

WHAT GOES ON INSIDE YOUR BRAIN WHEN YOU INVEST? HERE'S HOW THE LATEST BREAKTHROUGHS IN NEUROSCIENCE CAN HELP MAKE YOU SMARTER—AND RICHER.

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ARE YOU WIRED FOR WEALTH?

WITH THE BULL MARKET in ruins around us, many investors have never felt more bewildered. And they are asking agonized questions: How could I have lost so much money so fast? Can I do better somehow? Will I ever make money in the market again? ■ You won't find the answers by beating yourself up over the mistakes you've made in the past few years. No matter how many times you kick yourself for having been so stupid, your investment IQ is not going to budge. But there is a totally new and profoundly effective way to become a smarter investor. Suddenly, stunning investment insights are coming from the frontiers of one of the least likely fields you could imagine: neuroscience. In university and hospital laboratories around the world, researchers are using the latest breakthroughs in technology to trace the exact circuitry your brain uses to make the kinds of decisions you rely on as an investor. ■ For the first time in any nonscientific publication, this article will take you deep inside your own brain to help you understand why you invest the way you do—and, more important, how to enhance the workings of your brain to get better results. I think you'll see that the neuroscience of investing helps explain one puzzle after another: why we chronically buy high and sell low, why "predictable" growth stocks sell at such high prices, why it's so hard to understand our own risk tolerance

until we lose money, why we keep buying IPOs and “hot funds” despite all the evidence that we shouldn’t, why stocks that miss earnings forecasts by a penny can lose billions of dollars in seconds.

I’ve spent much of the past year studying this research—even having my own brain studied by these researchers—and nothing I’ve ever learned about investing has excited me more. Delving into the brain with MRI and other scanning techniques, scientists can now observe the mechanisms our brains use to reckon the value of rewards, interpret probabilities and estimate risks—the very essence of investing. These processes, says Jordan Grafman, a neuroscientist at the National Institutes of Health, “go right to the heart of who we are as humans.”

Fortunately, the latest discoveries also point the way toward cures for bad investing behavior. “Investors are human,” says Andrew Lo, a finance professor at the Massachusetts Institute of Technology. “Therefore, how the human brain works and why we react the way we do to various situations are critical for developing a better understanding of the common mistakes that typical investors make.”

HOW WE GOT OUR BRAINS

For nearly our entire history as a species, humans were hunter-gatherers, living in small nomadic bands, pursuing wild animals, foraging for edible plants, finding mates, avoiding predators, seeking shelter in bad weather. Those are the tasks our brains evolved to perform. In the formative dawn of human history, someone who kept failing to predict where food could be found would have starved to death, while anyone who correctly gambled on finding an unlikely cache of food would have been a hero. Meanwhile, someone who underestimated a risk would have become a quick snack for a wild carnivore.

“Our modern skulls house a Stone Age mind,” evolutionary psychologists Leda Cosmides and John Tooby have written. The human brain is a superb machine—“a Maserati,” says Baylor College of Medicine neuroscientist Read Montague—when it comes to solving

ancient problems like recognizing short-term trends or generating emotional responses with lightning speed. But it’s not so good at discerning long-term patterns or focusing on many factors at once—challenges that our early ancestors rarely faced but that we investors confront every day.

THE KERNEL OF EMOTION

Now let’s take a tour of your investing brain. Our first stop is the amygdala (*a-mig-duh-luh*), deep in the forward lower area of the brain. (There’s one on the left side and one on the right.) A key part of your brain’s early warning system, the almond-shaped amygdala is a kernel of hot, fast emotions like fear and

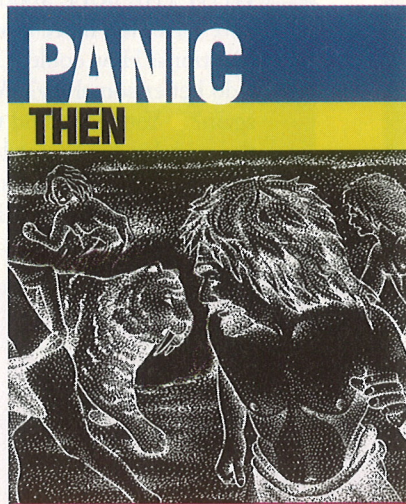
anger. If I threw a rattlesnake in your lap, you wouldn’t ruminate about whether it was real or a rubber toy. You’d go flying out of your chair. That’s the amygdala kicking in.

Vivid sights and sounds, such as clanging bells, hollering voices and waving arms, can set off the amygdala. Before you even figure out what the fuss is about, you break out in a sweat, your breathing picks up, your heart races. This primal part of your brain is bracing you for a “fight or flight” response.

And it isn’t only the threat of physical danger that sets off the amygdala. Using MRI scans, neuroscientists have found that financial gains have a fairly strong effect on the amygdala—and losses make it flare up like a hot coal. One recent study, led by Grafman of the NIH, found that the more frequently people were told they were losing money, the more active their amygdalas became. And a team of researchers led by Hans Breiter of Harvard found last year that even the expectation of losses sets off a burst of activity in the amygdala.

Long ago, on the plains of the Serengeti, there was probably no harm in confusing false alarms and real ones. If your amygdala sent you scrambling up a tree to escape a lion, you were safe; if what seemed like a lion turned out to be only a patch of brown grass rippling in the wind, having climbed up that tree did you no harm. But in the world of investing, a panicky response to a false alarm—dumping all your stocks just because the Dow is dropping—can be as costly as ignoring real danger. For one thing, it can cause you to flee the market at a low point and miss out when the market bounces back.

A moment of panic can also disrupt your long-term investing strategy. Activity in the amygdala can trigger the release of adrenaline, which has been found to “fuse” memories, making them more indelible. Research by Raymond Dolan of England’s University College London has also shown that a financial losing streak heats up activation of the hippocampus, a part of the brain next to the amygdala that helps program our memories of fear and anxiety. That may help explain why market crashes, which make stocks cheaper to buy, also make



SURVIVAL OF THE FLEETEST

Millions of years ago, reacting quickly to danger was a matter of life and death. Underestimating a real risk could be deadly, while overreacting to an apparent danger did no harm. So our brains developed a hair-trigger “fight or flight” response—which today can set off market panics.

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