

find some positions with which they strongly agree, others with which they disagree, and still others which they have never before considered.

PAUL J. YAKOBOSKI
TIAA-CREF Institute

Your Money and Your Brain: How the New Science of Neuroeconomics Can Help Make You Rich. By Jason Zweig. Simon & Schuster, 2007, ISBN 0-7432-7668-X, 352 pages. doi:10.1017/S1474747208003508

In this book, financial journalist and *Money* magazine senior writer Jason Zweig, an intelligent observer of social science and neuroscience research, takes the reader on a tour of several complex research literatures, from behavioral decision research and behavioral economics, to cognitive and social neuroscience. The author participated in several of the brain imaging studies described in the book for an “inside” view, and 3D-images of Jason’s brain in different states of activation show the reader where different brain functions are localized. The book presents an accessible and entertaining introduction for nonspecialists to the new field of neuroeconomics, a research enterprise at the intersection of economics, psychology, and neuroscience.

The title signals what the book is about: investment decisions (“your money”) and neuroscience (“your brain”). Chapter 1 motivates readers looking for investment advice to take the ride through the brave new world of neuroeconomics. Chapter 2 (“Thinking” and “Feeling”) introduces the central theme of the book: 40+ years of behavioral research, supported by 10+ years of neuroscience studies, have made it clear that our judgments and decisions (including investment decisions) are very often not the product of rational/analytic processes, but are (instead or also) driven by feelings and impulses. The neural circuits that produce these quick, automatic, and compelling emotional reactions that guide (and sometimes hijack) our behavior reside in brain regions deep inside our head. We share these regions and circuits with many other animals further down the phylogenetic scale, and they are sometimes referred to as our “reptilian brain.” Zweig uses the label “reflexive brain” instead, to contrast it with the “reflective brain,” the evolutionarily much younger cortical regions that mediate executive functions including self control, conscious processing and formal reasoning which are uniquely human.

The book is organized into eight chapters, titled by basic emotions that are aroused in us when we deal with money: greed, prediction, confidence, risk, fear, surprise, regret, and happiness. If “prediction” and “confidence” do not seem to fit the bill of “basic emotions,” the reader soon discovers that predictions and confidence are typically not analytic judgments of probability. Instead they really are feelings for which we often have little formal support and which frequently are wrong. When predicting what will happen (e.g., to the price of a stock), we tend to give too much weight to recent events. Since evolution selected us for our ability to predict and control our environment, we tend to see patterns where none may exist (e.g., charting the price fluctuations of a security), and generally underappreciate the role of chance. Overconfidence in our (financial and other) abilities may be the best documented and most reliable observed behavioral bias. Perceived control and the illusion of control are contributing factors (we tend to think of driving as less risky than flying, even though fatalities/mile traveled are higher for driving), as is familiarity with decision options (e.g., the home bias in investment decisions). Feeling comfortable with our choice options and (over)confident in the quality of our decisions must have great motivational value (it gets us out of bed in the morning, and motivates the people who need to execute our decisions). We have not learned to overcome it, despite the frequent negative consequences that our incorrect calibration generates.

Other emotions are more easily recognized as being relevant to investment decisions. “Greed” (Chapter 3) and “fear” (Chapter 7) are generally considered to be the two feelings

that motivate and guide investment decisions, with differences in their balance making some investors more risk-averse and others more risk-seeking. Neuroscience data reveal how evolution (the “selfish gene”) manages to put us and keep us on the hedonic treadmill, where the anticipation of rewards turns out to be much more rewarding than their realization. Fear and risk (Chapter 6) turn out to be closely related, in the sense that investment options are typically not avoided or sought out as the result of their statistical properties (e.g., their variance of returns), but as the result of the feelings (fear and anxiety vs. comfort and happiness) they elicit. The book provides compelling examples of how evaluations of investment options by the reflective or the reflexive brain diverge, and of the dangers to the financial bottom-line when our reflexive brain goes unchecked.

For each emotion covered, the book describes seminal studies (many just behavioral, others that examine corresponding brain activations) that show how these emotions influence our actions (including our financial decisions). Each chapter ends with a list of practical suggestions for how prudent investors can and should maintain control over the emotion under discussion. This is, of course, where Zweig’s expertise lies, though most, if not all of his suggestions have been made before, by others as well as him. In addition to his *Money* magazine articles and guest columns in *Time* and *cnn.com*, Zweig edited the revision of Benjamin Graham’s classic text *The Intelligent Investor*. As it turns out, the insights into how our brain deals with financial decisions provided by neuroeconomics are fully consistent with the suggestions made by experts like Graham and Buffett over the last few decades. However, a reader would be hard-pressed to find many financial management recommendations in the book that newly arose from any neuroscience insight. In this sense, the promise of the subtitle (“How the new science of neuroeconomics can help make you rich”), undoubtedly designed to sell copies, is somewhat misleading. The one exception is a list of useful suggestions, throughout the book, on how to help the reflective brain thwart the grasshopper instinct of the reflexive brain to consume now, with high discount rates for future costs and benefits. Helping people increase their limited ability to defer gratification has obvious implications for socially more desirable pension savings rates.

What the book provides in its final chapter are some novel insights into the nature of happiness. Neuroeconomics has shown us that our reflexive brain, with its dopaminergic reward centers that are thrilled by doing better than expected and by the expectation of reward, but hardly fire at the delivery of expected rewards no matter how good, is being used by evolution to put us on the hedonic treadmill. We constantly expect happiness to be just around the corner, if only we can achieve that next promotion, salary increase, or investment target. While the resulting striving has made us arguably the most successful species on earth, both individually and collectively we might be encountering physical limits to the development desired by our unsatisfiable motivational system, because our reflective brain has made our striving so effective. While many of the final chapter’s recommendations sound like pop psychology, they are valuable in recommending habits that, if developed, will assist our reflective brain in to getting us off the hedonic treadmill focused forever on the future and on to a life that cherishes the experience of doing and being in the moment.

ELKE U. WEBER
Columbia University

Pension Reform and the Development of Pension Systems: An Evaluation of World Bank Assistance. By the Independent Evaluation Group of the World Bank. The World Bank, 2006, ISBN 0-8213-6551-7, 143 pages. doi:10.1017/S147474720800351X

In early 1994, the World Bank (hereafter the Bank) leapt onto the uncrowded stage of debate on pension reform. Recognizing both the looming threat of aging populations in many middle