

Snap Judgment

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When to Trust Your Instincts,
When to Ignore Them, and How to
Avoid Making Big Mistakes with
Your Money

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About the Author

David E. Adler's previous book, *Understanding American Economic Decline* (Cambridge University Press), coedited with the historian Michael Bernstein, was an anthology of essays by economic historians examining America's financial problems in a historical context. David Adler has written for *Barron's*, *Institutional Investor*, *The New Republic*, *Psychology Today*, and *Financial Planning*, where he is a contributing writer focusing on high net worth investing. He has a BA and MA in economics from Columbia and also studied graduate economics at New College, Oxford.

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Why Investors Bet on Long-Shot Horses

The most persistent mistake in horse betting is known as “the favorite long-shot bias.” This is the tendency to over-bet long shots and under-bet favorites. The true chance of the long shot horse winning is much worse than the odds at the track suggest. The payoff from a long shot may be 100 to 1, but the true odds may be closer to 200 to 1.

Gamblers seem to love long shots, even though the returns are remarkably dismal. The favorite long-shot bias has been observed for over 50 years in the U.S., England, and Australia, (though strangely less so in Hong Kong or Japan). Based on the outcomes of over five million races in the U.S., the average bet on a long-shot horse (with odds of 100 to 1 or greater) lost 60 cents for every dollar. In contrast, betting on the favorite in every race lost only five cents a dollar.

Try it. Go to the track. See what happens if you keep betting on the long shot. You will find, according to Justin Wolfers, a professor at Wharton Business School, “by betting on long shots you are likely to lose a lot of money.”

Wolfers may currently be a professor but he has a long history at the track. He was formerly a bookie in his native Australia (a legal occupation). “I’m an Australian. We will bet on two flies crawling up a wall,” says Wolfers. He planned to make bookmaking his career, but after being fired (he says for “excessive cockiness”), he went to college instead. Wolfers put himself through school by continuing to practice bookmaking on the side. He only gave up the practice when

he went to work for Australia's Central Bank and then to graduate school in economics at Harvard.

"Being a bookmaker made me a better economist," Wolfers told me. "It made me think about markets and probabilities." Although the track is certainly a nontraditional market, it has similarities to being in a trading pit, with uncertain outcomes, real money at stake, and the forces of supply and demand determining prices.

Today Wolfers still returns occasionally to the track, but now only in the guise of an academic: He takes students from his business school class on Behavioral Economics and Prediction and Sports Betting Markets. His interest is not in making money for himself, it is in explaining anomalies and puzzles of the sports-betting markets. A central one for horseracing is, if long shots are such a statistically bad bet, why do people keep betting on them?

One possibility is romantic: Gamblers love the risks involved and think the big potential payoff makes a long shot worth it. The dream of a big win overwhelms the near certainty of a likely loss. The other, more mundane possibility is gamblers don't really understand the odds—they just don't get it.

In addition to a long-shot bet on a single horse, racing has similar long odds bets known as "exotics." These include an exacta (picking which horses will come in first and second in a race) and trifecta (betting which horses will come in first, second, and third, in exact order). To make these exotic bets, people have to calculate the odds for different horses involved as well as for the overall combination. Usually these high-ranked horses have much more manageable and understandable odds, say 4 to 1, of placing first or second, even if the overall exotic bet has very long odds.

In an ingenious piece of economics research, Wolfers was able to test which motive was driving gamblers' behavior by looking at long shots but also exotic bets. To do so, he and Erik Snowberg, one of his students, examined the data from *all* six million horse starts in the U.S. between 1992 and 2001. Teasing apart the results of exotic bets,

they found gamblers could more or less correctly understand the odds of each individual component. These were in a low range (say, 4 to 1 or 6 to 1). It was when it came time to put together the bets into complex exotics that gamblers ran into trouble. Wolfers argues humans aren't well calibrated to be able to statistically evaluate long odds (say, 100 to 1 or 200 to 1). Our intuition can't fully comprehend odds in this range and make useful calculations or comparisons.

So when it comes to single bets on very-long-shot horses, gamblers aren't driven by a dream or a love of risk, but rather by a misunderstanding of the odds. As Wolfers and Snowberg write, "Behavioral theories suggest that cognitive errors and misperceptions of probabilities play a role in market mis-pricing.... People are systematically poor at discerning between small and tiny probabilities, and hence price both similarly." The favorite long-shot bias has nothing to do with belief in the underdog and everything to do with our faulty intuition when it comes to dealing with large numbers.

If most gamblers systematically overestimate the probability of a long shot winning, can you make money off their predictable errors? That is, once you are aware that others are prone to the favorite long-shot bias, can you exploit their mistake? The answer is no. Wolfers has found that any differences in odds are too tiny, and the track gets a cut, too, eliminating any profits. The only true savings that will accrue to gamblers aware of this bias will result from changes to their own behavior: They will stop betting on long shots and start betting on favorites. Instead of losing 60 cents on every dollar they will lose only five cents on the dollar.

But this begs the question of why people are betting on horses at all? Betting on long shots is a bad bet, but betting on favorites is still a money loser. Betting randomly at the track loses on average about 16 cents on the dollar. What is going on in people's calculations? Maybe they have a kink for horseflesh. Or feel they have a sixth sense. Or they may find a day out at the track is "entertainment." But gambling every day?

One way to find out is to ask them. Professional gamblers don't use the word "gambling" to describe their favorite activity or themselves. "Investing" is the preferred term. The serious habitués of the track think of themselves as investors. They are there to win. And they believe they *will* win money, with their "investment" research (knowledge of horses, jockeys, track conditions, history) providing the edge. And they are now assisted in their efforts through computer programs, which are constantly crunching numbers, looking for that edge.

Sound familiar? Wall Street, too, is populated by "investors" busy trying to spot any mispricing and find profit opportunities. These investors are also certain they have an edge. There are, of course, differences: You could argue the stock market is more socially useful than the track; it allows companies to raise capital and investors to retrade stocks. And there are sociological differences, too. The track is now largely a charmingly old-fashioned institution, populated by Damon Runyon characters with too much time on their hands. (Runyon, obsessed with the underworld and gambling, was a cynic who maintained a very realistic sense of the true odds involved in most gambles and other activities, too. In one short story, his character Sam the Gonoph says, "I long ago come to the conclusion that all life is six-to-five against.")

Despite these distinctions, the sheer volume of trading on Wall Street points to its essential similarity to the track. According to standard, rational economics, you would see very little trading by investors, who would rebalance their portfolios once in a while and draw down their wealth as they age. That wouldn't account for very much turnover. But the daily turnover in stock markets is immense, much larger than these rational or functional motives could explain. Similarly, given that betting on horses is a negative sum activity, you wouldn't expect people to play this game at all, much less the degree to which committed gamblers "play the ponies." Some other impulse is at work, some not fully rational impulse, a sort of thirst. Says Wharton professor Wolfers, "In both domains people think they are investing. But they are actually gambling."

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Gambling Continued: Stories We Tell Ourselves

A man I will call Al “Dogs” is a luminary in certain Brooklyn old-school gambling circles. (“Dogs” comes from all the time he spent at the dog track.) Al’s claim to fame is his extraordinary win at the Kentucky Derby a few years ago. On a single \$100 bet on a trifecta, he cleared a million dollars. His life changed. Al Dogs moved out to the “island” (Long Island) and is the first to buy drinks for friends. The Governor of New Jersey once invited him to open a race.

Al remains a very heavy gambler. He is constantly at the track, including his old weakness: the dog track in South Florida, a sociological low. Al doesn’t discuss his losses, only his wins. And over the years, the losses may have been substantial, easily larger than the wins. But despite the real financial picture, Al to his friends, but more importantly to himself, is a winner, *the* big winner, because of that day at the Derby.

We tell ourselves stories about our wins and losses. During the worst days in the panic of ’08 every hedge fund manager I saw on TV or was unlucky enough to meet in person told the same story: “We’ve made a lot of money this week. It’s my friends that I’m worried about.” They would then add, almost as a footnote, “Of course, we are down for the year.” Part of this misrepresentation is marketing, but it could also be a case of misremembering. One huge win is easier to remember than death by a thousand small cuts of losses at the dog

track. And even if we didn't win we tell ourselves we could have, if only....

If only I had gone to law school I would be happier, we might tell ourselves. Or if only I *hadn't* gone to law school I would be happier. It is easy to imagine an alternative state of the world. And it is easy to blame ourselves, to regret not having achieved this alternative state. This selective self-storytelling is technically known as creating "counterfactuals."

These ruminations can cause great self-pain when it comes to investing. We kick ourselves more for actions that turn out badly than inactions that turn out badly, mistakes of doing something over mistakes from doing nothing. In a classic early behavioral finance experiment, people were given two scenarios: You own a stock and can keep it, or you have the opportunity to switch to another stock. In the experiment, both stocks went down. But the people who switched felt worse, much worse.

By changing stocks, people were now more vulnerable to feeling regret. Investors felt more responsible. Perhaps this accounts for our overall inertia when it comes to investing, our fear of departing from the way things are now, of being mocked for our efforts.

But over time, the story changes. We regret *not* doing things as our life goes past. We start blaming ourselves for inaction, not action. Not buying that Microsoft stock. In the end, regret is a two-edged sword.

Jim Sherman is a psychologist at Indiana University. He studies stories gamblers tell themselves about why different outcomes occurred, outcomes that are in fact determined by pure chance. Although he studies gambling, his work has particular importance for investors. Says Sherman, "If you think about the stock market as gambling, which I do, our work has real significance."

Sherman's psychological experiments often involve horse betting. In one, a set of gamblers is allowed to attend an actual race. They see

the track, the jockeys, and the horses. And they are given information about the race history of the horses and the jockeys—they can really do their research if they want to. Another set of gamblers is provided with much less information: only the odds involved, the horses, and whether a horse won or lost. No other details are provided. This second group is not allowed to see the race or assess the horseflesh.

It turns out that people who watch the race and got specific information were not better gamblers than the people who were told nothing. But they *thought* of themselves as better decision makers. From the additional information they were provided, they were able to generate complex stories about what was going on. And they could create excuses (“counterfactuals”) if their horse lost. The net result of all their mental handiwork is that although their likelihood of winning didn’t improve, their propensity to gamble and keep betting on horses shot up.

Says Sherman, “People are always trying to come to grips with bad outcomes. These counterfactuals have benefits in terms of emotions.” People have tremendous trouble understanding randomness. There is an innate need for control and to make sense of a senseless situation.

In terms of investing, the more specific information you get about a product or company, the more you think you really know about it. Psychologically speaking, it also allows you to generate more counterfactuals about the company and the direction of its stock price. And you think better of yourself. You *feel* more prepared, even if you have no true greater insight into the statistical reality of the situation.

For Sherman, this accounts for the massive appeal of playing financial markets, as opposed to gambling on games of chance such as roulette. Says Sherman, “The reason financial markets are so popular as opposed to pure gambling is people really believe they have control over what happens to their investments in the sense they can make good decisions and aren’t random.”

This is also seen in the pronouncement of stock market strategists who are always able to come up with some reason for stock market moves. They can look at the same data and create complete contradictory explanations on market moves—even during the course of the same day, by the same analyst. Stock “analysts” craft stories that appeal to our (and their) intuition, avoiding the brutal reality that the market moves have no more meaning and are not much more predictable than the turn of the roulette wheel.

Hot Streaks in Basketball

This larger pattern of seeing patterns where there are none is true throughout sports as well as Wall Street. In basketball, everyone knows players sometimes have “hot hands,” games when they are on. Basketball players *feel it* when they are on a shooting streak. Fans see it. And behavioral economists and psychologists study it, only to find that streak shooting is merely an illusion, not supported by statistical reality.

The most famous analysis of whether or not certain basketball players have hot hands was conducted on the Philadelphia '76ers. Cornell psychologist Tom Gilovich asked members of the team about their own view of hot hands. The players reported knowing when they were going to make their next shot. If they had made many shots in a row, their feeling was they “almost couldn’t miss the next one.” They also passed the ball to a player who just made several shots in a row, because they agreed that player was “on” and less likely to miss.

The psychologists then examined the actual performance of the team’s shooting record. To take some of the complicating factors out of the analysis, they looked at foul shots. Here no passing was involved, no selection of extra tough shots, no changes in defense to crush a hot player. Free throws allow you to look at player’s skill at shooting in isolation.

And here is what Gilovich found: There were no streaks that were any better than statistical chance. The likelihood of making a second shot, based on a hit or a miss on the first shot, was not significantly different from zero. As Gilovich and his co-authors report, there “is no evidence the outcome of the second free throw is influenced by the outcome of the first free throw.” This startling finding has been replicated again and again: with college undergraduate basketball players and with professional teams.

Gilovich looked at streakiness in other ways. He measured the actual success of players who “knew” they were going to make their next shot and observers who believed this, too. The players were largely unable to successfully predict a hit or a miss, and the observers were completely unable to predict it. All that was clear is where these predictions came from: if a player had hit or missed the previous shot. This explained whether a player felt “hot or not” but not if he was likely to make his next shot.

These findings are hard to handle. Part of our intuitive problem is events may look like a streak but in fact still be within the realms of pure chance. For instance, the outcome of heads or tails is roughly 50/50. Even so, you can still get heads four times in a row. In fact, this is *likely* to actually occur in 20 tosses, according to random chance. The odds of the next toss are unaffected. (See Chapter 21, “The Truth About Coin Tosses: They Aren’t Fair,” for more about secret biases in coin tosses.)

I spoke to Gilovich about his interpretation of his “hot hand” theory, which has been so important to the development of behavioral economics. He admitted that most people don’t believe it. When he teaches his findings, *none* of his students ever believe it. I’m not sure *I* believe it.

“Part of the problem is you certainly feel you are in a flow state. That is a true feeling. But in basketball, that feeling, and past performance, doesn’t predict future performance. Making several in a row doesn’t predict you are going to make your next basket. The

clustering of hits and misses is no different from the clustering you see when you are flipping coins.”

Nonetheless, the belief that a player is hot or cold has consequences. Coaches keep players they believe are on a streak in the game longer. They may get passed the ball more often. Of course, differences in skill exist between players. Some hit or miss shots more often.

But Gilovich is only looking at streaks: If you made your last shot, is there a better chance you will make your next one? Says Gilovich, “This can be shown not to be the case.”

For Gilovich, his work is really a metaphor for gambling...and stock market behavior. Wall Street traders strongly believe in hot streaks and cold streaks, too. When traders are “hot” the sense is their feelings are completely in sync with the market. Their bosses grab them, before they lose their hotness, and put them to work trading. Gilovich has a cooler view of this sort of phenomenon: “Gamblers feel they are on a roll, but we know this isn’t true. The odds of getting three heads in a row is one out of eight. There is no streak if this occurs. But gamblers may feel it, and so do stock pickers.” A company may have an unexpectedly positive earnings announcement. Then it has three in a row. The stock at this point spikes upward and seems unstoppable. The firm may be on a fantastic growth path. But it might not be. The outcome is not unexpected under the rules of chance, although the market doesn’t acknowledge this. It may be time to bet against the stock.

How to Make Money Gambling: Behavioral Insights

How do you make money gambling? You own the casino...so goes the old Vegas joke.

The founding fathers of Las Vegas, that is, gangsters, were psychologically sophisticated when it came to understanding gamblers. Given that odds are always in favor in the house and against the gambler, the trick was to find ways to sell the customer what, on the face of it, was a losing proposition. The marketing strategies the early casino bosses came up with were unparalleled in corporate America, a tradition that continues to this day, albeit in a contemporary form.

The Psychology of Design and Las Vegas

The centerpiece of these early strategies involved making a loser *feel* like a winner. Casino architect Alan Lapidus (son of Miami Beach architect Morris Lapidus) gives a glimpse of this process in his book *Everything by Design*. To take an example from 1950s Vegas, suppose a gambler is already down \$40,000. His credit limit is only \$50,000. The pit boss, seeing the gambler approaching his credit limit, steps in. He suggests the client give the dice a break; maybe catch the show while letting them “warm up.” Lapidus quotes an old timer who explains what happens next to the gambler:

“He goes to the night club and...the maitre d’ ushers him to a ringside table. There is a bottle of Dom Perignon cooling in an ice bucket, a box of Havanas are sitting on the table, and a bunch of topless cuties are shaking it in his face. A little while later the maitre d’ asks which of them he’d like. He has a night to remember.”

To complete the process, the next morning the casino gives the gambler a free car, a Cadillac convertible (bought at a discount). The casino is up \$40,000 minus the cost of the car and salaries, but the gambler is up, too. To use a technical term from psychology, the casino had successfully “reframed” the encounter, making the loser appear to himself to be a winner.

This psychological astuteness touches every area of casino life, including architecture and layout. Lapidus says the interior environment of the casino is carefully thought out: “Nothing [is] by chance, everything by design.” As is immediately obvious to every visitor, there are no clocks in the casino, no daylight and sunset, no outside world. In short, no time at all...like the present. Guests in Vegas have to cross the gaming floor to go anywhere. The slot machines are kept on the edge, as a lure, and a place for gamblers to deposit loose change. Table games, such as Blackjack, are in the middle. At the center is the Baccarat pit, the most exclusive area, designated for high rollers—and high profits for the casino.

The constant focus on psychology includes even the cocktail waitress costumes. Casinos recognized clients might find the women intimidating as *individuals*. The solution was to make them generic fantasy figures by providing them with uniform headdresses and wigs. Lapidus terms these and similar efforts “exercises in applied psychology.”

Casino expertise in the psychology of design could interest behavioral policymakers. The newest area of behavioral finance policy research is focused on the “architecture of choice.” In this approach, policymakers alter the context of choices, how they are framed or displayed, to significantly improve decisions and outcomes. There is no

need to change economic incentives. In their book *Nudge*, academics and choice architects Richard Thaler and Cass Sunstein use school cafeterias as an example. Simply by moving around the display of foods, spotlighting fruits and vegetables and keeping junk food largely out of sight and therefore out of mind, the cafeteria director could increase the consumption of healthy foods. Thaler and Sunstein extend this hypothetical cafeteria example to other areas of life, such as 401(k) plans, health insurance, and Social Security. In each case, the design of choices can “nudge” people in the right direction.

Casino people such as Lapidus are already well aware of the power of “choice architecture.” Their results aren’t hypothetical, making them an untapped resource in how to expertly design physical environments that affect choices. Of course, policymakers are presumably charged with using nudges to *improve* the lives of others. However, they may have a hard time relying upon insights from the Strip or turning for counsel to casino designers as the elder statesmen of choice architecture.

Harrah’s

The largely intuitive marketing efforts of historical Vegas were appropriate when gambling was a lightly regulated, cottage industry. The free cars and more were targeted in any case only to high rollers. But in today’s corporate casino world, with gaming now a major mass-market draw conducted in numerous states across the U.S., new approaches are called for. The challenge remains the same: The primary economic incentives facing the client—their odds of winning—are not in their favor. Changing the payouts on slots is not legal or desirable. Casino’s have to find ways to appeal to client’s hopes rather than their rational economic calculations or enlightened self-interest, either of which could put a damper on gambling.

Gary Loveman, CEO of Harrah’s, the world’s largest gaming company, is an economist by training; he has a Ph.D. from MIT. He was a professor at Harvard Business School when he was recruited by Harrah’s.

His approach to marketing is unprecedented in gambling, and maybe other businesses as well. He scientifically models and tests consumer behavior, drawing upon econometrics, epidemiological methods, and, yes, behavioral economics.

Speaking from Atlantic City, a major Harrah's outpost, Loveman explained to me how he transformed casino marketing. Whereas the industry founders just relied on their gut instincts, Loveman refines and tests all insights, making marketing more of a science and one rooted in a precise understanding of consumer behavior and psychology.

Interestingly, he begins our conversation by talking about love, corporate love: "If somebody loves you, it's because they feel great about you as brand. You don't have to use discounting." Financial incentives alone are not the way to make consumers fall in love with a particular company, which is obvious to anyone but an economist. You can't buy love. Instead, Loveman suggests corporations should continuously monitor consumer behavior and in some cases modify it, to make sure customers fall in love with the brand. "And in this area," says Loveman, "we are as strategic and surgical as we can be."

Loveman's bet upon arriving at Harrah's was to focus on improving revenues from existing facilities, analogous to pursuing a same-store-sales growth strategy used in retail. Most of his competitors instead were adding to their facilities, making them glossier—putting in exploding volcano displays—and bigger, with most revenue growth coming from an expanding gambling floor. But Harrah's already had geographically diversified facilities, and, in fact, was soon to become the largest gambling operation in the world.

Loveman immediately set about improving customer service. When he started, he found something else: Harrah's had a sort of rudimentary customer rewards program, giving out points for gambling, akin to an airline's frequent-flier program. Loveman had no interest in the effectiveness of the program as it was then designed—it had none. But the program did allow the casino to collect extensive information on customer preferences, even if the casino didn't know

what to do with this information. Loveman, as a social scientist, immediately recognized he had a rich data set at his disposal. He could put it to use in a way no other casino boss could envision. It is his interpretation and exploitation of the customer preference data to hone his marketing strategy that sets Harrah's apart.

"Take a basic example," says Loveman. "When we first started, I found we were giving customers from Chicago a discounted room and beverage in Vegas as well as a \$35 dollar gift certificate for the gift shop. We found that the gift certificate was not predictive of a trip, but was used if people came." In other words, the gift certificate brought in no customers, but customers who did come spent the \$35, an instant loss for the casino. The gift certificate was not fulfilling any of the casino's marketing objectives and was just a dead loss. Loveman instead found that reducing the room rate was more likely to spur traveling to Vegas—that was a clear fact from his data. "Simply by decreasing the room rate by \$15 dollars, we were able to increase the response rate. And when they came, the trip was more profitable for us."

"Take a more complex example," continues Loveman, in a slightly pedagogical mode that harkens back to college teaching: "Let's imagine a woman of 61 years of age in suburban Memphis drives to our casino in Tunica, Mississippi, for the first time, plays a \$10 slot once, and leaves." Under historical gaming marketing analysis, she would have all the signs of being a lousy customer. She, after all, spent only \$10 dollars. The casino might try sending her a free buffet coupon, but probably would do nothing at all. However, Loveman's complex model would reach different conclusions. It turns out being 61, and from suburban Memphis, are both good things when it comes to gambling. And she played a \$10 slot machine rather than something smaller, indicative of a higher roller.

"Using our predictive model, we would predict her gambling budget is substantial. In fact, she is likely playing at a competitor's. The only way to market to her meaningfully is to market to her

competitively,” says Loveman. In her case, this might mean a free room, or possibly a suite, and show tickets. There are many amenities Loveman could try. But at the same time the model’s hypothesis might be wrong. The 61-year-old might not be such a great prospect. Free parking alone might do the job of luring her back.

The key point is Harrah’s *tests* its marketing hypothesis every week. The casino observes the behavior of thousands of gamblers, like the hypothetical visitor from Memphis. For testing purposes, they are placed into active and control groups. The active group gets different marketing from the control group say, a suite. The control group gets something more modest, such as free parking. The casino then analyzes the difference. Loveman and team decide whether they learned anything, and if they did, they get the message out to 50 other facilities, and then move on to the next test.

Harrah’s still makes use of traditional Vegas-oriented service approaches. Slot machine players can leave their machines untouched if they want while they go to dinner or a show and then return to a machine no one else has played. The casino caters to many gambling folk beliefs. But what it can’t do is change the odds, except on a very few high-end games for high-end gamblers.

If Harrah’s is at the leading edge of moving away from intuition to a more rigorous assessment of consumer behavior, with all its seemingly idiosyncratic but largely predictable responses, who is at the lagging edge? Tired of all the positive news, I wanted something negative, so I asked Loveman, “Who *doesn’t* get it?” Here is his response:

“Grocery stores do the worst job of any organizations I’ve seen. They do just about everything wrong. They do it backwards. If you are coming to see me in St. Louis every Saturday night, the last thing I want to do is discount the Saturday night trip.”

But that is exactly what grocery stores mistakenly do, he argues. If you buy a lot of diapers, grocery stores give you a discount on diapers.

Instead, they should give you a coupon for a product you don't buy. Loveman recommends "a high margin product, like skin cream."

His more "out of the box" suggestion is to change the way grocery store lines are organized. Currently, express lines are only available for customers who have bought just a few things. If you have a full cart, though, you have to wait in a long line. This means, as Loveman points out, grocery stores reward people who spend the least with the best lines, whereas people spending the most have the worst lines. "Your best customers should come first in service satisfaction, not last," he says, and be given the fastest lines.

This is a suggestion too far for me. I've spent enough time trapped in airport check-in lines, while first-class passengers whisk by and through security as well. (Why are they lower security risks?) Simple fairness as well as expediency counteract the corporate revenue-maximizing perspective inherent in Loveman's idea. But even if it is misguided, it is imaginative.

This candor extends to his description of an additional aspect of his constant testing: the testing is "symmetrical." That is, whereas some tests try to determine where the casino should increase financial incentives, other tests try to find out where the casino could *reduce* financial incentives. The analysis cuts both ways. High frequency gamblers, flying in from Chicago to Vegas, could be induced to visit with a \$100 coupon. However, \$75 might also do the trick. Time for a test to find out. Says Loveman, "If we can get the number weaned down that doesn't impact frequency, getting them to come and stay for less money, then that is powerful learning, too."

Las Vegas is distinctive. The way high-end customers are treated is unique. Marketing to them is very "involved," a euphemism encompassing any number of methods, from free shows, to diamond watches as gifts, and more. But marketing to the masses, at least in Harrah's case, is now unique as well.

Behavioral economics can be deployed in new ways—ways that maximize corporate revenues but minimize customer assets. Not

every intervention is a win-win, certainly not in Las Vegas. But there is an honesty about the stakes involved, an honesty missing from the gaming industry's close cousin: Wall Street. The lessons may be dark ones, but in economics as in many areas of life, we have much to learn from Las Vegas.