



DAVID E. ADLER

# SNAP JUDGMENT

WHEN TO TRUST YOUR INSTINCTS,  
WHEN TO IGNORE THEM, AND  
HOW TO AVOID MAKING BIG MISTAKES  
WITH YOUR MONEY

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# Introduction: Second Thoughts About First Impressions

*I can resist everything except temptation.*

—Oscar Wilde

This book is about the psychology of financial decisions. It is about how our instincts and intuitive judgments intersect with financial markets, as well as other areas of contemporary life, to produce decisions that are not in our best interests. It argues that our “intuition,” the psychological responses celebrated in books like *Blink*, may be a useful guide when falling in love, but when it comes to investing, fully trusting your gut is pretty much a disaster. It will only lead you astray when choosing a stock or predicting the end of a real-estate boom. Snap judgments and first impressions are poorly suited for calculating odds and probabilities, compounding interest, or forecasting the future behavior of the stock market.

This book examines decision making in many areas of finance, such as picking stocks, bonds, mutual funds, and health insurance, too. It looks at how gamblers misperceive odds, and ways both sports teams and corporations could improve their strategies through a better understanding of probabilities. It shows how we naturally extrapolate current financial trends into the future, causing us to become irrationally optimistic—or alternatively to panic and subject ourselves to doom-and-gloom scenarios. The finance industry is well aware of our intuitive errors when it comes to investing and knows exactly how to get us to make the wrong move.

The message of the book is a positive one, and also a pragmatic one. When it comes to investing, you can teach yourself to recognize

your instinct-driven errors. This will allow you to temper your intuition, where appropriate, with more deliberate and also more informed thought. Through conscious effort we can resist the siren call of our gut instincts.

This book also comprehensively presents the most interesting recent findings of the rapidly growing field of behavioral economics, which draws on both psychology and finance. Some of the early ideas of behavioral finance are now widely known and are part of the mainstream of investment advice. But there is much more contemporary research that has not yet filtered out to a wider audience, and remains only in the hands of specialists. Whenever possible, I interviewed the creators of these newer ideas, to get it straight from the horse's mouth, or economist's mouth so to speak. Investors can profit from this new research, and I mean that literally. Keynes once compared the stock market to a beauty contest, where the goal was not to pick the contestant you found the most beautiful but instead to be able to spot the one everyone else was going to select. If you know how other investors judge stocks, think about markets, and are going to behave, that gives you an enormous leg up. This book discusses several persistent "anomalies," predictable departures from market efficiency, where through an understanding of investor psychology, rational investors can improve their chances of beating the market.

There is also a more ominous theme to the book. Relying only on intuition in finance—making the decision that seems right and *feels* right—can lead to very bad outcomes, not only for individuals but also for markets. These gut instincts, uncontrolled by self-regulation or government regulation, can give rise to huge financial bubbles. As we all know now, the U.S. spent the last decade or so in the grip of a mass euphoria of twin real-estate and credit bubbles. Individual investors and investment bankers made errors in judgment. The system, and the people in it, seemed to be in a sort of dream state during the bubble years. This was more than simple greed. Rational thought was in short supply. Few people worried about the possible

fragility of the system itself. Rising markets made investors complacent, stifling good judgment and decision making. Using gut instincts and intuitive perceptions for guidance, aided by dubious mathematical models that few explicitly questioned, no one saw the true dangers ahead, leading to a financial catastrophe.

## Gut Instincts and Evolution

Cognitive psychologists and decision theorists believe we have two decision systems at our disposal. The most immediate, written about in Malcolm Gladwell's *Blink*, is very quick, based on first impressions. These are snap judgments that occur almost instantaneously in the blink of an eye, with little deliberation. The ability to make quick intuitive decisions is an evolutionary adaptation, according to evolutionary psychologists. It developed so humans could function in early environments. Speed in thinking was everything. When should you run from a mammoth? Or toward a mammoth, hoping to spear it for dinner? Pausing to deliberate in such a moment could literally kill you. The brain of early man needed to fire off answers to these questions in a split second.

More generally, evolutionary psychologists argue that our early brains evolved to make quick decisions for another reason: Early man needed to master his rapidly changing social environment. This was central to human development. Our cognitive capabilities are hardwired to interpret and understand social cues. These social mechanisms are still present in our brains and pervasively color all of our thinking, including our assessment and interpretation of abstract patterns with no human presence.

Today, there are certain areas of life where this quick thinking, human-oriented decision system—call it intuition—still works well. Understanding the contemporary social environment is one of them: Is the colleague from the cube next door, that you are having lunch with, a friend? Enemy? Frenemy? Snap judgments rather than conscious deliberation may be your best guide.

Interpreting language cues, even when extremely subtle, is another area where you don't have to think too consciously to understand what is going on. People make inferences based on language and do so astonishingly fast. Take, for instance, the seeming compliment in the phrase, "Well, I liked your book," overheard in a conversation between writers. As opposed to reading it on the written page, listening to the delivery reveals this is not necessarily a compliment at all but instead could be meant as an insult. Emphasis on the word *I* conveys a hidden meaning, "Yes, maybe *I* did like it, but this was in contrast to everyone else. Everyone else hated it." An analytical or nonintuitive approach would miss the hidden dig. Similarly, artists undermine each other with the description, "She's a *competent* painter." The listener can infer this means nothing good, that the artist in question is mediocre and unimaginative.

Our intuition is also pretty good at recognizing how frequently things occur in nature. (Animals, in general, are good frequency detectors. They seem to uncannily forage in exactly the right place. They vary their hunting grounds in an evolutionarily determined, precise way so as to maximize caloric intake while minimizing caloric expenditure.) Our intuition can perform many other extraordinary feats: We are great at face recognition—we can pick out a face from a crowd of 10,000 people. We can easily sense the moods of other people.

These are all evolutionary mechanisms, high-speed inferences. And they work superbly well in areas with evolutionary precedent, areas that still resemble in some way the challenges facing early man, such as picking a mate, anticipating a rival's actions, or selecting what to wear. (A New York celebrity fur designer claims that the world's oldest profession is being a furrier!)

However, this system doesn't work well in situations that are different from those encountered by early man. To put it more formally, when the operating environment has shifted from what the system was designed for, our evolutionary adapted mechanisms are no longer

effective. In these situations, relying only upon our gut instincts will lead to failure, fully predictable failure.

Investing is one of those areas.

## A Second Way of Reaching a Decision

Try to solve the following simple math problem: A baseball bat and ball cost \$1.10 in total. The baseball bat costs \$1.00 more than the ball. How much does the ball cost?

The problem is not really a math problem, it's a psychological test. Because the answer, and our method of arriving at it, illustrates the limits of our intuition. If you are like most people, your immediate answer to the problem is the ball costs 10 cents. The majority of undergraduates at Princeton who were asked the question gave that answer. But that, of course, is the wrong answer ( $\$0.10 + \$1.10 = \$1.20$ ). The correct answer is the ball costs five cents. But to arrive at the correct answer, you probably had to pause for moment, for at least a beat, to think consciously rather than using your immediate intuition.

The fast and then the slow way of answering this simple math problem—each of which provides a different answer—illustrates that humans have at their disposal an additional method of thinking, a type of information-processing architecture other than intuition. Call it analytic intelligence or conscious decision making. This invokes rule-based decisions, nonsocial decisions that require abstract thought. This was the system you probably had to rely upon to answer the math question. Such thinking is time consuming, not immediate, and involves conscious reasoning. This analytical decision system is probably a more recent evolutionary adaption than intuition. Interpreting statistical information or probabilities, understanding legal arguments, and calculating interest rates call upon this more abstract type of reasoning.

Keith Stanovich is a psychologist at the University of Toronto who studies human development and reason. He is a world's expert at

researching the differences between both types of decision making—intuitive and analytical. His experiments look at the way children reach decisions in situations requiring use of probabilities and logic. In one experiment, children are given the task of trying to choose a white-colored marble from containers that have blue and white marbles in varying amounts. The containers vary in size. The biggest container has the smallest proportion of white marbles. Children relying only on intuition, rather than probabilistic reasoning, tend to choose the biggest container (with more “winning” white marbles but a smaller proportion of winners) as the likeliest place to find the white marbles, an incorrect answer. The general conclusion of his experiments is that cognitive ability is strongly associated with being able to override intuition and instead using the harder-to-access analytic system.

There are no widely agreed upon names for these two systems. Our intuitive, instinctive, automatic, experiential, heuristic, emotional, visceral, snap judgment-oriented, appetite-driven, or hot system is called by Stanovich “System 1.” The analytical, rational, reflective, deliberative, central-processing, or abstract system (all common words to describe it) is termed “System 2” by Stanovich. System 2 involves long drawn-out cognition. In System 1, answers are arrived at in milliseconds. Think of the distinction as answers that come from your gut (System 1) versus your mind (System 2).

Stanovich summarizes the difference between the two systems, and why this difference is important: “System 1 gives ballpark answers. But modern society requires precision beyond ballpark answers.”

When there is no evolutionary precedent for a problem, intuition isn’t going to cut it. Contemporary life is filled with situations and problems that must be dealt with both precisely and abstractly. The ability to decontextualize and think abstractly is more important than relying on social cues. Sometimes there are no social cues. Try arguing with your mutual fund after you’ve watched your 401(k) disappear in the stock market decline. Or try appealing to the common sense of



your credit card company. In these circumstances, Stanovich points out, “We invariably find out that our personal experience, our emotional responses, our stimulus-triggered intuitions about social justice—all are worthless.”

Our intuitive system has not evolved for these abstract problems, which is why we have so much trouble selecting a 401(k) investment, knowing when to sell a stock, choosing the best health insurance plan, compounding interest rates, assessing the risks of complex mortgage-backed “structured products,” or dealing with probabilities and statistics in general. It’s why we believed real estate could only go up—or after the crash, only go down. It’s why investment bank CEOs, based on their decade-long success, began to think they could do no wrong. It’s why we hire the wrong employee who seemed so charming at the job interview. It’s why we underestimated the risks of credit markets and didn’t see growing possibility of a systemic meltdown.

The real problem is when we exclusively use our intuitive system to guide us in what are in fact abstract situations. Predictable biases arise. The answers aren’t even in the ballpark. Take, for example, the “gambler’s fallacy.” This is the belief that because a coin has come up heads many times in row, it is more likely to come up tails the next flip. But the coin has no memory. The outcome remains random, regardless of what happened in the past. Instead *we* remember, *we* imbue random outcomes with meaning, even with a sense of fairness, and mistakenly predict “tails.” (For the surprising situations where coin flips may not be random, and in fact are subtly biased, see Chapter 21, “The Truth About Coin Tosses: They Aren’t Fair.”)

And this sort of fallacy is also true in the way we view the stock market. We see patterns or think narratives are at work where none exist. We in effect socialize stocks, treating inanimate objects as if they had human characteristics. If we paid a certain amount for a stock, we think it’s only fair that we get at least that much back when we sell it, which might *feel* true, but has no bearing on the future direction of the price.

The dangerous intersection of our intuition and financial decision making has been studied in great detail by cognitive psychologists. Though not everyone is onboard Stanovich's evolutionary framework just yet, the field has agreed there are systematic biases in our intuitive thinking, which I describe in detail later in the book. In general, these mental rules of thumb, known as *heuristics*, simplify decision making. Though useful when we have to think quickly, they can lead to predictable errors when more abstract analysis is called for.

You can also make the opposite mistake: using analytical intelligence to solve what are essentially instinctual problems. In one famous jam experiment (there are actually several famous jam experiments in decision psychology), a group of participants were asked to rate jams using abstract dimensions: color, consistency, mouth feel. Another group was just asked which jam they *liked* the best. The group trying to use complex cogitation was thrown off; they could not reach a good operational judgment of what made for a good jam, unlike those who just chose the jam they liked. The conclusion is, you shouldn't over-think what you like in a jam.

Again, it is not every situation—very few in fact—where we need to override our intuitive system. Our intuition and abstract thought are not necessarily in conflict and may in fact support each other. However, in post-caveman life, there are many situations and decisions where our evolutionarily honed intuitive system is poorly adapted and doesn't serve us well. Stanovich's distinctions between the decision systems become crucially important in certain contexts where it can be extremely dangerous and self-injuring to be only guided by intuition.

The good news is you can teach yourself to check your intuition where necessary, to override your fundamental computational biases and use your analytical thought system instead. System 1 is our default, but through conscious effort, we can resist the temptation of listening to our gut, and instead make use of System 2. Airplane pilots do it all the time: They rely upon instruments to tell them if their

plane is level rather than trusting their inner ears. The amazing fact is through learning and experience, cold, formal, analytical rules become automatic—second nature so to speak. If someone ever asks you again: “A baseball bat and ball cost \$1.10 in total. The baseball bat costs \$1.00 more than the ball. How much does the ball cost?” The correct answer of a nickel is now intuitive.

## Making Better Financial Decisions

That people aren’t always rational when it comes to financial decisions is clear, particularly after recent events. Everyone screwed up: sophisticated hedge funds and investment banks, as well as naive mortgage borrowers. The more interesting questions are: Why do we make these decisions, and to be more precise, when do we make them? Are they predictable? What can we do to make better financial decisions? How can we build a stronger financial system given how people behave?

The rest of this book describes ways to improve your decision making when it comes to *specific* issues in investing—and some areas in real life, too. Identifying circumstances where you should trust your gut versus situations where you need to do everything in your power to ignore it, is central to good decision making. The exact mechanism of how intuitive and analytical thought interact is unknown and is the subject of fierce debate among decision theorists. For Stanovich, the two types of decision systems can work together or in isolation, it all depends on what is being decided. Trusting your gut instinct is the way to go if the question has evolutionary precedent, such as “Do I recognize that face?” or “Do I love my spouse?” But if you are deciding which computer to buy, then an analytical approach is called for.

Financial decisions are more complicated. What makes investing so complex, as we shall see, is that although financial markets are primarily random and hence nonintuitive, not every manager’s perform-

ance is random. Some are better than others at beating the market. And there are some stock market patterns you may be able to spot intuitively that I will discuss in the book. However, they are few and far between.

The recent real-estate and credit bubbles, followed by the liquidity crisis, are extreme examples of what can go wrong when we privilege feelings over reason, particularly in a setting with few regulations in place to save us from our own worst tendencies. The gyrations of the stock market are particularly tempting to intuitive interpretations, and this is where individual investors, if they rely solely on their intuition for guidance, can face the greatest peril. But as we will see in later chapters, gambling in Vegas, football strategy, horse racing, and even a tennis game can be improved through a bit more conscious deliberation. TARP bailouts, securitizing a mortgage, setting limits on leverage, rating a collateralized debt obligation, and deciding whether to let Lehman Brothers live or die could also benefit from relying on analytical thinking rather than snap judgments.

The first part of this book focuses entirely on financial decisions. It includes advanced techniques used by very sophisticated investors who attempt to beat the market through an understanding of investor psychology. It spells out why these strategies work, and how they work. The parts that follow look at intuitive mistakes we make in real life outside of investing—in sports and gambling decisions, as well as healthcare and credit card choices. The next section analyzes CEO behavior, particularly that of Wall Street CEOs during the crisis. The final chapters examine the financial crisis from a behavioral economics perspective. The book concludes with ways to improve decision making, leading to better investing.

Good financial decision making doesn't have to be complex or theoretical. You don't have to train yourself to become the financial equivalent of an airplane pilot—you don't have to fly on instruments alone and become a pure "quant." All you have to do is to think beyond your first impulse. Don't glaze over when facing a tough financial choice, or when presented with a supposedly unassailable

computer model. Kick the tires of what's in front of you, and ask if the information and your response to it make sense. It really couldn't be simpler: When it comes to investing, have second thoughts about your first impressions.

# 1

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## Money Is a Drug

In the summer of 2008, Rob Arnott's research indicated there were problems ahead in the commodities boom. Arnott, founder of Research Associates, Inc., the giant Newport Beach-based money manager, is a quantitative investor as well as a contrarian who goes against the herd. His entire career has been built on finding ways to counter human emotions, including his own. His research but not his gut instincts told him that prices in commodities, including oil, had gone too far, and the future held more downside than upside.

This was not the conventional wisdom: Oil prices had surged by 300% between 2003 and 2007, and their climb upward seemed to only be accelerating. In 2008, prices crossed the once unthinkable \$100 a barrel threshold, then \$110, and finally brushed past \$140 a barrel. Mainstream thinking held that the price increase was the result of changed fundamentals in the world economy. The newly awakened Chinese and Indian economies, with their nearly unquenchable thirst for raw materials, could only send the price of oil to higher and higher levels. Analysts who questioned if oil was in fact in the midst of an unsustainable price bubble were dismissed as bubble headed.

Arnott questioned his quantitative-based commodity. After all, the smart money, led by sophisticated institutional investors such as Harvard's endowment, continued to pour money into oil. The continuing rise in price seemed to reinforce the wisdom of their decision. As Arnott admits, "I looked for ways to tweak the models, to fix them

because the models were missing the huge bull market in commodities. That is what my intuition told me.” Arnott’s intuition, which was in conflict with the models, was wrong. The models had been right.

The price of oil soon crashed, but not before Arnott had sold his position. As an investor, he has trained himself to listen to his intuition—only to then do the opposite. “I use intuition, but in a warped fashion,” he says. If he feels comfortable about the direction his models are pointing him in, if they are in sync with his intuition, he immediately begins to worry.

He explains why so much of investing is nonintuitive: “The natural instinct is to follow others. As we were evolving on the plains of Africa, if everyone in the tribe starting running, you better start running. But in investing, if you act after everyone has starting running, you are catching the late end run of an asset and your timing will be atrocious.” For most investors, doing what comes naturally means chasing trends, doing what everyone else is doing. But although this makes sense in other areas of life, it is not a wise strategy for investing.

The easiest way for an investor to overcome this vulnerability is simply to build a natural skepticism to natural instincts. You don’t have to become a dogmatic contrarian—you just have to question your first impulse. Take, for example, a typical scene at a cocktail party. Someone brags about their fantastic investment. The natural reaction is to ask yourself if you are missing out on a great opportunity. The more skeptical and informed reaction should be to ask if the great past performance will continue into the future. Have you missed your window? Is it still attractive at current prices?

Arnott has trained himself to ask these counterintuitive questions when thinking about a new investment opportunity, and he feels everyone else can do the same. But he is merely one investor among many. And, the fact is, during the bubble years few investors showed this sort of skepticism—or any sort of skepticism. The entire world seemed intoxicated with money. It did seem like one big cocktail

party, at least for people benefiting from the boom. With markets, as well as bankers' bonuses soaring, why worry?

The cocktail party analogy holds a deeper truth about why investors may have suffered from impaired decision making and poor self control during these years before the crash. This was more than a simple case of minor intuitive errors in reasoning. Instead, according to MIT finance professor Andrew Lo, the real problem is traders literally were drunk on money. As Lo testified before Congress about the origins of the credit crisis:

“While this boom/bust pattern is familiar to macroeconomists, who have developed complex models for generating business cycles, there may be a simpler explanation based on human behavior. There is mounting evidence from cognitive neuroscientists that financial gain affects the same pleasure centers of the brain that are activated by certain narcotics. This suggests that prolonged periods of economic growth and prosperity can induce a collective sense of euphoria and complacency among investors that is not unlike the drug induced stupor of a cocaine addict....”

Lo, who is CEO of a hedge fund in addition to his work as an academic, has an interest in neuroscience. He has wired foreign exchange traders with biofeedback devices during the course of their work. When the market showed significant changes, so did the physiological response of all traders, but inexperienced traders were a lot more emotional when trading. For instance, they exhibited rising heart rates compared to the pros. For Lo, this indicates some emotion is necessary for decision making, but too much is problematic. (Neuroscience, though it has a different focus from evolutionary psychology, is consistent with and often supports the idea discussed throughout this book that humans have two decision systems—an intuitive one and an analytical one. Different responses exhibit different patterns of brain activation.)



I met with Lo at his office at MIT overlooking the Charles River. He was wearing sneakers, which made him look like either a trendy hedge fund manager or a down-to-earth academic. (Of course, he is both.) Lo explained to me how the way our brains are wired could lead to an economic crisis: “The situation had been building for 10 years. Everyone was making money all the time. Traders became confused because money was so cheap and risks were so hidden. Bond traders became caught up in a feedback loop.” It is Lo’s contention that the traders’ brains were affected by this loop. Financial success triggered the same neural circuits as by cocaine. Said Lo: “The same neural circuitry that responds to cocaine, food, and sex has been shown to be activated by monetary gain as well.”

As a result of their financial success, traders became inured to risk. In fact, they began to take on extreme financial risks—the financial equivalent of someone who is hallucinating stepping out of a 30-story building because they are certain they can fly. And to make matters worse, banks encouraged this risky behavior. Traders who refused to jump, were in effect pushed—or fired by their employers. Risk managers at large investment banks, in the months leading up to the crash, were sidelined or terminated if they warned the banks were taking on too much risk.

What this all suggests to Lo is the need for an external solution: a government intervention. If there is something hardwired in our cognitive processes that pushes us to excess, someone has got to stop us. Not everyone has the discipline to be a hyper-controlled investor and resist temptations that turn out to be damaging. Nor did financial institutions see any rationale to puncture the growing bubble. That leaves regulation as the mechanism society uses to prevent itself from indulging in self-destructive behavior.

Fire code regulation is a great example. Creating buildings with well-built emergency stairways, sprinkler systems, and clearly labeled exit signs is costly. This building infrastructure isn’t free. Why not

leave it up to the market to choose which buildings are fireproof and which ones are not? Those worried about fires will pay more; those less worried will choose the second type of building.

Lo explained why, as a society, we haven't left it up to the market to sort out this choice for us: "Left to our own devices, no would pay for the expensive infrastructure because when we walk into a building, our assessment of the likelihood of fire is zero," said Lo. It is a cognitive bias. Intuitively, we underestimate the probabilities of this sort of catastrophe. But as a society, we have learned the hard way that people don't worry about fires until after the fact. As a result, we put in regulation to ensure that buildings offer adequate fire safety.

The metaphor to financial markets and the crisis is clear. Here, we didn't put in regulations to prevent banks from doing what they felt comfortable with in terms of risks. There was an inadequate "financial infrastructure" in terms of strong bank regulation and adequate bank reserves in place to protect the financial system in case of a catastrophe. Banks, left to their own devices, discounted this likelihood. They pursued aggressive trading strategies that seemed safe at the time, only to create conditions that led to a collapse in prices and an eventual fire sale of assets.

Errors in judgment, therefore, aren't just ruinous to individuals: They can be damaging to society on the whole. A containable problem can quickly grow into something much worse—either a fire or a financial meltdown—if society chooses to ignore or discount people's all too predictable biases.

Lo ended our interview on a poetic note, telling me that as a society, we need to look to Odysseus for guidance: "Just as Odysseus asked his shipmates to tie him to the mast and plug his ears with wax as they sailed past the Sirens of Circe's island, we must use regulation as a tool to protect ourselves from our most self-destructive tendencies."



My conversations with Rob Arnott and Andrew Lo were really about the same problem: investor irrationality. Arnott's strategy is squarely focused on improving returns, asking what is best for the investor. Lo's arguments are more macroeconomic, asking how these biased individual decisions add up collectively.

Later, I will turn to the macro issue of the role intuition played in creating the conditions that led to the financial crisis. I then explore how to build a stronger financial system, given the way humans really think and behave, including the need for better regulation. More immediately, I now turn to specific investments and how in a time of panic, rather than engaging in an irrational flight to quality, there may be more profitable ways to invest. These behaviorally based investing strategies are literally "counterintuitive." They require overcoming your own initial instincts and taking advantage of others' rush to snap judgment about investment decisions.

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