The McKinsey Quarterly

CORPORATE FINANCE

DECEMBER 2008

Taking improbable events seriously: An interview with the author of *The Black Swan*

The author of *The Black Swan* explains why the rarity and unpredictability of certain events does not make them unimportant.

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The scholar, trader, and author Nassim Nicholas Taleb brings a decidedly contrarian view to the world of finance, statistics, and risk. In 2007, he published *The Black Swan: The Impact of the Highly Improbable*, which argues that we should never ignore the possibility or importance of rare, unpredictable events. In this interview with the *Quarterly*, he looks at the current financial crisis through the lens of his *Black Swan* thinking.

The *Quarterly*: For people who haven't read *The Black Swan*, can you quickly summarize what they should know to understand your point of view on recent events in global financial markets?

Nassim Nicholas Taleb: Before Europeans discovered Australia, we had no reason to believe that swans could be any other color but white. But they discovered Australia, saw black swans, and revised their beliefs. My idea in *The Black Swan* is to make people think of the unknown and of the potency of the unknown, particularly a certain class of events that you can't imagine but can cost you a lot: rare but high-impact events.

So my black swan doesn't have feathers. My black swan is an event with three properties. Number one, its probability is low and based on past knowledge. Two, although its probability is low, when it happens it has a massive impact. And three, people don't see it coming before the fact, but after the fact, everybody saw it coming. So it's prospectively unpredictable but retrospectively predictable.

Now that we're in this financial crisis, for example, everybody saw it coming. But did they own bank stocks? Yes, they did. In other words, they say that they saw it coming because they had some thoughts in the shower about this possibility—not because they truly took measures to protect themselves from it.

Now, a black swan can be a negative event like a banking crisis. It also can be positive: inventing new technology, making new discoveries, meeting your mate, writing a best seller, or developing a cure for cancer, baldness, or bad breath. In *The Black Swan*, I say that in the historical and socioeconomic domain, black swans are everything. If you ignore black swans, you've got nothing. And I showed that the computer, the Internet, and the laser—three recent technological black swans—came out of nowhere. We didn't know what they were, and when we had them right before our eyes we didn't know what to do with them. The Internet was not built as something to help people communicate in chat rooms; it was a military application and it evolved.

So these things have a life of their own. You cannot predict a black swan. We also have some psychological blindness to black swans. We don't understand

them, because, genetically, we did not evolve in an environment where there were a lot of black swans. It's not part of our intuition.

The *Quarterly*: Say a little more about the relationship between black swans and the global financial crisis.

Nassim Nicholas Taleb: I warned in *The Black Swan* against some classes of risk people don't understand and against the tools used by risk managers—tools that could not fully capture the properties of the world in which we live. The financial crisis took place because people took a lot of hidden risks, which meant that a small blip could have massive consequences.

In fact, I tried in *The Black Swan* to turn a lot of black swans white! That's why I kept going on and on against financial theories, financial-risk managers, and people who do quantitative finance. I warned that they were dangerous to society.

The *Quarterly*: You question many of the underpinnings of modern financial theory. If you were the dean of a business school, how would you overhaul the curriculum?

Nassim Nicholas Taleb: I would tell people to learn more accounting, more computer science, more business history, more financial history. And I would ban portfolio theory immediately. It's what caused the problems. Frankly, anything in finance that has equations is suspicious. I would also ban the use of statistics because unless you know statistics very, very well, it's a dangerous, double-edged sword. And I would ban linear regression. All these things don't work.

The *Quarterly*: What are your concerns with statistics and portfolio theory?

Nassim Nicholas Taleb: The field of statistics is based on something called the law of large numbers: as you increase your sample size, no single observation is going to hurt you. Sometimes that works. But the rules are based on classes of distribution that don't always hold in our world.

All statistics come from games. But our world doesn't resemble games. We don't have dice that can deliver. Instead of dice with one through six, the real world can have one through five—and then a trillion. The real world can do that. In the 1920s, the German mark went from three marks to a dollar to three trillion to a dollar in no time.

That's why portfolio theory simply doesn't work. It uses metrics like variance to describe risk, while most real risk comes from a single observation, so

variance is a volatility that doesn't really describe the risk. It's very foolish to use variance.

The *Quarterly*: Does your thinking inform the debate over the efficient market hypothesis?

Nassim Nicholas Taleb: I have no idea. I don't know if markets are efficient or inefficient. I don't know if we'll ever know. And I don't know if it's relevant.

The *Quarterly*: What does all this mean for managers at nonfinancial companies? What should they be doing differently?

Nassim Nicholas Taleb: I recommend two things. Number one, take the maximum amount of risk and other forms of exposure to positive black swans when this costs you very little if you're wrong and earns you a lot if you're right. Number two, minimize your exposure to negative black swans.

This is exactly the opposite of what the banks did. They had no real upside and a lot of downside—or, to be more precise, they got a little bit of cash flow to have all the downside. I recommend the opposite. Be hyperconservative when it comes to downside risk, hyperaggressive when it comes to opportunities that cost you very little. Most people have the wrong instinct. They do the opposite.

The *Quarterly*: What would your ideas look like in practice for, say, a manufacturer?

Nassim Nicholas Taleb: If risk doesn't cost you a lot, take all the risk you can. That's how economic growth is generated. Don't fear being aggressive if that only costs you a little. Do more trial and error. Learn to fail with pride, comfort, and pleasure.

But try to have less downside exposure by building more slack into your system through redundancy, more insurance, more cash, and less leverage. Imagine a shock. What will happen if there's a shock? How many months could you keep operating?

The problem is, Wall Street penalizes companies that have more of this kind of insurance, because they are going to lag behind companies that don't take on the expense. I see this in my investment business. But you know what? The people who insured against catastrophes are still standing today. The other people are bust. So don't fear overinsurance for your downside, even if you lag behind as a result.

The *Quarterly*: You're a critic of scenario planning. Is there a way to do it effectively?

Nassim Nicholas Taleb: I don't like scenario planning, because people don't think out of the box. So scenario planning may focus on four, five, or six scenarios that you can envision, at the expense of others you can't. Instead of looking at scenarios and forecasts, you should be looking to see how fragile your portfolio is. How vulnerable are you to model error? How vulnerable is your cash flow to changes in any parameter of your calculations? My idea is to base your navigation on fragility. Q

About the Author
Allen Webb is a member of the *Quarterly* board of editors.

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