Richard Thaler

We are rational, self-interested optimizers: Homo economicus. So the neoclassical model of economics has held for over a century. It has been a fruitful model, at the heart of the discipline's most profound theories, predictions and policy prescriptions.

According to Richard Thaler, it is also flawed.

Humans in the real world, Thaler points out, often behave in ways that are strikingly inconsistent with rational models, are frequently concerned with the welfare of others (even to their own detriment) and are rarely capable of optimization. True, we can be rational, calculating, self-centered and disciplined—but within limits.

This is the essential insight that Thaler insists his fellow economists use to modify neoclassical theory. Without it, findings will hold little relevance to reality. He illustrates this regularly with research into areas as disparate as health care, retirement planning, investing, NFL football drafts and British game shows.

The insight doesn't sound especially revelatory; we all know we're flawed beings, not models of rational optimization. Nonetheless, the burgeoning field of behavioral economics has long encountered stiff resistance. When Thaler first became intrigued by behaviors that contradicted the standard model—"anomalies," he later called them—his thesis adviser was "unimpressed," he recalls, and told him to go back to running regressions.

Thaler is thoroughly schooled in mainstream economics. By no means does he reject the fundamentals—supply and demand, for example, or cost-benefit analysis. It's just that the frame of analysis needs considerable broadening. He has taught for years at the University of Chicago—long considered a bastion of neoclassicism—and maintains a sharp, healthy and often humorous exchange with his skeptics there.

Indeed, it's fair to say that Thaler himself is something of an anomaly, an iconoclastic thorn repeatedly pointing out that traditional models are inadequate and arguing that "basing descriptive … models on more realistic conceptions of economic agents is bound to increase [their] explanatory power."

Over time, his views and those of other behavioralists have been accepted more widely. The 2002 Nobel Prize in economic sciences, for example, was awarded to Daniel Kahneman, a Thaler collaborator since the late 1970s, for integrating insights from psychology into economics—a crisp definition of behavioral economics.

Another sign: In 2015, Thaler will become president of the American Economic Association—an ironic but telling indicator of the gradual embrace of behavioral economics by a profession undergoing continuous evolution.

Photographs by Peter Tenzer

THALER'S RESEARCH AGENDA

Region: I'd like to start with your research agenda and its evolution. You'll correct me if I'm mistaken, of course, but your dissertation and immediate subsequent work in the 1970s was on the value of a life and of property, and you examined labor markets and property crime prevention to estimate them. That research was squarely within the mainstream of the discipline, based on expected utility theory.

Thaler: Yes, it was.

Region: But by 1980, it seems, your focus had changed to the limits of and alternatives to the standard model. You published "Toward a Positive Theory of Customer Choice" that year, discussing deviations from conventional normative theory, and another piece on decision-making under uncertainty that was subtitled "What Economists Can Learn from Psychology." Then you wrote papers with H. M. Shefrin, including your *Journal of Political Economy* piece on self-control that posited a conflict within an individual's psyche. And soon you were working with psychologists **Daniel Kahneman and Amos Tversky.***

Thaler: Right.

Region: This work all blended economics with psychology, as has your subsequent research. What led to that transition from the traditional model? Do you view it as a major discontinuity or a more gradual evolutionary process?

Thaler: I have been thinking a lot about this period recently because I'm working on a new book that will contain quite a bit about the history of the field, at least as I experienced it. The chronology you have is right, but a little bit misleading. In 1975 …

Region: Soon after you'd completed your doctorate?

Thaler: Right. I went to a conference and met a couple of psychologists, Baruch Fischhoff and Paul Slovic, who introduced me to the work of Kahneman and Tversky. I read K&T's research, got excited about it and set out to meet them.

I arranged to spend a year at Stanford, at NBER West, '77, '78 because Kahneman and Tversky were going to be there.

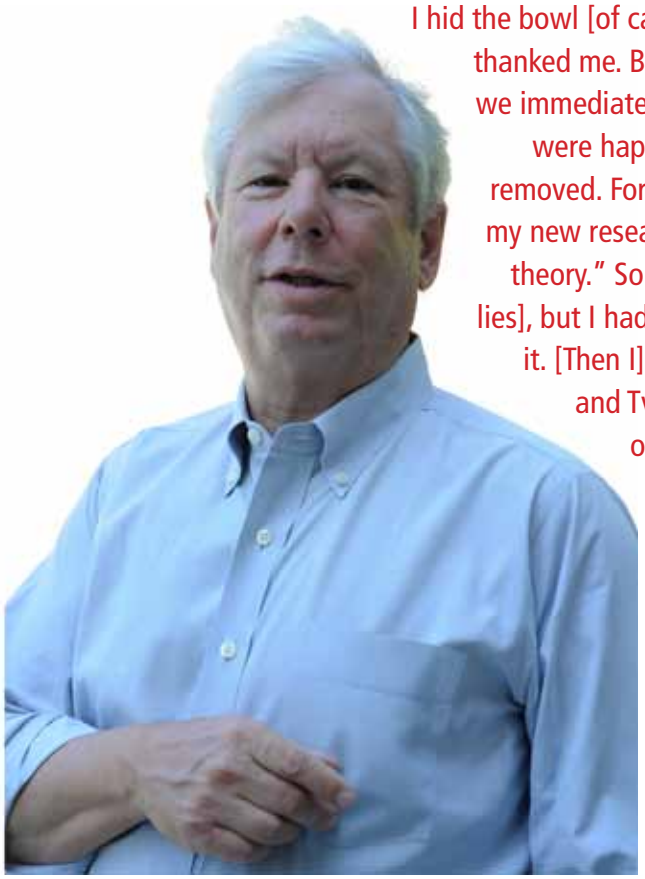
You're right—my thesis was purely neoclassical. My thesis adviser was Sherwin Rosen, who was very much a Chicago price theory guy. And my thesis was a straight econometrics exercise: How much do you have to pay people to get them to take risky jobs?

During my doctoral research, I also spent some time asking people a variety of questions—they appear in the 1980 paper, but I had done them when I was in grad school—and a version of it was, "Suppose, by having lunch with me today, you expose yourself to a one-in-a-thousand risk of dying. How much would you pay to eliminate that risk? And how much would you have to be paid to take that risk?"

Now standard economic theory says that those answers have to be approximately the same. But I got answers that were off by two or more orders of magnitude. Many people would say, "I'd pay $5,000 [to eliminate the risk]." And they'd also say, "I wouldn't do it for a million dollars."

Region: What kind of sample was that? Grad students, only academics?

Thaler: Yes, students in classes I was teaching, but I would ask everybody. I mean, I wouldn't say these were formal experiments at this point. I showed these to Rosen, who was unimpressed and told me to go back to running regressions.



I hid the bowl [of cashews] … and everyone thanked me. But as econ grad students, we immediately started asking why we were happy about having a choice removed. For years, friends referred to my new research interests as "cashew theory." So I had this list [of anomalies], but I had no idea what to do with it. [Then I] "discovered" Kahneman and Tversky. [I] spent hundreds of hours talking to both of them and taking walks with them. They didn't know anything about economics. I didn't know anything about psychology, so there were gains from trade.

*Terms in blue are defined in a glossary on pages 27-28.

But I was interested in this discrepancy. And then I started collecting "behaviors."

Region: "Anomalies."

Thaler: Yes, later I would call them **anomalies**, but for a while I just called them "the list." And I started writing a list of funny behaviors on my blackboard, such as paying attention to sunk costs. I mean, at first they were just stories. Like, a buddy of mine and I were given tickets to a basketball game. Then there's a blizzard and we don't go. But he says, "If we had paid for the tickets, we would have gone."

Another thing on the list was a story about having a group of fellow grad students over for dinner and putting out a large bowl of cashew nuts. We started devouring them. After a while, I hid the bowl in the kitchen and everyone thanked me.

But as econ grad students, of course, we immediately started asking why we were happy about having a choice removed. For years, some of my friends referred to my new research interests as "cashew theory." So I had this list, but I had no idea what to do with it. It was just a list.

Region: Of quirky human behavior.

Thaler: Yeah, quirky human behavior, right. And that was where I was when I met Fischhoff and Slovic and "discovered" Kahneman and Tversky.

The research of theirs that I read then, in 1975, was about what they called "heuristics and biases," things like **anchoring** and the **availability heuristic.** But there was one meta-idea in their papers, which was "**systematic bias.**" It had a big impact on me. Of course, I had read [Herbert] Simon's work about **bounded rationality**. But while Simon won the Nobel Prize for that work, I think it's fair to say he had little impact on economics. And the reason is, he had bounded rationality, but he didn't have systematic bias.

So people like Gary Becker would say, "Oh, fine, we'll just add an error term and we're done." I think Simon got frustrated talking to economists, so he went into artificial intelligence. He was a real Renaissance man. He did all kinds of things. But arguing with economists, he didn't enjoy that.

Perhaps it was because he didn't have a ready answer to the question: How does a boundedly rational agent differ, predictably, from a fully rational or hyperrational agent? ("Hyperrational" didn't exist yet, but it's where the field was going.) The first thing I got from K&T was this meta-idea that there could be predictable bias. And, essentially, my list was systematic ways that people deviated from the classical model.

Region: Which explains the transition.

Thaler: Right. I went to Stanford for that year. I begged and pleaded with anyone I could find at Stanford who could give me a job for a year. Finally, Victor Fuchs, the great health economist, took me under his very tall wing—he's about 6′6″—and put me on his grant. Originally, it was just for the fall semester, but then I sweet-talked him into a longer stay.

I spent that year out there with Kahneman just up the hill at the Center for Advanced Study in the Behavioral Sciences and Tversky down on campus in the psychology department. I took a course from him, Tversky, but spent hundreds of hours talking to both of them and taking walks with them. They didn't know anything about economics. I didn't know anything about psychology, so there were gains from trade. And so it was really that year, '77-'78, that I decided, all right, I'm going to do this.

But my first paper on this doesn't come until 1980 because it was rejected about eight times. It only came out in an obscure journal, *Journal of Economic Behavior and Organization*, in its first issue.

Then I was working on the self-control stuff with Shefrin. That we got into the *JPE*, but only after a big, big fight. It's one of two early papers I have in the *JPE* that are the last paper in the issue. I don't think it was an accident that they were last. The lead article is not an accident and at least in my case, I think, being the last article was not an accident. I always coded it as "the article the editors were most embarrassed to publish."

HOMO ECONOMICUS VERSUS HOMO SAPIENS

Region: It's hard to summarize the field, but you've written that there are three characteristics that differentiate Homo economicus from Homo sapiens: bounded rationality, bounded self-interest and bounded self-control.

Thaler: Those are the three things that—in the terminology Cass Sunstein and I use in our book ***Nudge***—distinguish humans from "econs," short for Homo economicus. But I've now added a fourth "bound" that we also need in order to have behavioral economics: bounded markets.

Region: That addition to the list leads well to my question. When we interviewed Gary Becker [see the June 2002 *Region* online at minneapolisfed.org] 11 years ago, he said, "In some sense, I'm a behavioral economist. I believe in the endowment effect, for example." But he argued that once you get into a market economy, some of these behaviors may not endure.

Here's the direct quote: "Behavior demonstrated in a lab experiment is not necessarily important in the marketplace. Generally, I am dubious about behavior that won't survive in an exchange economy with extensive division of labor."

Thaler: Right.

Region: What would you say to that logic, that markets essentially compensate for the irrational behavior of humans? Or that behavior that occurs at the individual or small group level can't persist in a market economy with trade and competition? At that scale, don't we all basically evolve into Homo economicus?

The biggest surprise about behavioral economics is that the subfield where behavioral has had the biggest impact is finance, essentially because the stakes are really high, and you don't survive very long if you're a trader who loses money.

Thaler: Well, there are two things. Of my more recent papers, one of my favorites is about the National Football League draft. It also took a long time to get published, but finally it did come out. We have a quote from Becker in there, similar to the one you have. His quote appeared in a University of Chicago magazine article about me. It says something like, "It doesn't matter if 90 percent of the people can't do the complex analysis required to calculate probabilities. The 10 percent of people who can will be in the jobs where it's required."

So, this paper is about the behavior of the owners of National Football League teams that are worth $1 billion each. And it's about the very highly paid people they hire. We find that prices for those players are way off relative to their value to the team.

Region: Meaning that people with great incentive to make smart financial decisions, and the resources to do so, are making irrational choices—pricing decisions inconsistent with the evidence.

Thaler: And even more to the point are papers that I, since 1985, and other economists have been writing about financial markets. If Gary's right, that field—behavioral finance—shouldn't exist. The biggest surprise about behavioral economics, I think, looking back on it all, is that the subfield where behavioral has had the biggest impact is finance.

If you had asked me in 1980 to say which field do you think you have your best shot at affecting, finance would have been the least likely, essentially because of the arguments that Becker's making: The stakes are really high, and you don't survive very long if you're a trader who loses money.

But for me, of course, that was exactly the attraction of studying finance, and I got into it because I had a graduate student who wanted to do finance, Werner De Bondt.

STOCK MARKET VALUATION

Region: Let's jump to that. I wanted to ask about your research on stock markets. You did papers with De Bondt in the mid- to late-1980s, I think.

Thaler: '85 and '87, and '90.

Region: And you found that investors overreacted to both good and bad news; also, they were overconfident in their investing ability. The implication was that market prices weren't always right. In other words, markets weren't necessarily efficient, in contradiction to the **efficient market hypothesis (EMH).** Then in 2001, with Owen Lamont, you studied **equity carve-outs** and found more evidence that markets aren't good at estimating fundamental value.

Thaler: Yes. Those papers highlight the two aspects of the efficient market hypothesis that I sometimes call the "no free lunch" part and the "price is right" part.

De Bondt and Thaler, "Does the Stock Market Overreact?" was about the no-free-lunch argument. When we were writing that paper in the early '80s, it was generally thought by economists that the one thing we knew for sure is that you can't predict future stock prices from past stock prices.

Region: **Random walk theory.**

Thaler: Right: It's a random walk. And so, we set out to predict an anomaly. Now, my buddy, Gene Fama [see the December

This first tenet of his [Eugene Fama's] efficient markets hypothesis is that you can't predict the future from the past. Werner [De Bondt] and I thought we should look at this. We knew that low *P/E* [price/earnings] stocks purportedly did well. We thought, well, suppose this outperformance is overreaction. A first principle of asset pricing is that equity cannot have negative value, but in this case it did! My argument is: If the market can't get that right, why should we think that when the Nasdaq is at 5,000 and then 18 months later it's at 1,400, that the 5,000 wasn't a bubble?

2007 *Region* online at minneapolisfed.org], who I regularly played golf with …

Region: His office is close by, isn't it? Nearly your next-door neighbor, but your polar opposite in theory?

Thaler: Yes, he has exactly the same office on the west side of the building. And we're both rational because he's an early morning person and I'm not, so the early morning sun doesn't bother me because I'm never here, and the afternoon sun doesn't bother him because he's on the golf course or wind surfing. In the old building, his office was directly above mine.

So, this first tenet of his efficient market hypothesis is that you can't predict the future from the past. Werner and I thought we should look at this. We knew there was some research indicating that value stocks outperform, and Benjamin Graham had been writing about this for years, but the research on this wasn't based on very good data. Not until CRSP came along, the Chicago Research on Security Prices, were good data available. Until that existed, it was hard to do rigorous asset pricing research. But there was this old tradition of value investing, and we knew that low *P/E* [price/earnings] stocks purportedly did well.

Region: That was the essential thrust of Graham's *The Intelligent Investor*?

Thaler: Yes, exactly. Now, academic financial economists were not very impressed with this finding, and part of it is that the denominator, the *E*, was calculated by accountants, and who knows what's in there?

So we thought, well, suppose this outperformance is overreaction. High *P/E* stocks, their prices go up; the prices of the Apples and Googles of the world have gone way up. But low *P/E* stocks, value stocks, their prices have gone way down.

Suppose those price movements are overreaction to something. And we thought, well, if that's true, if investors overreact, then in the extremes we should observe mean reversion. We observe mean reversion in everything else in life. Very tall fathers have shorter kids, right? But, the EMH says that we shouldn't observe it in the stock market …

Region: If prices reflect available information; if the market's efficient.

Thaler: If it's efficient, right. So, we constructed the simplest possible experiment of ranking the biggest winners and the biggest losers and seeing what happened.

Region: So that paper questioned the "price is right" tenet of the efficient market hypothesis?

Thaler: No, that's looking at "you can't beat the market."

Region: Ah, "no free lunch."

Thaler: Right: "No free lunch." It's not questioning the "price is right" aspect because … and you know, Bob Shiller [econ.yale.edu/~shiller/] has this great line in one of his early papers to the effect that if you see a random walk, concluding from that that prices are rational is the greatest error in the history of economic thought. Why? Because it could be a drunken walk. A drunken man will have a random walk and it's not rational.

So that research with De Bondt was an attack on the unpredictability, the idea that market movements are purely random. The paper with Owen Lamont and an earlier one in 1991 with Charles Lee and Andrei Schleifer on closed-end mutual funds are both an attack on this second tenet: the "price is right."

Closed-end funds are interesting because unlike the usual so-called open-end funds, an investor cannot simply send in more money and buy more of the assets the fund holds. Instead, the shares of the funds trade themselves, and the anomaly (that many had written about before) is that the prices for these shares often differ from the value of the underlying assets, the "net asset value."

Others had written about this, as far back as Benjamin Graham, but we showed that the discounts on closed-end funds seemed to be a measure of individual investor sentiment. This caused quite a stir, resulting in a four-part debate in the *Journal of Finance* with Merton Miller and two of his graduate students.

Region: So then, with Lamont, you looked at equity carve-outs.

Thaler: Yes, the Palm/3Com story …

Region: A great story.

Thaler: Yes, a great story. And as with closed-end funds, it's looking at the "price is right" aspect of the efficient market hypothesis. The brief version of the story is this: 3Com owned Palm, maker of the then-sexy Palm Pilot. They decided to spin off Palm via an IPO.

But they sold only about 5 percent of the share value of Palm. The rest of the shares were to be distributed to 3Com shareholders, and each share of 3Com would include 1.5 shares of Palm. The point of the paper is that while we can't tell you exactly what the right price is for 3Com, we can say for sure that if 3Com shares include 1.5 shares of Palm, then 3Com has to be worth at least 1.5 Palm.

And it wasn't. On the first day after the Palm IPO, the "stub value" of 3Com—that is, its value after subtracting the implicit value of its Palm holdings—was minus $23 billion. A first principle of asset pricing is that equity cannot have negative value, but in this case it did!

Owen's a great guy; we had a lot of fun writing that paper. And when we presented that paper here in Chicago's finance workshop, Gene and I got into a debate about icebergs. I was saying that this was just the tip of the iceberg—that the market was full of such mispricing—and Gene was saying this was the whole iceberg—that for the most part, markets get it right.

His argument was: Look, you have closed-end funds, you have Palm and 3Com. These are cute little examples, but there were very few shares of Palm floated. And he had a point. There was a grad student here who was spending all his time trying to borrow shares of Palm to short. Every time he was able to borrow some Palm shares to sell short, he would buy an appropriate number of 3Com shares to complete the hedge. In the end, he made about $100,000 and bought a very fancy M3 convertible that he called his "Palmmobile." So Gene is right: You could make $100,000 off this; not $100 million.

But my argument is that these things like Palm and 3Com, and closed-end funds—and Royal Dutch/Shell is another one—are significant precisely because we can test whether prices are right. I call these the "fruit flies of finance." And my argument is: Look, if the market can't get it right that 3Com has to be worth at least 1.5 Palm, or in the Royal Dutch/Shell case, which also was a 1.5 ratio, back in those days when they traded separately, Royal Dutch had to trade for 1.5 Shell. So I said: If the market can't get that right, where all you have to do is multiply by 1.5, why should we think that when the Nasdaq is at 5,000 and then 18 months later it's at 1,400, that the 5,000 wasn't a bubble?

THE EMH TODAY

Region: Those studies of yours, with Lamont and earlier with De Bondt, helped economists understand market crashes and bubbles because they were published around the times of several market crashes, in '87, '89 and 2000. We just had another financial crisis. We're still trying to learn about its causes and the lessons. What are your thoughts about the EMH today, given the recent financial crisis?

Thaler: Well, I think it's very hard to argue that real estate prices in Phoenix, Las Vegas and south Florida were rational at the peak. Now, Gene will say, correctly, that neither I nor anyone else was able to say when that bubble would break. (I'm not allowed to use the word "bubble" when I'm with Gene.)

And that's true. Even for my friend Bob Shiller. He correctly predicted the Nasdaq crash and the housing crash. But in both cases, he was about three years early. That makes him very wise, but not very helpful to an investor, because if you shorted the Nasdaq in 1996, when he gave his irrational exuberance talk to Greenspan, you were in trouble. Any hedge fund that shorted tech stocks in '96 went belly up.

So when Gene and I have these arguments, he'll say the fact that you can't predict when they will end means you can't say anything about them. I say, no, that's not the case. And that's why I separate these two aspects of the efficient markets argument: Whether you can get rich (the "no-free-lunch" part) and whether the "price is right."

It's hard to get rich because even though I thought Scottsdale real estate was overpriced, there was no way to short it. Even if there were a way—Shiller tried to create markets in that, so that you could have shorted it—you might have gone broke before you were right.

It's very hard to accept that markets always get prices right. The Internet has wildly exceeded our expectations, but the Nasdaq has still not gotten close to where it was in 2000. So I think it's pretty obvious that market was overheated, just like the Las Vegas and Phoenix real estate markets were, but you couldn't say necessarily when it was going to end.

But I think of these two components. Gene will always say the "you can't beat the market" part is the more important part. Now, I don't know whether that's self-serving or whether that's what he believes.

Region: Self-serving in the sense that it's the theory behind his passive-investing mutual fund, **DFA?**

Thaler: Well, no, that's not really what I mean. First of all, whether DFA is purely passive or not is open to question. You know, they buy small-value stocks and they add a little momentum. Now, how is that different from what **LSV** does?

But, the point is, **Mike Jensen's thesis** still holds, that most active managers underperform the market. So, I think Gene and I would give similar advice to people, which would be to buy index funds. Or invest in the [mutual fund] companies that **each of us** is associated with.

He would claim his are index funds, and I won't quibble with him in print about that. I think it's hard to beat the market. Nobody thinks it's easy, and so that part of the hypothesis is truer, but if we look at what happened to Nasdaq in 2000, and then the recent crash, well, of course, we've never gotten back to 5,000. So it's very hard to accept that markets always get prices right.

Can we say that the Internet has disappointed us since 2000? I mean, did we ever think we would be carrying around anything like this [smart phone] in our pockets? If anything, the Internet has wildly exceeded our expectations, but the Nasdaq has still not gotten close to where it was in 2000. So I think it's pretty obvious that market was overheated, just like the Las Vegas and Phoenix real estate markets were, but you couldn't say necessarily when it was going to end.

CAN MACHINES HELP?

Region: Could minimizing the human element increase market efficiency? There's

The programs are only as good as the programmers and as long as the programs are written by humans, there is a danger. Take quantitative models, quantitative investing strategies [for example]. If everybody crunches the data, they're all going to find the same patterns. I think we can improve things by making it systematic, but there are still going to be humans.

been a rapid rise in program trading, big data and machine learning in recent years. Can they decrease market irrationality by reducing the role of humans?

Thaler: Maybe. Maybe. But they also can cause trouble. The flash crash was not humans. You know, the programs are only as good as the programmers and as long as the programs are written by humans, there is a danger.

Take quantitative models, quantitative investing strategies. I think what we've learned—especially in the last five years or so—is there's essentially one quantitative model. Each hedge fund has its own proprietary model, but there was a week in August 2007 where every hedge fund was having these 10 sigma days, meaning that things were happening that would be expected to happen once every million years or so, and they were all calling each other up, "Is this happening to you?"

You know, you'd have a hedge fund that had 100 long positions and 100 short positions, and 80 of their longs went down and 80 of their shorts went up. That can't happen unless they're all doing the same thing and there's some exogenous event.

If you ask **LTCM** guys what their biggest mistake was, they'll all tell you the same thing. It was in not appreciating the fact that their bets were more correlated than they realized. Simply the fact that they were interested in these two particular bets meant they were correlated because they're not the only smart guys in the world.

Region: Groupthink?

Thaler: It's not so much groupthink because they're not talking to each other, but they have the same way of thinking. So, they've all got some bet on Russian bonds and then Russia defaults on the one they're long and not on the one they're short. And then they've all got this bet over here on Royal Dutch/Shell converging.

Region: So it's not groupthink but rather a herd mentality of a very specific herd.

Thaler: Yes. If everybody crunches the data, they're all going to find the same patterns. They'll be a little bit different, but lots of people—and LTCM was included in this—are betting on some kind of convergence.

It could be a typical merger, and doing a bit of arbitrage. You're betting that if the thing goes through, it's going to be $40 a share. It's now $38. You're making a bet that this merger will happen, and so you'll make a little bit of money unless the deal blows up. But everybody [in this part of the investment community] has really looked at this as well. I mean, nobody is trying to find stocks that are too expensive in order to buy them.

It is the case that if you turn decision-making over to a model, it will be more reliable and you can eliminate some human judgment errors. I think it's probably a better way of picking students than through doing interviews, for example, though I've never been able to convince any school where I was a faculty member that they should do that.

Region: And perhaps a better method for hiring athletes, too.

Thaler: Yes, the same for athletes, right. We did some work for one of the NFL teams and asked them, "Do you know who your best scouts are?" They said, "Oh, yeah, we know." Then we were getting a tour of their facilities. We saw a whole wall of file cabinets in the scouting department and asked, "What's in there?" "Scouting reports." "Have you ever coded those?" "No."

We convinced them to hire an intern to plug in the data, and then we had all the senior people predict who the best scouts were. They all were very confident that they knew, and it was probably heavily weighted on this guy who scouted some superstar.

It turned out that their best scout was somebody none of them had picked. It was a guy who never went on any of these trips. He just watched tape [of games].

That's all he did. He watched tape and he was very analytical.

Region: The ***Moneyball*** guy.

Thaler: Exactly. So I think we can improve things by making it systematic, but …

Region: There are still going to be managers—in finance, academia and sports.

Thaler: Yeah. There are still going to be humans. Think about what's going on right now, where we're all staring at a secular interest rate increase. We all know it's going to happen. We don't know when it's going to start, but you know if you took a poll of economists on what the 10-year bond yield will be 10 years from now, no one thinks that it will be a number that starts with a 2. Maybe it'll be a 5, 6 or 4, but it won't be a 2. But what to do about it?

A ROLE FOR CENTRAL BANKS?

Region: Is there a role for central banks, including the Fed, in addressing asset bubbles like these?

Thaler: I think there could be a role for policy. I don't know if it's the central bank. Here's something I could get behind: raising lending requirements in frothy markets.

Region: So, Fannie Mae.

Thaler: Fannie Mae, yes. If normally you can get a loan with 5 percent down, if the price-to-rental ratio exceeds *X*, raise the down payment requirement.

Region: Then a role for regulation, but not the central bank.

Thaler: I'm not one to blame Alan Greenspan for the tech bubble. I don't think that you can blame the Fed for that. There's more of a story for the real estate bubble. Certainly low interest rates helped, but …

I'm not one to blame Alan Greenspan for the tech bubble. There's more of a story for the real estate bubble. But I wouldn't put the Fed at the top of the list. Mortgage-backed securities looked like a steal. Well, that's private sector, right? You can have an open bar, but it doesn't mean everybody has to get drunk.

Region: So did lending standards.

Thaler: Right. There's so much blame to hand around—I wouldn't put the Fed at the top of the list. In Greenspan's *mea culpa* speech, he says he's shocked that there wasn't enough attention paid to, for example, counterparty risk. And that mortgage-backed securities looked like a steal. Well, that's private sector, right? You can have an open bar, but it doesn't mean everybody has to get drunk.

"NUDGING" IN THE U.K. AND ELSEWHERE

Region: I'd like to talk about your book, *Nudge*, but maybe we can talk about nudging in terms of current policy too.

Thaler: Yes, why don't we talk about nudging and what's happening now?

Region: Specifically, I hope to hear about the U.K.

Thaler: Sure, in fact, I was in London last week.

Region: You told me you'd be there, and I wondered if you were consulting with the government's policy group, the Behavioral Insight Team, also known as the Nudge Unit.

Thaler: Yes, I was.

Region: Also, I wanted to learn if you've done anything similar in the United States, perhaps with the Consumer Financial Protection Bureau [CFPB].

Thaler: The answer to that last question is yes, a little bit. But first, the U.K. story is that when *Nudge* first came out, a young guy on [future Prime Minister] David Cameron's small team—they were out of power at that time—read the book. He gave it to [future Chancellor of the Exchequer] George Osborne and David Cameron, and then Cameron assigned it to all the Tory MPs for summer reading. I don't know how many of them read it.

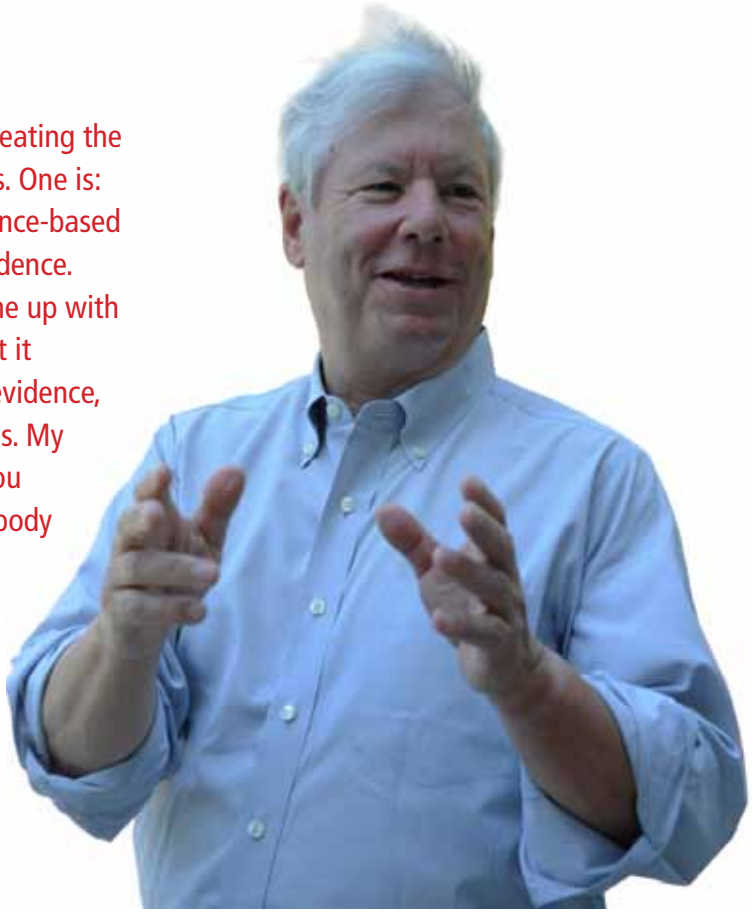
Region: Its Amazon rating must have soared at that point.

Thaler: Right—sure. Well, it was publicly reported that he had done this, so we did sell some books, but I don't know how many were actually bought by Tory MPs. Lots of them have read it now, I know. But when Cameron and Osborne were running, part of their campaign was that they were going to do this.

Then when they got elected, they said, "OK, we *are* going to do this." I was involved in helping to create this team and thinking about what it should do. And since it's been going, I've signed up to do a week of teaching in our [the University of Chicago's Booth School of Business] London executive MBA program every year. That's what I was doing last week. In the afternoon, I was teaching and in the morning, I was nudging. It's about the most fun an academic can have.

Region: Designing policy?

Thaler: Yes, but really, it's just problem-solving. A typical meeting is that I'll go with one or two team members and we'll meet with some minister and a couple of their staff, and they say, "OK, we have this problem." And we say, "OK, tell us about it." One of the very first meetings, we go see a guy in Treasury whose job is to collect from people who owe on their



I found myself repeating the same two mantras. One is: We can't do evidence-based policy without evidence. Whenever we come up with some idea, we test it because without evidence, all they are is ideas. My other mantra: If you want to get somebody to do something, make it easy.

taxes. Now, he had already been working with a firm that is affiliated with a psychologist named Robert Cialdini, a famous guy who wrote a book called *Influence: The Psychology of Persuasion.*

We said, "All right, what do you do?" Most people in the U.K. have a very simple tax situation. No deductions. If you have the equivalent of our W-2 income, you don't even file a return, but if you have Schedule C income or you're a small-business person, then you have to file a tax return and you might have to write a big check.

It's those people that his job was to collect from, and we said, "What do you do?" "Well, we send a letter and if they don't reply, we send a meaner letter. And if they don't reply to that, we send the bailiff, and that costs a lot of money." We asked, "Can we see the letter?" "Sure." "OK, I think we can do better."

In every one of these meetings in the early days, I found myself repeating the same two things; they've since become the team mantras. One is: We can't do evidence-based policy without evidence. Whenever we come up with some idea, we test it because without evidence, all they are is ideas.

For the tax collection problem, the team wrote lots of different letters. We had psychological reasons to think that these would work, but we're not always right. So, we were running randomized trials. There were lots of skeptics about this thing, you know. "Yeah, you're going to nudge. Right." But this just turned that all around.

Running the experiment itself saved the government millions of pounds because the best letter brings in about 5 percent more money than the letter they were sending out, and it doesn't cost any more to send a good letter than a bad letter. And the public is happier because the new letters are a little nicer. It was a big win.

Region: What do the letters say? How do they nudge people in the right direction?

Thaler: Basically, they say, "You know, most people pay their taxes on time." That helps. Or tailored to the individual, like, say, for you: "Most people in Minneapolis pay their taxes on time." That helps more. Or you write, "Most people in Minneapolis pay their taxes on time, and some of the money has gone to fixing all these bridges that are falling into rivers." That local specificity will do it.

Let me tell you another story about the U.K. We had a meeting with the minister in charge of a program to encourage people to insulate their attics, which they call "lofts"—I had to learn that. Now, any rational economic agent will have already insulated their attic because the payback is about one year. It's a no-brainer. But a third of the attics there are uninsulated. The government had a program to subsidize insulation and the takeup was only 1 percent.

The ministry comes to us and says, "We have this program, but no one's using it." They came to us because they had first gone to the PM or whomever and said, "We need to increase the subsidy."

You know, economists have one tool, a hammer, and so they hammer. You want to get people to do something? Change the price. Based on theory, that's the only advice economists can give.

Region: Standard price theory.

Thaler: Right, exactly. So we sent some team members to talk to homeowners with uninsulated attics. "How come you don't have insulation in your attic?" They answered, "You know how much stuff we have up there!?"

So, we got one of the retailers, their equivalent of Home Depot, that are actually doing the [insulation] work, to offer a program at cost. They charge people, say, $300; they send two people who bring all the stuff out of the attic. They help the homeowners sort it into three piles: throw away, give to charity, put back in the attic. And while they're doing this, the other guys are putting in the insulation.

You know what happened? Up to a 500 percent increase.

So, that's my other mantra. If you want to get somebody to do something, make it easy. Anyway, I could give you a hundred of those stories.

Region: They're great.

Thaler: So, you asked if there is anything similar in the U.S. There is a little. Something has started on a very small scale.

Region: Through the CFPB?

Thaler: No. I mean, the CFPB is doing some behaviorally motivated research. But there are also the beginnings of an equivalent to Britain's Behavioral Insight Team. It's an initiative led and coordinated by the Office of Science and Technology Policy, and it's just starting up. There's one energetic young woman, Maya Shankar, who's getting this started and it's going to be on a very small scale initially. We'll see if they have success and, if so, it will probably grow. We've shown that this kind of effort saves tons of money.

RECIPROCITY AND COOPERATION

Region: One thing we haven't talked about yet is your work on reciprocity and cooperation. And let's use another British example, Golden Balls [goldenballstvshow.com/]. You did some fascinating research on this British game show. Can you tell that story and what it illustrated?

Thaler: You know, it's funny, this goes back to Gary's line [about behavior in real markets as opposed to labs]. As you know, this game show ends in a prisoner's dilemma. And there have been thousands of experiments run on one-shot prisoner's dilemmas. We know that economic theory says that the rational strategy is to defect; theory says everyone will defect. It's the dominant strategy.

In experiments, about 40 to 50 percent of the people cooperate, but it involves small stakes. In this paper we write about the actual game show, there's one trial, a round in the actual game show—you may have seen the clip [youtube.com/watch?v=p3Uos2fzIJ0] of it—where it's not small stakes at all; it's around 100,000 pounds. And that's one of the things we were interested in: What happens when you raise the stakes?

This is what happens: You get a plot like this (see hand-drawn plot on page 25 and actual plot above). I just happened to have drawn this for another visitor, a grad student.

So, yes, the economists were right. If you raise the stakes, cooperation falls. But it falls to the same level you see in the lab. The interesting behavioral thing is, when the stakes are small, compared to what other people are playing for in the game show, then cooperation gets even higher.

This goes to bounded self-interest. Economists assume people are unboundedly unscrupulous—or I'll say self-interested, a more polite term. But there have been lots of experiments where you leave a wallet out and depending on the place—I don't remember the exact data—but a large percentage get returned. Now, some wallets also get picked clean first, but … so I wrote about this too. (He displays a photo of a roadside rhubarb stand.)

Region: What is this?

Thaler: This is significant. Notice the features of this. It's a roadside stand; they're selling rhubarb. And it's got an honor box with a lock on it.

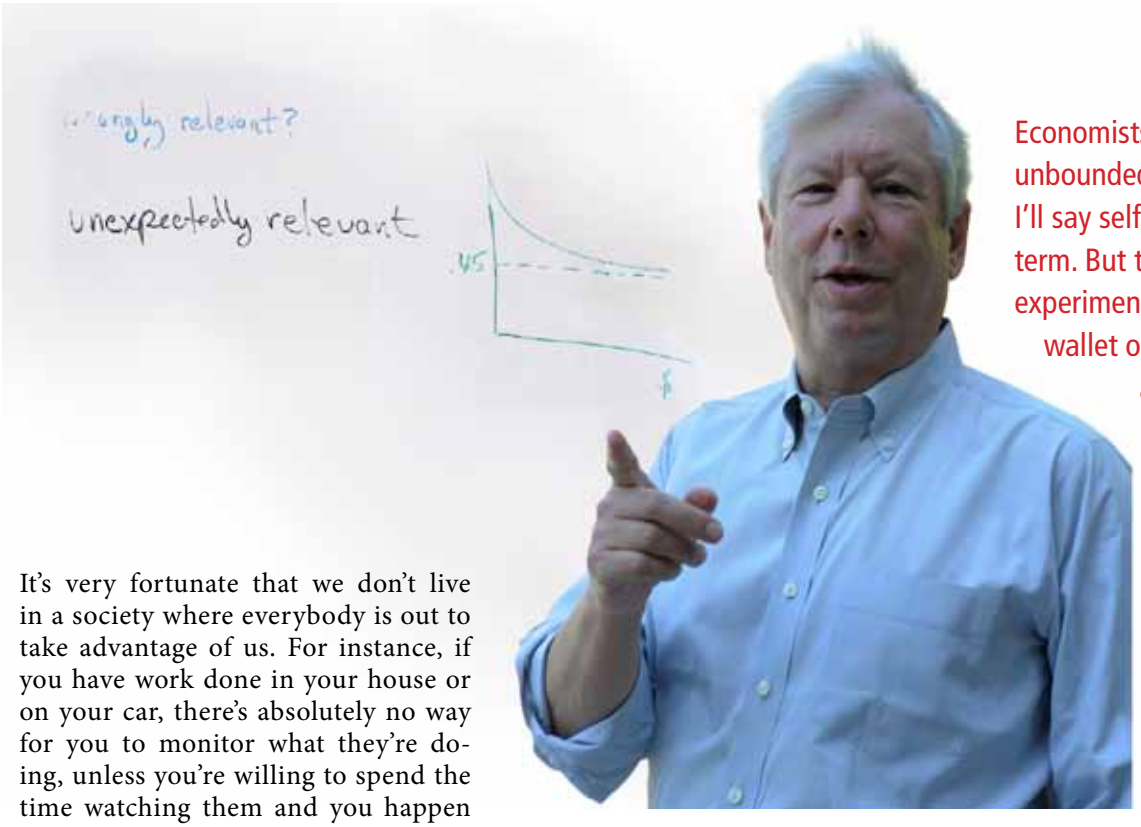
I think this is exactly the right model of human nature, that if you put this stuff out there, enough people will leave money that it's worth the farmer's time to put it out. But if you left the money in a box that was unlocked, somebody would take it.

Region: It takes just one dishonest person to "undo" the honesty of many others …

Thaler: Right. If you ask somebody directions, most people will tell you.

This figure displays the relative frequency of contestants who decide to "split" the stake in "Golden Balls," a British game show. The dashed line reflects the average cooperation rate. The solid line connects the average estimate of propensity to cooperate for each stake size interval.

Source: "Split or Steal? Cooperative Behavior When the Stakes Are Large," p.18



Economists assume people are unboundedly unscrupulous—or I'll say self-interested, a more polite term. But there have been lots of experiments where you leave a wallet out and a large percentage get returned. It's very fortunate that we don't live in a society where everybody is out to take advantage of us.

It's very fortunate that we don't live in a society where everybody is out to take advantage of us. For instance, if you have work done in your house or on your car, there's absolutely no way for you to monitor what they're doing, unless you're willing to spend the time watching them and you happen to know a lot about the work, materials and methods being used.

So it has to involve trust. Trust is really important in society, and anything we can do to increase trust is worthwhile. There's probably nothing you could do to help an economy grow faster than to increase the amount of trust in society.

EVOLUTION OF ECONOMICS

Region: Let me end with another evolutionary question, about the evolution of economics. In a 1999 article in *Financial Analysts Journal*, you predicted that behavioral finance would no longer be a subfield of financial economics, but simply a fundamental. And in a parallel 2000 piece in the *Journal of Economic Perspectives*, you forecast much the same for behavioral economics in general. How are you feeling now about those predictions, about 12 or 13 years hence?

Thaler: Good.

Region: How so? Because of progress in economic science?

Thaler: Well, you know, somebody once said science proceeds funeral by funeral.

Region: Right. Kuhn?

Thaler: I don't think it's Kuhn. I think it may be Max Planck, but it's a Kuhnian thought. He probably quotes it. And it applies here. The field of behavioral economics has really been driven by the entry of young people. We've had these biannual behavioral economics summer camps sponsored by the Russell Sage Foundation. We just had our 10th camp, so we've been doing it for 20 years. And now the CFPB academic advisory board includes me and four former campers: These are chaired professors at Harvard, Yale, et cetera.

But if I would give one example to illustrate where I think the field is going, I would point to Raj Chetty, who should be on your list of people to interview. As you know, he just won the Clark Medal, at 33.

Now, Raj would not describe himself as a behavioral economist, but much of his best work is as behavioral as it should be. One of his most recent papers [obs.rc.fas.harvard.edu/chetty/ret_savings.html] is addressing a question I've been asked for the last 20 years, which is, if I get people to save more in their 401(k) plans, how do I know that they're just not running up bigger credit card bills? And the answer is, I don't know because I don't have their balance sheets.

Raj and his co-authors got data from Denmark, where they know everything. It turns out that 90 percent of the saving is new and that the automatic features do all the work. The tax subsidy is only affecting the behavior of rich people.

Region: So changing the choice architecture accounts for that change in participation.

Thaler: The choice architecture is everything. The tax subsidy is nothing.

Region: That's refuting price theory, sir.

Thaler: I'm sorry. I still believe in supply and demand, you'll be happy to know.

Region: That is reassuring. And a good place to close. Thank you very much. R

—Douglas Clement
July 17, 2013

More About Richard Thaler

Current Positions

Ralph and Dorothy Keller Distinguished Service Professor of Behavioral Science and Economics, Booth School of Business, University of Chicago; Director, Center for Decision Research; on faculty since 1995

Research Associate, National Bureau of Economic Research; Co-director (with Robert Shiller), Behavioral Economics Project, since 1992

Previous Positions

Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford University, 1998

Henrietta Johnson Louis Professor of Economics, Johnson Graduate School of Management, Cornell University; Director, Center for Behavioral Economics and Decision Research, 1988-95

Visiting Professor, Sloan School of Management, Massachusetts Institute of Technology, 1994-95; Visiting Scholar, 1993

Visiting Scholar, Russell Sage Foundation, New York, 1991-92

Visiting Associate Professor, Policy Division, Faculty of Commerce and Business Administration, University of British Columbia, 1984-85

Professional Activities

President-elect, American Economic Association, 2014; Vice President, 2010; Nominating Committee, 2004, 2011; Member since 1970

Associate Editor: *Journal of Behavioral Decision Making, Journal of Risk and Uncertainty, Management Science*

Honors

Honors Member, American Academy of Arts and Sciences, since 2000

Nicholas Molodovsky Award, CFA Institute, for "groundbreaking research in the fields of behavioral economics and finance," 2012

Fellow, Econometric Society, 2012

Honorary Ph.D., University of Rochester, 2010; Erasmus University Rotterdam, 2005; Case Western University, 2003

Fellow, American Finance Association, 2009

Publications

Co-author (with Cass R. Sunstein) of the bestseller *Nudge: Improving Decisions about Health, Wealth and Happiness* (Yale University Press, 2008); author of The *Winner's Curse: Paradoxes and Anomalies of Economic Life* (Free Press, 1991) and *Quasi-Rational Economics* (Russell Sage Foundation, 1991); editor of *Advances in Behavioral Finance* (vol. I, Russell Sage Foundation, 1993; vol. II, Princeton University Press, 2005); author of numerous articles in prominent journals with an emphasis on behavioral economics and the psychology of decision making.

Education

University of Rochester, Ph.D., 1974; M.A., 1970

Case Western Reserve University, B.A., 1967

Glossary

Anomalies
The title of a column in the *Journal of Economic Perspectives* in which Thaler and other economists have analyzed economic behaviors that appear to contradict the predictions of expected utility theory. For Thaler contributions, see faculty.chicagobooth.edu/Richard.Thaler/research/anomalies.html.

Anchoring
Relying on the first piece of information received when making decisions and judgments. The initial information becomes the reference point (or "anchor") for subsequent deliberation, as when negotiations start with a specific dollar figure that becomes the amount from which buyer and seller seek to bargain.

Availability heuristic
A mental shortcut whereby individuals judge probabilities and frequencies by the ease of recalling examples. Psychologists and behavioral economists suggest that humans use this strategy to simplify the difficulty of calculating probabilities, deciding that if an event or characteristic is easily remembered, it likely occurs frequently. As Kahneman and Tversky wrote in their 1973 paper on this heuristic, "A person could estimate the … likelihood of an event, or the frequency of co-occurrences by assessing the ease with which the relevant mental operation of retrieval, construction, or association can be carried out."

Bounded rationality
The term used by economist Herbert Simon to describe the limited capacity of humans to think and act in fully rational ways, thereby limiting their ability to optimize as posited in conventional economic theory. Bounds include incomplete information, inability to process information without bias or error, and restricted time in which to make decisions and judgments. Simon argued that although individuals may intend to make rational decisions, these limits result in their "satisficing" instead of optimizing—that is, making the most adequate or satisfactory decisions given bounded rationality.

DFA
Eugene Fama is a board member of Dimensional Fund Advisors, dfaus.com, whose philosophy, in part, is that "markets reflect the vast, complex network of information, expectations, and human behavior. These forces drive prices to fair value." DFA, in other words, holds an investing philosophy based on the EMH.

"Each of us"
As noted above, Eugene Fama is a board member at Dimensional Fund Advisors, or DFA. Thaler is a board member and principal of Fuller and Thaler Asset Management Inc., fullerthaler.com. The firm uses insights from behavioral economics to find "mispriced stocks and earn superior returns."

Efficient market hypothesis
The notion that prices reflect all available information. According to Eugene Fama, one of the idea's earliest and best-known proponents, "Market efficiency [means] that the deviation of the realized price from the equilibrium expected value is unpredictable based on any past information." Since prices incorporate relevant, available information, the EMH holds that equities trade at fair value, making it impossible to use selection or timing strategies that can consistently outperform market indexes. Only by taking on additional risk can investors earn higher returns.

Equity carve-out
A partial spinoff by a parent company of a minority stake in a subsidiary. Carve-outs involve a company listing part of its operation as an initial public offering, or IPO. The parent usually continues to hold a controlling share of the subsidiary's equity for a while, thereby remaining in control of its operation.

Mike Jensen's thesis
Harvard economist Michael Jensen developed "Jensen's alpha," a risk-adjusted measure of portfolio performance that estimates how much a fund manager's forecasting ability contributes to the fund's returns. Using this measure to estimate the predictive ability of 115 mutual fund managers from 1945 to 1964, he found "not only that [they] were on average not able to predict security prices well enough to outperform a buy-the-market-and-hold policy, but also that there is very little evidence that any individual fund was able to do significantly better than that which we expected from mere random chance." Adjusted for management fees, average fund returns didn't cover brokerage expenses.

Daniel Kahneman and Amos Tversky
Long-time collaborators who developed many of the fundamental psychological concepts behind behavioral economics. After accepting the Nobel Prize in economics in 2002 for this work, Kahneman reportedly said that he considered it a joint prize with Tversky, who had died in 1996. (The Nobel is not awarded posthumously.)

LSV
An institutional investment fund, lsvasset.com, founded by economists Josef Lakonishok, Andrei Shleifer and Robert Vishny based on research they developed in the mid-1990s, which argued that value stocks outperform growth stocks because "value strategies exploit the suboptimal behavior of the typical investor and not because these strategies are fundamentally riskier." LSV Asset's investment philosophy is that "superior long-term results can be achieved by systematically exploiting the judgmental biases and behavioral weaknesses that influence the decisions of many investors."

LTCM

Long-Term Capital Management, a prominent hedge fund that collapsed in 1998 after losing over $4.6 billion when Russia devalued its currency, essentially defaulting on its bonds—an outcome that LTCM's quantitative models had given very low probability. To prevent broader systemic failure, the Federal Reserve intervened, overseeing a $3.6 billion bailout by 14 large financial institutions. By 2000, LTCM had been liquidated and dissolved.

Moneyball

Referring to the 2003 book, *Moneyball: The Art of Winning an Unfair Game*, by Michael Lewis, about the Oakland Athletics' data-driven approach to building the best possible baseball team with a small budget.

Nudge

"Nudge: Improving Decisions About Health, Wealth, and Happiness" is a 2008 book by Cass R. Sunstein and Thaler. It discusses flaws in human decision-making, and how to improve the process through better choice architecture—that is, better organizing the context in which decisions are being considered. *Nudge* suggests government policies, corporate practices and individual measures that could be taken to improve outcomes in a variety of areas, including investing and health care. (See the December 2009 *Region* review at minneapolisfed.org.)

Random walk theory

The idea that an amount or price changes without any consistent pattern—a "random walk." Therefore, it is impossible to forecast future equity prices accurately based on prior history. Applied to shots by a basketball player or deals to a poker player, the theory is also used to refute the idea of a "hot hand."

Systematic bias

The tendency to consistently favor particular outcomes or make predictable decisions or judgments. In behavioral economics, the phrase is often used to describe the result of using cognitive shortcuts. In *Nudge*, Thaler and co-author Cass Sunstein write, "Although rules of thumb can be very helpful, their use can also lead to systematic biases." Psychologists Kahneman and Tversky are credited with first exploring this link in their 1974 article "Heuristics and Biases."