

[Consider that] a Sharpe ratio measures return divided by risk, as measured by past variation. You have to be wary of companies that exhibit no volatility yet have a high return, unless they are genuinely low volatility. Most of them are fake low volatility.

What do you mean by "fake" low volatility?

You know the funds of Bear Stearns that blew up in the subprime crisis? They were funds that never had a down month. A lot of people who blew up in subprime did not have a down month—ever. And people rushed to invest in them because they were low volatility. And then they blew up.

Typically, I never get close to anything that has no volatility, unless it's justified, like Treasury bonds. If you go to a balance sheet, you can see why there is low volatility, whether it is genuine. The company can have a barbell. The company can have very, very low leverage. Or you might discover that a company is doing the equivalent of selling remote options,

and the company can lose a lot of money in one blow.

Let's link it to make it more intuitive: In general, I can say that a system that has very, very low volatility is likely to blow up. Take the example of Syria. Syria had no political volatility for 40 years, and look what happened.

Forests that never have fires are likely to be completely eradicated by fires when they happen. Forests that have regular fires are much more stable.

You mentioned the concept of leverage. You could make another investment rule regarding debt?

Yes. You know the rule—what you don't do is more important than what you do. In natural systems, you need redundancy to make the system work better. People think that redundancies are inefficient. I think they're the most efficient thing in the world, if you do them right.

Redundancy is bad if you buy the same morning newspaper twice or if you have two subscriptions to the same website. But redundancy is fine if you have a stock of cash in the bank or if you're a company that needs oil and you have extra oil.

Let's assume that you have cash in the bank and there's a big crisis. You have dry powder. It will make you antifragile to have the extra dry powder if nobody else has money. You can buy anything you want. Cash is the opposite of leverage.

In fact, the number one indicator of fragility is leverage. It can be operational or financial. Leverage corresponds to people's overconfidence about the future.

Most people who have leverage will be completely squeezed in a crisis, and you will have cash.

What about your paper "Why It Is No Longer a Good Idea to Be in the Investment Industry"?

In *Fooled by Randomness*, I describe something called the spurious tail. If you have a thousand participants in the market, you're bound to find a certain number who have been successful for completely random reasons. And the number of these people increases with the number of participants in the market.

If you increase the pool from a small number to 1 million participants, then you're likely to have more spurious winners: "Look at him—he made money 10 years in a row. He has all these lucky records." So, the more participants you have, the more likely you are to invest with a spurious winner. If you join the investment industry today, you're not trying to outperform randomness; you're trying to outperform the spurious winner.

The only reason that someone should join the investment industry is if the number of participants drops.

But you yourself were in the investment industry?

I was completely focused on tail events (i.e., tail events in which you make a large amount of money but rarely).

But what about skill?

I'm not denying that skill exists, but I can show that the larger the number of participants, the more likely the spurious winners are to go to the top and displace the median winners. To get a BMW, you need skills plus hard work. To get a jumbo jet, you need skills plus hard work plus an astonishingly large amount of luck. I'm not saying someone is a purely spurious winner. I'm saying that the difference between the guy with the jumbo jet and the guy with the BMW is zero.

Let's say you're looking for ways to do the most good and the least harm in the investment industry. How would you do that?

Try to not compete on the basis of performance but add qualitative elements to show responsibility in managing risks and consciousness of the need to really protect the client's portfolio rather than your own.

Also, consider the model you use for compensation. You should have disincentives for losing money. The ethics of the business should not be based on performance but on responsibility. When you invest your client's money, you don't invest it just for performance but for robustness. That's what your clients want.

Whose compensation models do you agree with?

Most investment advisers are not harmed by the downside. The only people who have a good compensation model are hedge fund managers. Typically, when I managed money, I was harmed 50 times more than any of my clients as a percentage of my net worth.

The hedge fund managers I know are typically far more invested than their average client. When that person is on board calling the shots, I sleep like a baby. You don't get this with fund managers.

For the last 4,000 years and over the history of civilization, people have acknowledged the effectiveness of negative skin in the game. Maritime law was written this way. Anyone involved in any project should be harmed by the loss, or you can never have a healthy society. This was a norm from Roman law and Islamic law.

If you apply that rule, you will not only be ethical, but safe—and society will be safe. If I'm an investor and I work for a company, then I need to have layers of skin in the game. Both Islamic and ancient Catholic laws banned leverage and lending because they did not want the lender to make money if the borrower loses money. Skin in the game is entirely in the spirit of that law.

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