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Behavioral Antitrust

Amanda P. Reeves
Federal Trade Commission

Maurice E. Stucke
University of Tennessee College of Law

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Behavioral Antitrust[†]

AMANDA P. REEVES* &
MAURICE E. STUCKE**‡

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Fielding congressional questioning during the financial crisis, former Federal Reserve Chairman Alan Greenspan expressed his “distress” in discovering a “flaw” in his free-market beliefs: “Those of us who have looked to the self-interest of lending institutions to protect shareholder’s equity (myself especially) are in a state of shocked disbelief.”¹ The financial crisis has also prompted the jurist and famous

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^{*} Attorney Advisor to Commissioner J. Thomas Rosch, Federal Trade Commission. The views stated here are those of the authors and do not necessarily reflect the views of the Commission or any Commissioner.

^{**} Associate Professor, University of Tennessee College of Law; Senior Fellow, American Antitrust Institute.

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1. Kara Scannell & Sudeep Reddy, *Greenspan Admits Errors to Hostile House Panel*, WALL ST. J., Oct. 24, 2008, at A1, available at <http://online.wsj.com/article/SB122476545437862295.html>.

Chicago School theorist Richard A. Posner to reconsider some of his earlier beliefs.²

Some say that the Chicago School's economic theories—with their strong presumption of rational, self-interested profit maximizers with perfect willpower—lost their luster within academic circles over twenty years ago with the rise of post-Chicago School game theories. The post-Chicago School used rational actor models to challenge traditional Chicago predictions. Nonetheless, antitrust's economic theories, whether derived from the Chicago,³ post-Chicago,⁴ or Harvard Schools,⁵ continue to assume rational self-interested market participants operate in the market with perfect willpower.

This rationality assumption is under attack from several interdisciplinary economic fields, most notably behavioral economics. Behavioral economics, the management consulting firm McKinsey & Company recently observed, “is now mainstream.”⁶ Even before the financial crisis, behavioral economics was a hot topic. It is a staple in graduate economics programs, business schools, and increasingly in law schools.⁷ Recent best-selling books have featured behavioral economics, such as *The Myth of the Rational Market*,⁸ *Animal Spirits*,⁹ *Predictably Irrational*,¹⁰ and *Nudge*.¹¹ Behavioral economics has also led to subspecialties in the areas of

2. See, e.g., RICHARD A. POSNER, *A FAILURE OF CAPITALISM: THE CRISIS OF '08 AND THE DESCENT INTO DEPRESSION* (2009); Marcus Baram, *Judge Richard Posner Questions His Free-Market Faith in “A Failure of Capitalism,”* HUFFINGTON POST (Apr. 20, 2009, 6:33 PM), http://www.huffingtonpost.com/2009/04/20/judge-richard-posner-disc_n_188950.html; John Cassidy, *Interview with Richard Posner*, NEW YORKER BLOG (Jan. 13, 2010), <http://www.newyorker.com/online/blogs/johncassidy/2010/01/interview-with-richard-posner.html#ixzz0hJlhHeop> (“The more informal economics of Keynes has made a big comeback because people realize that even though it is kind of loose . . . it seems to have more of a grasp of what is going on in the economy.”).

3. See, e.g., ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (1978); RICHARD A. POSNER, *ANTITRUST LAW* (2d ed. 2001).

4. See, e.g., 1 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* ¶ 113, at 140 (3d ed. 2006) (“As a general proposition business firms are (or must be assumed to be) profit maximizers . . .”); Herbert Hovenkamp, *Post-Chicago Antitrust: A Review & Critique*, 2 COLUM. BUS. L. REV. 258 (2001); Symposium, *Post-Chicago Economics*, 63 ANTITRUST L.J. 445 (1995).

5. See William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago/Harvard Double Helix*, 1 COLUM. BUS. L. REV. 1 (2007) (summarizing contributions of Harvard School to modern antitrust analysis).

6. Dan Lovallo & Olivier Sibony, *The Case for Behavioral Strategy*, MCKINSEY Q., Spring 2010, at 30, 30.

7. Law schools, such as the University of Tennessee, Yale, Harvard, and Georgetown, offer behavioral law and economics seminars.

8. JUSTIN FOX, *THE MYTH OF THE RATIONAL MARKET: A HISTORY OF RISK, REWARD, AND DELUSION ON WALL STREET* (2009).

9. GEORGE A. AKERLOF & ROBERT J. SHILLER, *ANIMAL SPIRITS: HOW HUMAN PSYCHOLOGY DRIVES THE ECONOMY, AND WHY IT MATTERS FOR GLOBAL CAPITALISM* (2009).

10. DAN ARIELY, *PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS* (2008).

- subjective well-being and happiness;¹²
- the media (including demand-driven media bias);¹³
- marketing (including the paradox of choice);¹⁴
- behavioral finance;¹⁵
- criminal justice;¹⁶
- sports;¹⁷
- health care;¹⁸

11. RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008).

12. See, e.g., RICHARD LAYARD, *HAPPINESS: LESSONS FROM A NEW SCIENCE* 29–30 (2005); Rafael Di Tella & Robert MacCulloch, *Some Uses of Happiness Data in Economics*, 20 J. ECON. PERSP. 25, 26 (2006); Bruno S. Frey & Alois Stutzer, *What Can Economists Learn from Happiness Research?*, 40 J. ECON. LITERATURE 402 (2002); Daniel Kahneman & Alan B. Krueger, *Developments in the Measurement of Subjective Well-Being*, 20 J. ECON. PERSP. 3 (2006); Daniel Kahneman & Robert Sugden, *Experienced Utility as a Standard of Policy Evaluation*, 32 ENVTL. & RESOURCE ECON. 161 (2005); Daniel Kahneman, Alan B. Krueger, David Schkade, Norbert Schwarz & Arthur A. Stone, *Would You Be Happier If You Were Richer? A Focusing Illusion*, 312 SCIENCE 1908, 1908–10 (2006); Richard Layard, *Happiness and Public Policy: A Challenge to the Profession*, 116 ECON. J. C24 (2006); George Loewenstein & Peter A. Ubel, *Hedonic Adaptation and the Role of Decision and Experience Utility in Public Policy*, 92 J. PUB. ECON. 1795 (2008); Maurice E. Stucke, *Money, Is That What I Want?: Competition Policy and the Role of Behavioral Economics*, 50 SANTA CLARA L. REV. 893, 928–40 (2010).

13. See, e.g., Stefano DellaVigna & Ethan Kaplan, *The Political Impact of Media Bias*, in *FACT FINDER, FACT FILTER: HOW MEDIA REPORTING AFFECTS PUBLIC POLICY* (Roumeen Islam ed., forthcoming), available at <http://elsa.berkeley.edu/~sdellavi/wp/mediabiaswb07-06-25.pdf>; Matthew A. Baum & Tim Groeling, *New Media and the Polarization of American Political Discourse*, 25 POL. COMM. 345 (2008); Matthew Gentzkow & Jesse M. Shapiro, *Competition and Truth in the Market for News*, 22 J. ECON. PERSP. 133 (2008); Matthew A. Gentzkow & Jesse M. Shapiro, *Media, Education and Anti-Americanism in the Muslim World*, 18 J. ECON. PERSP. 117 (2004); Matthew Gentzkow & Jesse M. Shapiro, *What Drives Media Slant? Evidence from U.S. Daily Newspapers*, 78 ECONOMETRICA 35 (2010); Charles S. Taber & Milton Lodge, *Motivated Skepticism in the Evaluation of Political Beliefs*, 50 AM. J. POL. SCI. 755 (2006).

14. See, e.g., BARRY SCHWARTZ, *THE PARADOX OF CHOICE: WHY MORE IS LESS* (2004); Simona Botti & Sheena S. Iyengar, *The Dark Side of Choice: When Choice Impairs Social Welfare*, 25 J. PUB. POL'Y & MARKETING 24 (2006). As for the implications of the paradox of choice on the poor, see Marianne Bertrand, Sendhil Mullainathan & Eldar Shafir, *Behavioral Economics and Marketing in Aid of Decision Making Among the Poor*, 25 J. PUB. POL'Y & MARKETING 8, 12 (2006).

15. See, e.g., 2 *ADVANCES IN BEHAVIORAL FINANCE* (Richard H. Thaler ed., 2005); ROBERT J. SHILLER, *IRRATIONAL EXUBERANCE* (2d ed. 2005).

16. See, e.g., Birte Englich, Thomas Mussweiler & Fritz Strack, *Playing Dice with Criminal Sentences: The Influence of Irrelevant Anchors on Experts' Judicial Decision Making*, 32 PERSONALITY & SOC. PSYCHOL. BULL. 188 (2006); Richard H. McAdams & Thomas S. Ulen, *Behavioral Criminal Law and Economics* (John M. Olin Law & Econ., Working Paper No. 440, 2008), available at <http://ssrn.com/abstract=1299963>.

17. See, e.g., Devin G. Pope & Maurice E. Schweitzer, *Is Tiger Woods Loss Averse? Persistent Bias in the Face of Experience, Competition, and High Stakes*, 101 AM. ECON. REV. 129 (2011).

18. See, e.g., Thomas L. Greaney, *Economic Regulation of Physicians: A Behavioral Economics Perspective*, 53 ST. LOUIS U. L.J. 1189 (2009).

- behavioral political economy;¹⁹
- behavioral institutional design;²⁰
- behavioral labor economics;²¹ and
- behavioral industrial organization.²²

The financial crisis raised important issues of market failure, weak regulation, moral hazard, and our lack of understanding about how many markets actually operate. The crisis has also prompted policy makers in the United States to reexamine the assumptions underlying the prevailing neoclassical economic theories.²³ Competition authorities in the European Commission,²⁴ the United Kingdom's Office of Fair Trading,²⁵ and the United States²⁶ are interested in behavioral economics. The American Antitrust Institute (AAI)²⁷ and antitrust

19. Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LITERATURE 315, 364 (2009).

20. *Id.* at 364–65.

21. *Id.* at 362–63.

22. *Id.* at 361–62.

23. See John Authers, *Wanted: New Model for Markets*, FIN. TIMES, Sept. 29, 2009, at 9.

24. See Eliana Garcés, *The Impact of Behavioral Economics on Consumer and Competition Policies*, 6 COMPETITION POL'Y INT'L 145 (2010); Press Release, European Union Comm'n for Consumers, Why Consumers Behave the Way They Do: Commissioner Kuneva Hosts High Level Conference on Behavioural Economics (Nov. 28, 2008), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/1836&format=HTML&aged=0&language=EN&guiLanguage=en>.

25. See, e.g., OFFICE OF FAIR TRADING (U.K.), THE IMPACT OF PRICE FRAMES ON CONSUMER DECISION MAKING (2010), available at http://www.oft.gov.uk/shared_of/economic_research/OFT1226.pdf; Matthew Bennett, John Fingleton, Amelia Fletcher, Liz Hurley & David Ruck, *What Does Behavioral Economics Mean for Competition Policy?*, 6 COMPETITION POL'Y INT'L 111, 118 (2010); Amelia Fletcher, Chief Economist, Office of Fair Trading (U.K.), What Do Policy-Makers Need from Behavioural Economists?, Address at the European Commission Consumer Affairs Conference (Nov. 28, 2008), available at http://ec.europa.eu/consumers/dyna/conference/programme_en.htm.

26. Commissioner Rosch of the Federal Trade Commission (FTC), for example, has been interested in the implications of behavioral economics for competition policy. See J. Thomas Rosch, Comm'r, Fed. Trade Comm'n, Behavioral Economics: Observations Regarding Issues that Lie Ahead, Remarks at the Vienna Competition Conference (June 9, 2010), available at <http://www.ftc.gov/speeches/rosch/100609viennaremarks.pdf>; J. Thomas Rosch, Comm'r, Fed. Trade Comm'n, Managing Irrationality: Some Observations on Behavioral Economics and the Creation of the Consumer Financial Protection Agency, Remarks at the Conference on the Regulation of Consumer Financial Products (Jan. 6, 2010) [hereinafter Rosch, Managing Irrationality], available at <http://www.ftc.gov/speeches/rosch/100106financial-products.pdf>. Likewise, Carl Shapiro, Deputy Assistant Attorney General in the Department of Justice's Antitrust Division, and Joe Farrell, Director of the FTC's Bureau of Economics, recently acknowledged that behavioral economics may offer insights relevant to antitrust and consumer protection analysis. See *Roundtable Interview with Joseph Farrell and Carl Shapiro*, ANTITRUST SOURCE, Feb. 2010, at 1, 7–8.

27. *9th Annual Conference: The Next Antitrust Agenda*, AMERICAN ANTITRUST INSTITUTE (June 18, 2008), <http://www.antitrustinstitute.org/content/9th-annual-conference-next-antitrust-agenda> (audio recordings from the conference); see also AM. ANTITRUST INST., THE NEXT ANTITRUST AGENDA: THE AMERICAN ANTITRUST INSTITUTE'S TRANSITION REPORT

scholars²⁸ are discussing the applicability of behavioral economics to competition policy. Soon, enterprising antitrust lawyers may raise behavioral economics findings in white papers to the agencies or in federal court pleadings. In fact, the literature on behavioral economics was recently raised before the U.S. Supreme Court,²⁹ in a case where two Chicago School theorists (Judges Posner and Easterbrook) disagreed on the mutual fund industry's efficiency.³⁰

The immediate question is to what extent the irrational conduct that behavioral economics identifies should have implications for evaluating whether conduct is anticompetitive. The Chicago School's neoclassical economic theories teach that irrationality is irrelevant to antitrust doctrine: rational firms eliminate irrationality from the marketplace. After the financial crisis, however, one cannot assume that markets operate as efficiently as the Chicago School predicts. Antitrust policy makers must inquire what role behavioral economics can play in the agencies' enforcement of the federal antitrust laws.³¹

This Article addresses the implications of the increasing interest in behavioral economics for competition policy. Part I provides an overview of behavioral economics. Part II discusses how the assumption of rational, self-interested profit maximizers became so embedded in antitrust policy. Part III discusses to what extent the behavioral economics literature can inform antitrust policies and cause lawmakers to question their neoclassically based assumptions. Part IV offers several recommendations related to the practical application of behavioral economics to antitrust law going forward.

ON COMPETITION POLICY TO THE 44TH PRESIDENT OF THE UNITED STATES 26, 172, 185, 200–01, 272–75 (2008) (recommending more empirical analysis to further antitrust policies involving cartels, mergers, and media industries). The British Institute of International and Comparative Law has also shown an interest in behavioral economics. See BRITISH INST. OF INT'L AND COMPARATIVE LAW, <http://www.biicl.org/clf/clfmeetings2009> (hosting a Competition Law Forum on behavioral economics in July 2009).

28. At the *Next Generation of Antitrust Scholarship Conference* held at the New York University School of Law in January 2010, several authors applied behavioral economics to antitrust policy. See Maurice E. Stucke, *Am I a Price-Fixer? A Behavioral Economics Analysis of Cartels*, in CRIMINALISING CARTELS: A CRITICAL INTERDISCIPLINARY STUDY OF AN INTERNATIONAL REGULATORY MOVEMENT (Caron Beaton-Wells & Ariel Ezrachi eds., 2011), available at <http://ssrn.com/abstract=1535720>; Max Huffman, Behavioral Exploitation and Antitrust (Jan. 29, 2010) (unpublished manuscript), available at http://www3.luc.edu/law/academics/special/center/antitrust/colloquium/pdfs/huffman_exploitation.pdf; Avishalom Tor & William J. Rinner, Behavioral Antitrust: A New Approach to the Rule of Reason After *Leegin* (Dec. 1, 2009) (unpublished manuscript), available at <http://ssrn.com/abstract=1522948>.

29. Brief for Robert Litan et al. as Amici Curiae Supporting Petitioners, *Jones v. Harris Assocs.*, 130 S. Ct. 1418 (2010) (No. 08–856).

30. *Jones v. Harris Assocs.*, 527 F.3d 627 (7th Cir. 2008), *reh'g en banc denied*, 537 F.3d 728 (7th Cir. 2008). The Court ultimately eschewed the issue, holding that the debate between Judges Easterbrook and Posner was “a matter for Congress, not the courts.” *Jones v. Harris Assocs.*, 130 S. Ct. 1418, 1431 (2010).

31. For purposes of this Article, the relevant laws are sections 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1–2 (2006), and section 7 of the Clayton Act, 15 U.S.C. § 18 (2006).

I. OVERVIEW OF BEHAVIORAL ECONOMICS

A. *What Is Behavioral Economics?*

Neoclassical economic theory assumes that humans are rational, self-interested beings with perfect willpower. In making determinations under their Horizontal Merger Guidelines, the Federal Trade Commission and the Department of Justice's Antitrust Division, for example, assume that actual behavior comports with rational, self-interested (i.e., profit-maximizing) behavior.³² In conduct cases, the U.S. federal courts dismiss complaints or grant summary judgment if antitrust plaintiffs' theories do not make "economic sense," such as alleging economically irrational behavior.³³

Behavioral economics uses methods from neuroscience and social sciences, such as psychology and sociology, to understand the limits of this assumption.³⁴ Testing this rationality assumption through experiments,³⁵ behavioral economists find that people systematically and predictably do not behave in certain scenarios as neoclassical economic theory predicts.³⁶ Instead, behavioral economics characterizes human behavior as defined by three traits: bounded rationality, bounded willpower, and bounded self-interest.

1. Bounded Rationality

In theory, rational agents seek out the optimal amount of information, and readily and continually update their prior factual beliefs with relevant and reliable empirical data. It is similar to a treasure hunt: as we receive new factual clues along the way, we revise our beliefs and modify our behavior. In contrast, bounded rationality acknowledges the distinction between reasoning versus intuition.³⁷ Consumers are not perfectly objective and rational Bayesians, who readily update

32. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 1 (2010) [hereinafter HORIZONTAL MERGER GUIDELINES] ("In evaluating how a merger will likely change a firm's behavior, the Agencies focus primarily on how the merger affects conduct that would be most profitable for the firm.").

33. Christopher R. Leslie, *Rationality Analysis in Antitrust*, 158 U. PA. L. REV. 261, 316 (2010); see also *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007) (requiring a plaintiff plead "enough facts to state a claim to relief that is plausible on its face").

34. For interesting surveys of the behavioral economics research, see generally ADVANCES IN BEHAVIORAL ECONOMICS (Colin F. Camerer, George Loewenstein & Matthew Rabin eds., 2004); MORAL SENTIMENTS AND MATERIAL INTERESTS: THE FOUNDATIONS OF COOPERATION IN ECONOMIC LIFE (Herbert Gintis, Samuel Bowles, Robert Boyd & Ernst Fehr eds., 2005); DellaVigna, *supra* note 19; Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1487 (1998).

35. See Colin F. Camerer & George Loewenstein, *Behavioral Economics: Past, Present, Future*, in ADVANCES IN BEHAVIORAL ECONOMICS, *supra* note 34, at 7; DellaVigna, *supra* note 19.

36. See Avishalom Tor, *The Methodology of the Behavioral Analysis of Law*, 4 HAIFA L. REV. 237, 242-43 (2008).

37. Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 AM. ECON. REV. 1449, 1451 (2003).

prior factual beliefs whenever appraised of reliable information.³⁸ Instead, while we may maintain an illusion of objectivity, our goals can bias our beliefs about everything from our perception of ourselves, other people, and events, to the value of goods or services, to our evaluation of scientific evidence—much like the goals of a prosecutor seeking to convince the court of the defendant’s guilt.³⁹ As a result, we access only a subset of our relevant knowledge and give undue weight to evidence that supports our beliefs, while discounting evidence that undercuts our beliefs.

In one experiment, the subjects received the same twenty-seven pages of evidentiary materials from an actual Texas lawsuit filed by an injured motorcyclist against the driver of the automobile that collided with him.⁴⁰ Subjects were randomly assigned the role of plaintiff or defendant. After reading the case materials, they predicted what the judge had awarded and what a “fair” settlement would be. Participants playing the plaintiff predicted a significantly larger award by the judge (on average \$14,527 higher than defendants’ prediction). The plaintiffs and defendants each recalled more arguments favoring their side, and weighed the arguments favoring their side more heavily. In a later experiment, the subjects first read the case materials and offered their estimates of the judge’s award and a fair settlement. Only then were they told of their role as plaintiff or defendant. Those who learned their roles after they offered estimates had closer estimates of the likely award, and were significantly more likely to settle.

Another key insight of bounded rationality is that humans rely on rules of thumb (heuristics) in making decisions, and engage in a couple of steps of iterated reasoning. For example, framing effects (the way the choice is framed, such as a sure gain or avoiding a loss) can alter the way we decide.⁴¹ In one experiment, individuals could choose either an eighty percent chance of winning \$4000 or \$3000 guaranteed.⁴² Rational profit maximizers should opt for the greater discounted value—the eighty percent chance (\$3200); yet most people (eighty

38. See *Bayesian*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/bayesian> (defining Bayesian as “being, relating to, or involving statistical methods that assign probabilities or distributions to events (as rain tomorrow) or parameters (as a population mean) based on experience or best guesses before experimentation and data collection and that apply Bayes’ theorem to revise the probabilities and distributions after obtaining experimental data”).

39. Ziva Kunda, *The Case for Motivated Reasoning*, 108 PSYCHOL. BULL. 480, 482–95 (1990).

40. Linda Babcock & George Loewenstein, *Explaining Bargaining Impasse: The Role of Self-Serving Biases*, in ADVANCES IN BEHAVIORAL ECONOMICS, *supra* note 34, at 328.

41. Under the Asian Disease hypothetical, 600 people are expected to die. The majority choose Program A, saving a sum certain number of lives (200 people), versus Program B, which offers a one-third probability that 600 people will be saved (and a two-thirds probability that no one will be saved). Yet a substantial majority did not choose Program A when it presented a sum certain number of deaths (400) versus Program B (a one-third probability that 600 people will be saved (no deaths) and a two-thirds probability that 600 people will die). Kahneman, *supra* note 37, at 1458.

42. Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263, 268 (1979).

percent surveyed) were risk adverse and opted for \$3000.⁴³ But when they stood to lose either \$3000 versus an eighty percent chance of losing \$4000, many became risk seeking and opted for the latter.⁴⁴ Moreover, losses closer to a reference point hurt more than the joy from comparable gains.⁴⁵ Bounded rationality encompasses other anomalies in human decision making, including:

- the endowment effect—when we demand much more to give up and sell an object than what we would be willing to pay to acquire that object;⁴⁶
- status quo bias—when the choice of default option impacts the outcome;⁴⁷
- anchoring effects—how a randomly chosen standard may subsequently influence a judgment on the same task;⁴⁸
- availability heuristic—when we assess the probability of an event by asking whether relevant examples come readily to mind;⁴⁹
- representative heuristic—when we ignore the “base rates and overestimate the correlation between what something appears to be and what something actually is”;⁵⁰
- overconfidence bias—where, for example, executives in several behavioral studies were overconfident in their ability to manage a company, systematically underestimated their competitors’ strength, and were prone to self-serving interpretations of reality (such as taking credit for positive outcomes, and blaming the environment for negative outcomes);⁵¹

43. *Id.*

44. *Id.*

45. Kahneman, *supra* note 37, at 1456.

46. *See, e.g.*, RICHARD H. THALER, *THE WINNER’S CURSE: PARADOXES AND ANOMALIES OF ECONOMIC LIFE* 63 (1992); Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325, 1327 tbl.1 (1990) (summarizing evaluation disparity studies); Jolls et al., *supra* note 34, at 1482, 1484, 1498.

47. *See, e.g.*, THALER, *supra* note 46, at 68–70.

48. One series of experiments is to establish an arbitrary initial price (such as the last two digits of one’s social security number) in the test subjects’ minds. While that initial price is arbitrary, once it is established in their minds, it shapes what the subjects are willing to pay for that item and related items. ARIELY, *supra* note 10, at 25–28; *see also* English et al., *supra* note 16 (describing how sentencing anchors can influence judges and prosecutors).

49. *See, e.g.*, Richard H. Thaler & Cass R. Sunstein, *Market Efficiency and Rationality: The Peculiar Case of Baseball*, 102 MICH. L. REV. 1390, 1395–96 (2004) (book review) (noting a study that found that individuals are more likely to think that more words on a random page end with “-ing” than have the letter “n” as their next to last letter); Kahneman, *supra* note 37, at 1466–67 (people estimating twice the number of murders in Detroit versus the state of Michigan).

50. Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051, 1086 (2000) (citing Tversky and Kahneman’s bank teller problem); *see* Kahneman, *supra* note 37, at 1462.

51. Cristoph Engel, *The Behaviour of Corporate Actors: How Much Can We Learn from*

- optimistic bias—when we believe that good things are more likely (and bad things less likely) than average to happen to us,⁵² and
- hindsight bias—our tendency to increase the likelihood of an event's occurrence after learning that it actually did occur.⁵³

2. Bounded Willpower

Willpower refers to the notion of self-control: when we know something is bad for us, we avoid it. Bounded willpower, in contrast, refers to when we knowingly engage in actions known to be detrimental and therefore act contrary to our long-term interests.⁵⁴ As anyone who has ever overeaten, overspent, or otherwise succumbed to temptation (despite having the best intentions not to do so) can confirm, many people are not very good at predicting their willpower.

Recent neurological research has examined to what extent the discrepancy between short-run and long-run human preferences reflects the activation of different parts of the brain's neural system.⁵⁵ This research suggests that choices that involve an immediate reward can disproportionately activate the impulsive part of the brain (the limbic system) rather than the more deliberative part of the brain that engages in long-term cost-benefit analyses (the lateral prefrontal cortex).⁵⁶ At a practical level, these insights suggest that, in situations that involve a short-term gain even at a long-term cost, we may not engage in the cost-benefit analysis expected under rational choice theory.

Thus, recognizing our bounded willpower, we at times seek commitment devices. We opt for automatic payroll deductions into 401(k) retirement plans, certificates of deposit, or other plans with liquidity restrictions to constrain our immediate consumption.⁵⁷ We may place the alarm clock further away, not shop

the Experimental Literature?, 6 J. INST. ECON. 445, 446 (2010); see also DellaVigna, *supra* note 19, at 317, 342–43 (discussing field experiments).

52. See, e.g., Neil D. Weinstein & William M. Klein, *Resistance of Personal Risk Perceptions to Debiasing Interventions*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 313 (Thomas Gilovich, Dale Griffin & Daniel Kahneman eds., 2002).

53. See, e.g., Korobkin & Ulen, *supra* note 50, at 1095–1100.

54. See Jolls et al., *supra* note 34, at 1480.

55. Samuel M. McClure, David I. Laibson, George Loewenstein & Jonathan D. Cohen, *Separate Neural Systems Value Immediate and Delayed Monetary Rewards*, 306 SCIENCE 503, 503–07 (2004).

56. See *id.* at 506 (showing that choices involving an immediate outcome disproportionately activated the limbic system and that, in contrast, when participants chose a long-run option, the lateral prefrontal cortex was significantly more active than the limbic system).

57. For the effectiveness of changing the default option to automatic enrollment in retirement accounts, see generally Richard H. Thaler & Shlomo Benartzi, *Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving*, 112 J. POL. ECON. S164 (2004); Brigitte C. Madrian & Dennis F. Shea, *The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior*, 116 Q.J. ECON. 1149 (2001); John Beshears, James J. Choi, David Laibson & Brigitte C. Madrian, *The Importance of Default Options for Retirement Savings Outcomes: Evidence from the United States*, (Nat'l Bureau of Econ. Research, Working Paper No. 12009, Jan. 2006), available at <http://www.nber.org/papers/w12009>.

when we are hungry, or set our watch slightly ahead of time. These commitment devices—while a rational response to our bounded willpower—can lead us to “overcorrect” for our bounded willpower.⁵⁸ We may pay more for less of what we like too much (such as buying cigarettes individually or by the pack, rather than by the carton). And, more generally, we may behave in ways contrary to the tenets of wealth maximization (such as giving the U.S. government an interest-free loan by withholding too much taxes from our paycheck to ensure a return at tax time).

3. Bounded Self-Interest

Self-interest means people seek to maximize their wealth and other material goals, and generally do not care about other social goals to the extent they conflict with personal wealth maximization. Bounded self-interest, as behavioral experiments confirm, means that human motivation is more nuanced and complex than this simplistic assumption of self-interest.⁵⁹

Psychological and experimental economic evidence shows that people care about treating others, and being treated, fairly.⁶⁰ Recent experiments in bargaining settings, for example, systematically show “that substantial fractions of most populations adhere to moral rules, willingly give to others, and punish those who offend standards of appropriate behavior, even at a cost to themselves and with no expectation of material reward.”⁶¹ This “strong reciprocity” in human behavior, however, also entails “a predisposition . . . to punish [at personal cost] those who violate the norms of cooperation . . . even when it is implausible to expect that these costs will be repaid.”⁶² Similarly, behavioral experiments suggest that many people do not free ride at all (or to the extent that rational choice theory predicts). In these public goods experiments, “people have a tendency to cooperate until experience shows that those with whom they’re interacting are taking advantage of them.”⁶³ Consequently, individuals at times act benevolently even when it is not in their financial interest (such as tipping waiters and waitresses in cities they are unlikely to revisit) and will sacrifice monetary gains to punish those they feel are

58. See Ted O’Donoghue & Matthew Rabin, *Doing It Now or Later*, 89 AM. ECON. REV. 103, 111–12 (1999) (discussing how sophisticated individuals recognize their bounded willpower and thus “are more inclined than naifs to do [tasks] now, irrespective of whether it is costs, rewards, or both that are immediate”).

59. See Stucke, *supra* note 12, at 909.

60. See Jolls et al., *supra* note 34, at 1479.

61. Samuel Bowles, *Policies Designed for Self-Interested Citizens May Undermine “The Moral Sentiments”*: Evidence from Economic Experiments, 320 SCIENCE 1605, 1606 (2008).

62. Herbert Gintis, Samuel Bowles, Robert Boyd & Ernest Fehr, *Explaining Altruistic Behavior in Humans*, 24 EVOLUTION & HUMAN BEHAV. 153, 153–54 (2003) (arguing further that “the evolutionary success of our species and the moral sentiments that have led people to value freedom, equality, and representative government are predicated upon strong reciprocity and related motivations that go beyond inclusive fitness and reciprocal altruism”).

63. THALER, *supra* note 46, at 14.

acting unfairly, such as by deviating from an established reference point of “fairness.”

One frequently cited experiment of negative reciprocal behavior and bounded self-interest is the “Ultimatum Game,” where a subject is given some money and must offer a second subject some portion thereof.⁶⁴ If the second subject accepts the offer, both can keep the money. If the second subject rejects the offer, neither keeps the money. Neoclassical economic theory predicts people will offer the smallest amount—one penny. If everyone pursues their self-interest, the first subject would selfishly want as much money as possible; the second subject recognizes that a penny is better than nothing.

But actual experiments of this Ultimatum Game in over twenty countries show the contrary. In expanding the Ultimatum Game experiment to fifteen small-scale economies from twelve countries on four continents,⁶⁵ participants reciprocated and did not offer the nominal amount. Nor did high financial stakes eliminate this bounded self-interest.⁶⁶ Most offered significantly more than the nominal amount (ordinarily forty to fifty percent of the total amount available), and recipients rejected nominal amounts (less than twenty percent of the total amount available) about half the time.⁶⁷ Consequently, most receivers in this game forgo wealth to punish unfair offers, and offerors generally offer more than the nominal profit-maximizing amount.⁶⁸ Wealth may still be relevant to offerors, but unlike the self-interested profit maximizer, offerors recognize the need for a sense of fairness and equity to maximize their return.

Similarly, one recent study found that informal religious norms can play an important role in supporting a competitive market economy.⁶⁹ The study measured the individuals’ propensities for fairness and willingness to punish unfairness. The study involved fifteen populations that vary in their degree of market integration and their participation in a world religion (such as Islam or Christianity).⁷⁰ The financial stakes in the behavioral experiments were set at one day’s local wages.⁷¹

64. See HERBERT GINTIS, *THE BOUNDS OF REASON: GAME THEORY AND THE UNIFICATION OF THE BEHAVIORAL SCIENCES* 49, 57–58 (2009) (discussing results of Ultimatum Game); Werner Güth, Rolf Schmittberger & Bernd Schwarze, *An Experimental Analysis of Ultimatum Bargaining*, 3 J. ECON. BEHAV. & ORG. 367, 367 (1982).

65. Joseph Henrich, Robert Boyd, Samuel Bowles, Colin Camerer, Ernst Fehr, Herbert Gintis & Richard McElreath, *In Search of Homo Economicus: Behavioral Experiments in 15 Small-Scale Societies*, 91 AM. ECON. REV. 73 (2001).

66. See, e.g., *id.* at 74 (using equivalent of a day or two’s wages for amount divided in experiment).

67. Gintis et al., *supra* note 62, at 157; Henrich et al., *supra* note 65, at 75 (noting that in industrial societies, offers below twenty percent are rejected with a probability of 0.40 to 0.60); Jolls et al., *supra* note 34, at 1490.

68. Maurice E. Stucke, *Behavioral Economists at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513, 529–30 (2007).

69. Joseph Henrich, Jean Ensminger, Richard McElreath, Abigail Barr, Clark Barrett, Alexander Bolyanatz, Juan Camilo Cardenas, Michael Gurven, Edwina Gwako, Natalie Henrich, Carolyn Lesorogol, Frank Marlowe, David Tracer & John Ziker, *Markets, Religion, Community Size, and the Evolution of Fairness and Punishment*, 327 SCIENCE 1480 (2010).

70. *Id.* at 1480.

71. *Id.* at 1482.

The results reflected a stark contrast between nomadic, nonintegrated, fully subsistence societies with local religions (such as the Hadza population from Tanzania) and fully market-incorporated societies with worldwide religions (such as the residents of Missouri, United States, and Accra City, Ghana).⁷² The study found that as market integration increases (as measured by the percentage of purchased calories in diet), the people become more generous (sharing more of the day's wages with the other player in the Dictator Game).⁷³ Likewise, as a society's participation in Islam or Christianity increases, so does the sharing in these behavioral experiments increase.⁷⁴

Aside from reciprocity, individuals at times act from an intrinsic motivation, independent of any financial reward. Indeed, financial rewards can decrease (rather than increase) motivation or the likelihood of the desired results.⁷⁵ Likewise, financial disincentives may not be as effective as social or ethical norms in curbing unwanted behavior.⁷⁶

*B. Some Criticisms and Shortcomings of Behavioral Economics,
and Responses to Those Criticisms*

Some observers are skeptical of the usefulness of behavioral economics. They view it as merely amusing and argue that it is inapplicable to individual (or firm) behavior in the marketplace.

1. Representativeness

One criticism is that behavioral economics experiments focus on certain persons not representative of the total population (namely university students) in an artificial setting (namely lab experiments).⁷⁷ So naturally, students' decisions in

72. *Id.* at 1483–84.

73. *Id.* at 1483 fig.1. In the Dictator Game, two anonymous players were allotted a sum of money in a one-shot interaction. Player 1 had to decide how to divide this sum between himself or herself and Player 2. Player 2 received the allocation (offer), and the game ended. *Id.* at 1481.

74. *Id.* at 1482.

75. In one study, for example, high school students collected donations for a public purpose in Israel's annually publicized "donation days." One group of students received a pep talk about the importance of these donations. A second group, in addition to the pep talk, was promised one percent of the amount collected (to be paid from an independent source). A third group was promised ten percent of the amount collected. Under rational choice theory, the third group, motivated by the greater financial incentive, should collect the most donations. Instead, the groups promised the one percent and ten percent shares collected a lower average amount (\$153.67 and \$219.33, respectively) than the group given only the pep talk (\$238.60). Uri Gneezy & Aldo Rustichini, *Incentives, Punishment, and Behavior*, in *ADVANCES IN BEHAVIORAL ECONOMICS*, *supra* note 34, at 578–80.

76. *See id.* at 581–86.

77. *See, e.g.*, Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 *STAN. L. REV.* 1551, 1566 (1998).

experimental games with small financial stakes could differ from real market behavior with often-greater financial stakes.⁷⁸

But behavioral lab experiments enable researchers to isolate variables and examine how behavior correlates with each variable (although one criticism from noneconomists is that these experiments are an elaborate and costly way of telling us what we already know). Moreover, today's behavioral economics literature includes field experiments and data from actual market transactions.⁷⁹ Not surprisingly, marketing companies are devoting resources on behavioral experiments and neuroscience to learn more about consumers' behavior decisions.⁸⁰

2. Firm v. Individual Behavior

A second criticism is that the insights from behavioral economics about individual behavior are not helpful in predicting firm behavior in competitive markets.⁸¹ Market participants typically are repeat players who learn from and correct their mistakes. Firms and their employees have greater incentives to rationally profit maximize, as they often are subject to competitive pressures.⁸² Many firms benefit from the division of labor, and accordingly train or hire experts to capture the benefits from specialized knowledge. Irrational participants eventually exit the market. Thus, as Posner opines, "unusually 'fair'" people will avoid or be forced out of "roughhouse activities—including highly competitive businesses, trial lawyering, and the academic rat race."⁸³ For several reasons, these criticisms are misplaced.

First, neoclassical economists often use the stock market as the example that most closely approximates perfect competition.⁸⁴ But how many people after the financial crisis still have faith in the efficient market hypothesis, which posits that stock prices reflect their fundamental value (the discounted sum of expected future

78. At times, the behavior of university students is closer to rational choice theory. For example, university students are more likely than non-students to give nothing in dictator games. See Christoph Engel, Dictator Games: A Meta Study 13 (Jan. 2011) (unpublished manuscript), available at <http://ssrn.com/abstract=1568732>.

79. For one recent survey of the literature, see DellaVigna, *supra* note 19, at 320–65. For a recent integration of field and lab experiments, see Devesh Rustagi, Stefanie Engel & Michael Kosfeld, *Conditional Cooperation and Costly Monitoring Explain Success in Forest Commons Management*, 330 SCIENCE 961, 961–64 (2010).

80. Stuart Elliott, *A Quest to Learn What Drives Consumer Decisions*, N.Y. TIMES, June 30, 2010, at B3, available at <http://www.nytimes.com/2010/06/30/business/media/30adco.html>.

81. See, e.g., Joshua D. Wright & Judd E. Stone II, *Misbehavioral Economics: The Case Against Behavioral Antitrust* 9 (Oct. 2, 2010) (unpublished manuscript), available at <http://ssrn.com/abstract=1686389> ("First, while firms may be, at their core, self-selected aggregations of individuals, it does not follow that firms necessarily behave with similar, or similarly predictable, consequences.")

82. See, e.g., Edward L. Glaeser, *Paternalism and Psychology*, 73 U. CHI. L. REV. 133, 140–41, 144–46 (2006) (arguing that consumers outside the lab have stronger incentives to reduce error, which they are able to do through experience).

83. Posner, *supra* note 77, at 1570.

84. POSNER, *supra* note 3, at 164.

cash flow)? The behavioral finance literature questions the degree of efficiency in the stock market and addresses the limits of arbitrage.⁸⁵ Consequently, if irrationality is not driven out of supposedly perfectly competitive markets, why should we assume that irrationality is driven out in less efficient markets? Accordingly, the assumption that bounded rational consumers magically transform themselves individually or collectively into rational, far-sighted, strategic maximizers with perfect willpower upon entering the workplace is empirically suspect.

Indeed, there is evidence that firms as institutions may depart from rationality, although at times in different ways and degrees than individuals do. People can behave differently depending on situational factors, such as being alone or in groups.⁸⁶ Groups, at times, can minimize individual biases, but at other times (such as cults, mobs, and “groupthink”⁸⁷) groups can displace independent thinking. Firm behavior itself can vary, as firms vary by purpose (nonprofit versus profit); structure (partnership, family concern, conglomerate); national identity and cultural norms (local firm, multinational); regulatory environment (utility versus unregulated concern); and size (large versus small).

Take, for example, the United States’ antitrust challenge of MIT and eight Ivy League universities.⁸⁸ For years the universities collectively determined the amount of financial aid for prospective students admitted to two or more of their universities. MIT on appeal raised an interesting argument. In a perfectly competitive market, price equals marginal cost, and no rational profit-maximizing firm (outside of a predatory pricing scheme) would price below marginal cost. MIT priced its discounted tuition to needy students at substantially below its marginal cost of providing education for one year. Because profit-maximizing companies would not engage in such “economically abnormal” behavior, MIT argued, its activity must be noncommercial.⁸⁹ The Third Circuit rejected MIT’s argument,⁹⁰ but it implicitly accepted that firms do not always behave as rational profit maximizers.⁹¹

85. See, e.g., ANDREI SHLEIFER, *INEFFICIENT MARKETS: AN INTRODUCTION TO BEHAVIORAL FINANCE* (2000); 1 *ADVANCES IN BEHAVIORAL FINANCE* (Richard H. Thaler ed., 1993); see also Diana B. Henriques, *Odd Crop Prices Defy Economics*, N.Y. TIMES, Mar. 28, 2008, at C1 (noting how on dozens of occasions since early 2006 futures contracts for corn, wheat, and soybeans have expired at a price much higher than the day’s cash price for those grains).

86. See generally PHILIP ZIMBARDO, *THE LUCIFER EFFECT: UNDERSTANDING HOW GOOD PEOPLE TURN EVIL* (2008).

87. See Robert S. Baron, *So Right It’s Wrong: Groupthink and the Ubiquitous Nature of Polarized Group Decision Making*, in 37 *ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY* 219 (Mark P. Zanna ed., 2005).

88. *United States v. Brown Univ.*, 5 F.3d 658 (3d Cir. 1993).

89. *Id.* at 666.

90. The court noted that MIT’s full tuition figure was also significantly below its marginal cost. So “whether the price charged for educational services is below marginal cost is not probative of the commercial or noncommercial nature of the methodology utilized to determine financial aid packages.” *Id.*

91. *Id.* at 672, 672 n.9 (discussing MIT’s “pure altruistic motive,” and noting that MIT “could fill its class each year with affluent students who do not need financial assistance”).

One explanation as to why firms behave irrationally is that firms cannot always monitor and deter bounded rational employees from acting contrary to the firms' long-term interests. As discussed above, "CEOs may be overly optimistic about the profitability of mergers or other actions they undertake," and "managers might face incentives which induce them to care about relative rather than absolute profits."⁹² Similarly, when executives conspire to fix prices, they are not always acting with their firms' knowledge or at their behest.

Second, bounded rationality, willpower, and self-interest can affect competition through the individual behavior of the millions of atomistic self-employed workers who supply their services or products into the supply chain.⁹³ This group includes self-employed farmers, ranchers, fishermen, freelance writers, doctors, lawyers, and architects. These individuals can behave contrary to rational choice theory.⁹⁴

Third, bounded rationality, willpower, and self-interest can affect competition through the individual behavior of the hundreds of millions of consumers. Individuals in the United States spend trillions of dollars annually on goods and services (\$3.201 trillion in purchases on credit, debit, and prepaid cards in 2009),⁹⁵ so their bounded rational behavior can affect competition in many markets. Even if firms were relatively more rational than consumers, behavioral economics is relevant in understanding consumer decision making and how firms compete to help or exploit these bounded rational consumers.

One staple of antitrust policy is predicting how consumers would respond to firms raising the price of their goods or services by a small but significant nontransitory amount. Price frames, under rational choice theory, should not affect the consumers' decision. But the United Kingdom's Office of Fair Trading (OFT) recently studied how firms can use price frames to exploit bounded rational consumers.⁹⁶ The OFT's behavioral experiment found that consumers deviated from rational choice theory in the following five price frames: (i) "drip pricing," where a lower price is initially disclosed to the consumer and additional charges are added as the sale progresses; (ii) "sales," where the "sales" price is referenced off

92. Mark Armstrong & Steffen Huck, *Behavioral Economics as Applied to Firms: A Primer*, 6 COMPETITION POL'Y INT'L 3, 4 (2010); see *supra* text accompanying note 51.

93. U.S. BUREAU OF LABOR STATISTICS, HOUSEHOLD DATA ANNUAL AVERAGES—TABLE 12: EMPLOYED PERSONS BY SEX, OCCUPATION, CLASS OF WORKER, FULL- OR PART-TIME STATUS, AND RACE (2010), available at <http://www.bls.gov/cps/cpsaat12.pdf> (reporting 8.995 million self-employed non-agricultural workers and 836,000 self-employed agricultural workers in the United States in 2009).

94. See Linda Babcock & George Loewenstein, *Explaining Bargaining Impasse: The Role of Self-Serving Biases*, in ADVANCES IN BEHAVIORAL ECONOMICS, *supra* note 34, at 326, 333 (public school teachers); Colin F. Camerer, Linda Babcock, George Loewenstein & Richard H. Thaler, *Labor Supply of New York City Cab Drivers: One Day at a Time*, in ADVANCES IN BEHAVIORAL ECONOMICS, *supra* note 34, at 533 (questioning the intertemporal substitution hypothesis that taxi drivers will work longer hours on high wage days); Colin F. Camerer, *Prospect Theory in the Wild: Evidence from the Field*, in ADVANCES IN BEHAVIORAL ECONOMICS, *supra* note 34, at 148, 149; Jane Goodman-Delahunty, Pär Anders Granhag, Maria Hartwig & Elizabeth F. Loftus, *Insightful or Wishful: Lawyers' Ability to Predict Case Outcomes*, 16 PSYCHOL. PUB. POL'Y & L. 133 (2010).

95. *Card Debt Per U.S. Household*, NILSON REPORT, May 2010, at 1, 9.

96. See OFFICE OF FAIR TRADING, *supra* note 25.

an inflated regular price (was \$2, now \$1); (iii) “complex pricing,” such as three-for-two offers, where the unit price requires some computation; (iv) “baiting,” where sellers promote a special deal, but offer only a limited number of goods at that price; and (v) “time limited offers,” where the special price is available for a short period. Consumers made more mistakes and were especially worse off under drip pricing and time-limited offers. Thus, one application of behavioral economics to antitrust is to model consumer behavior and consider the effect of this behavior on competition.

As these observations suggest, the question is not whether firms and consumers are equally irrational, but the degree and type of biases and heuristics that different firms display. Not surprisingly, there is already a wide body of research on this topic in the business literature. That literature discusses the substantial variation in the ways corporations learn (such as the routines and forms of organizational structure they use).⁹⁷ The empirical and theoretical work on organizational learning rests on bounded rationality and offers several insights about how firms engage in different forms of intrafirm conduct to overcome their bounded rationality and to compete more effectively with other firms.⁹⁸ Among the literature’s insights:

- firms that better implement and update their learning (such as through routines) can better collect and exploit their knowledge, yield greater productive efficiencies, and enjoy a competitive advantage;⁹⁹
- firms may improve feedback mechanisms, whereby employees can learn from their mistakes and improve their reasoning and willpower;¹⁰⁰
- firms can promote different social, ethical, and moral values that affect firm behavior,¹⁰¹ and therefore reduce their

97. See, e.g., Lovallo & Sibony, *supra* note 6, at 3 (noting a recent survey of 2207 executives where only twenty-eight percent said the quality of their companies’ strategic decisions was generally good, sixty percent thought that bad decisions were about as frequent as good ones, and twelve percent thought good decisions were altogether infrequent).

98. See Linda Argote & Henrich R. Greve, *A Behavioral Theory of the Firm—40 Years and Counting: Introduction and Impact*, 18 *ORG. SCI.* 337 (2007) (surveying *A Behavioral Theory of the Firm’s* impact on organizational science research, including institutional theory and population ecology); Giovanni Dosi & Luigi Marengo, *On the Evolutionary and Behavioral Theories of Organizations: A Tentative Roadmap*, 18 *ORG. SCI.* 491 (2007).

99. See Argote & Greve, *supra* note 98, at 343.

100. See John A. List, *Does Market Experience Eliminate Market Anomalies?*, 118 *Q.J. ECON.* 41 (2003) [hereinafter List, *Market Experience*]; John A. List, *Neoclassical Theory Versus Prospect Theory: Evidence from the Marketplace*, 72 *ECONOMETRICA* 615, 615 (2004). For example, frequent and more experienced sports cards traders display less of an endowment effect for sports cards (such as baseball trading cards) than for other items, such as chocolates and mugs. List, *Market Experience*, *supra*, at 44.

101. Paul C. Nystrom, *Differences in Moral Values Between Corporations*, 9 *J. BUS. ETHICS* 971, 974–76 (1990) (describing how closely matched corporations within industrial sectors differed significantly in the perceived importance of the management’s moral values).

monitoring costs and increase their competitiveness by inculcating a unique identity.¹⁰²

Neoclassical economic theory, with its assumption of rational agents, offers few insights on such intrafirm behavior. Logically, if firms behaved as rational profit maximizers, one would not expect this form of competition. Rational firms could not enjoy a competitive advantage in how they search and incorporate knowledge, since they all automatically search for and act upon the optimal amount of information. One would therefore not expect business executives to expend resources on improving their decision processes if they indeed behaved as rational profit maximizers. Moreover, one would expect rational choice theory to dominate the MBA curricula. Instead, the strategic management texts, one survey found, provide “precious little support” for the Chicago School’s theory of the firm.¹⁰³

3. No Unifying Theory

A third criticism is that behavioral economics, while identifying the predictive shortcomings of neoclassical economic theory, does not provide an alternative unifying theory to explain human or firm behavior.¹⁰⁴ But this criticism misconstrues the purpose of behavioral economics. Neoclassical economic theory has supplied an organizing principle, as well as an important level of nuance, by importing new microeconomic thinking into competition law. The purpose of behavioral economics is to augment neoclassical economic theory by providing more realistic assumptions of human behavior. By teaching that humans may behave “predictably irrationally,”¹⁰⁵ behavioral economics provides a mechanism for policy makers to consider whether and to what extent they should refine existing frameworks to account for nuances in human behavior.

Behavioral economics does not necessarily call for less or more antitrust regulation. If anything, it draws into question our reliance on economic theory when the evidence suggests otherwise. It calls into question our preoccupation with the cost of false positives (which has taken prominence over the last thirty years) while not attending to the cost of false negatives. And, as discussed below, it raises questions about our ability to predict outcomes and optimize efficiency through antitrust’s rule of reason standard, suggesting that antitrust’s prevailing legal standard be brought closer to rule of law principles.

102. See GEORGE A. AKERLOF & RACHEL E. KRANTON, *IDENTITY ECONOMICS: HOW OUR IDENTITIES SHAPE OUR WORK, WAGES, AND WELL-BEING* 39–59 (2010) (exploring how workers can abide by shared corporate norms, and lose utility when they put in low effort, and how jobholders, if they have only monetary rewards and only economic goals, “will game the system insofar as they can get away with it”).

103. Norman W. Hawker, *Antitrust Insights from Strategic Management*, 47 N.Y.L. SCH. L. REV. 67, 74 (2003).

104. See Mark Kelman, *Behavioral Economics as Part of a Rhetorical Duet: A Response to Jolls, Sunstein, and Thaler*, 50 STAN. L. REV. 1577, 1586 (1998) (“[B]ehavioral economics can better be seen as a series of particular counterstories, formed largely in parasitic reaction to the unduly self-confident predictions of rational choice theorists, than as an alternative general theory of human behavior.”); Posner, *supra* note 77, at 1559–60.

105. ARIELY, *supra* note 10.

4. Rule of Law Concerns

Another criticism is that, even if neoclassical economic analysis does not indicate the correct result in every case, it has promoted greater predictability and consistency in antitrust analysis.¹⁰⁶ The fear is that behavioral economics will increase the range of outcomes reached in an antitrust case, and thus inject more unpredictability into competition law.

We are sensitive to this concern. Antitrust law must comport as much as feasible with rule of law principles. Possible civil or criminal liability should not depend on the latest economic theory. Neoclassical economic theory has provided a basis for evaluating antitrust cases, and in some cases, simply stated legal norms. Moreover, while economic theory has many dialects, it can provide a common language for competition authorities across the globe.

But neoclassical economic theory has its imperfections. First, as discussed below, neoclassical theory, because of its dependence on a flawed assumption of rationality, provides an incomplete, and at times incorrect, account of competition. Antitrust legal standards that rely on neoclassical theory can lead to high error costs, thereby undercutting the goals of competition law. Through a more persuasive and complex theory of rationality, behavioral economics can provide a superior account of competition, can lead to more empirically based presumptions in antitrust's legal standards, and can result in more informed antitrust enforcement.

Second, it is debatable whether neoclassical economic theory's reliance on the rule of reason has provided the desired level of administrability, consistency, objectivity, and transparency to antitrust.¹⁰⁷ The Supreme Court's current rule of reason standard provides little predictability for market participants, and, in combination with class action mechanisms, subjects litigants and trial courts to the purgatory of "sprawling, costly, and hugely time-consuming" discovery.¹⁰⁸ The Court's alternative per se standard is also unsatisfactory for evaluating many ordinary competitive restraints: the risk of false positives counsels against expanding rules of per se illegality, while the risk of false negatives counsels against expanding predictability through rules of per se legality.

As Justice Breyer observed in *Leegin Creative Leather Products v. PSKS, Inc.*, "antitrust law cannot, and should not, precisely replicate economists' (sometimes conflicting) views."¹⁰⁹ Instead, for legal standards in the antitrust context to serve their goals of prohibiting anticompetitive conduct while not sweeping in procompetitive conduct, they must be as precise as possible. The insights from behavioral economics can facilitate that end by providing agencies, courts, and legislatures with an additional lens through which to understand the facts before them. In some contexts, courts will conclude that the rule of reason is the best option. But, it may also mean that in other contexts, lawmakers will take all of the

106. Douglas H. Ginsburg & Derek W. Moore, *The Future of Behavioral Economics in Antitrust Jurisprudence*, 6 COMPETITION POL'Y INT'L 89, 92 (2010).

107. Maurice E. Stucke, *Does the Rule of Reason Violate the Rule of Law?*, 42 U.C. DAVIS L. REV. 1375 (2009) [hereinafter Stucke, *Rule of Reason*].

108. *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 560 n.6 (2007).

109. *Leegin Creative Leather Prods. v. PSKS, Inc.*, 551 U.S. 877, 914–15 (2007) (Breyer, J., dissenting).

available empirical economic evidence and create legally rebuttable presumptions.¹¹⁰ As we discuss below, behavioral economics can play an important role in that endeavor by explaining how actual, real-world evidence that contradicts (or is unexplainable under) a neoclassical economic theory may nevertheless be insightful in understanding whether conduct is pro- or anti-competitive.

II. THE PERSISTENCE OF RATIONAL CHOICE THEORY IN ANTITRUST LAW

Although behavioral economics, as Part I discusses, has become a growth stock, this Part discusses how the assumption of rational, self-interested profit maximizers became and remains embedded in antitrust policy.

A. *The Chicago School's Assumption of Rationality*

When Congress enacted the federal antitrust laws, it neither endorsed the assumption of a rational profit maximizer, nor dictated the application of any particular economic theory.¹¹¹ Congress instead sought to strike a balance between (i) providing the courts with sufficient latitude to shape those laws over time and (ii) not giving the courts unfettered discretion to interpret the antitrust laws so as to advance a particular judge's ideology.¹¹²

For several decades, the Supreme Court utilized a variety of economic organizing principles in its antitrust jurisprudence.¹¹³ Broadly speaking, however,

110. See Arndt Christiansen & Wolfgang Kerber, *Competition Policy with Optimally Differentiated Rules Instead of "Per Se Rules vs. Rule of Reason,"* 2 J. COMPETITION L. & ECON. 215, 219 (2006); Alfred E. Kahn, *Standards for Antitrust Policy,* 67 HARV. L. REV. 28, 41 (1953).

111. Herbert Hovenkamp, *Antitrust Policy After Chicago,* 84 MICH. L. REV. 213, 249 (1985) ("The legislative histories of the various antitrust laws fail to exhibit anything resembling a dominant concern for economic efficiency."); George J. Stigler, *The Economists and the Problem of Monopoly,* 72 AM. ECON. REV. 1, 3 (1982) ("A careful student of the history of economics would have searched long and hard . . . the day the Sherman Act was signed . . . for any economist who had ever recommended the policy of actively combatting collusion or monopolization in the economy at large.").

112. See *State Oil Co. v. Khan,* 522 U.S. 3, 20–21 (1997) (noting that Congress "expected the courts to give shape to the statute's broad mandate by drawing on common-law tradition" (quoting *Nat'l Soc'y of Prof'l Eng'rs v. United States,* 435 U.S. 679, 688 (1978))); *Bus. Elecs. Corp. v. Sharp Elecs. Corp.,* 485 U.S. 717, 732 (1988) ("The Sherman Act . . . invokes the common law itself, and not merely the static content that the common law had assigned to the term in 1890."); *Apex Hosiery Co. v. Leader,* 310 U.S. 469, 489 (1940) (noting that the "vagueness of [the Sherman Act's] language" left it to the courts to give "content to the statute").

113. See HERBERT HOVENKAMP, *ENTERPRISE AND AMERICAN LAW: 1836–1937,* at 268 (1991) ("One of the great myths about American antitrust policy is that courts began to adopt an 'economic approach' to antitrust problems only in the 1970's. At most, this 'revolution' in antitrust policy represented a change in economic models. Antitrust policy has been forged by economic ideology since its inception."); see also William E. Kovacic & Carl Shapiro, *Antitrust Policy: A Century of Economic and Legal Thinking,* 14 J. ECON. PERSP. 43 (2000) (surveying the role of economics in antitrust since the Sherman Act's inception).

in the thirty-year period that preceded the Chicago School's inception, the Court sought four aims.¹¹⁴

First, the Court generally (but not always) sought a rule that was administrable for generalist judges.¹¹⁵ With some notable exceptions, the Court turned to the Sherman Act's legislative history or common law precedent as a basis for its rules.¹¹⁶

Second, the Court sought legal rules to enhance predictability. For example, in devising the thirty percent presumption for mergers, the Court sought to foster business autonomy: unless business executives "can assess the legal consequences of a merger with some confidence, sound business planning is retarded."¹¹⁷ The Court's role was to provide clearer rules on what was civilly (and criminally) illegal under the Sherman Act.¹¹⁸

Third, the Court sought to prevent the lower courts from being bogged down in difficult economic problems, such as trade-offs between inter- and intrabrand competition.¹¹⁹ Neither the courts nor litigants could weigh the reduction of competition in one area (such as intrabrand competition for Topco private label products among Topco member supermarkets) versus greater competition in another area (such as interbrand competition between Topco members' private label products and the major supermarkets' private label goods).¹²⁰

Fourth, not only was this weighing beyond its competence, the Court recognized that the legislature, while subject to rent seeking, was more politically accountable than the judiciary; thus Congress must make these normative trade-offs.¹²¹

The Court's implementation of these principles resulted in a period of unprecedented victories for antitrust enforcement. The Court used *per se* tests to condemn a broad range of conduct including tying arrangements that conditioned the sale of one product upon the buyer's agreement to purchase a second product,¹²² nonprice vertical restraints through which a manufacturer limited its resalers to specific geographic areas,¹²³ and the adoption of exclusive sales territories by marketing joint ventures.¹²⁴ In the merger context, in its 1963 decision in *Philadelphia National Bank*, the Court aimed for a presumption consistent with the congressional concerns in the 1950 Clayton Act amendments to deal with the rising tide of economic concentration in the American economy. The Court sought a presumptively anticompetitive post-merger market share that was based on figures

114. See Stucke, *Rule of Reason*, *supra* note 107, at 1401–06.

115. *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 362 (1963) (“[I]n any case in which it is possible, without doing violence to the congressional objective embodied in [the statute], to simplify the test of illegality, the courts ought to do so in the interest of sound and practical judicial administration.”).

116. Stucke, *Rule of Reason*, *supra* note 107, at 1402–03.

117. *Phila. Nat'l Bank*, 374 U.S. at 362.

118. Stucke, *Rule of Reason*, *supra* note 107, at 1403.

119. *Id.* at 1404–05.

120. *See United States v. Topco Assocs., Inc.*, 405 U.S. 596 (1972).

121. Stucke, *Rule of Reason*, *supra* note 107, at 1405–06.

122. *N. Pac. Ry. Co. v. United States*, 356 U.S. 1, 8 (1958).

123. *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365, 377–79 (1967).

124. *See Topco*, 405 U.S. at 608–10.

in its earlier Clayton Act cases and that was also consistent with prevailing scholarly opinion.¹²⁵ The Court also, however, placed horizontal mergers that created market shares below ten percent in question.¹²⁶

As scholars have noted, “[t]here was considerable consistency between judicial decisions and economic thinking during the 1940s, 1950s, and 1960s.”¹²⁷ But that consistency did not, in the eyes of the Court’s critics, provide the doctrinal certitude that antitrust law required. Beginning in the mid-1970s, the Chicago School’s neoclassical economic theories began to serve that role.¹²⁸

Although the “basic features of the Chicago [S]chool of antitrust analysis are attributable to the work of Aaron Director in the 1950’s,”¹²⁹ Robert Bork’s *Antitrust Paradox*¹³⁰ is widely considered to have laid the foundation for the Chicago School’s incorporation into federal antitrust law.¹³¹

Judge Bork argued that contrary to early thinking, the Sherman Act’s legislative history “displays the clear and exclusive policy intention of promoting consumer welfare,” a term which Bork gave a different meaning than others.¹³² As the Chicago School recognized, defining the goal of antitrust is paramount. This is because “[e]verything else follows from the answer we give.”¹³³ So to make the rule of reason “more manageable,” the Chicago School adopted the position “that the essential spirit of the Rule is to condemn only those practices that are, on balance, inefficient in the economic sense.”¹³⁴

125. See *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 365–66 (1963).

126. *United States v. Pabst Brewing Co.*, 384 U.S. 546, 551–52 (1966) (blocking a merger between two brewing firms that together accounted for twenty-four percent of beer sales in Wisconsin, eleven percent of sales in a three-state area of the upper Midwest, and less than five percent of sales nationally, holding that the Clayton Act was violated “in each and all of these three areas”); *United States v. Von’s Grocery Co.*, 384 U.S. 270 (1966) (enjoining a merger between two Los Angeles grocery chains with no more than 7.5 percent of retail sales).

127. Kovacic & Shapiro, *supra* note 113, at 51–52.

128. For a detailed discussion of the rise of the Chicago School, see Kovacic & Shapiro, *supra* note 113, at 52–55; Stucke, *supra* note 68, at 539–44.

129. Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 925 (1979). See generally Aaron Director & Edward H. Levi, *Law and the Future: Trade Regulation*, 51 NW. U. L. REV. 281 (1956).

130. BORK, *supra* note 3.

131. See, e.g., George L. Priest, *The Abiding Influence of The Antitrust Paradox*, 31 HARV. J.L. & PUB. POL’Y 455, 456 (2008) (“Virtually all would agree that the Supreme Court, in its change of direction of antitrust law beginning in the late 1970s, drew principally from Judge Bork’s book both for guidance and support of its new consumer welfare basis for antitrust doctrine.”).

132. BORK, *supra* note 3, at 61 (arguing that the overriding policy goal behind the Sherman Act is consumer welfare and that Congress intended to accomplish that goal by protecting economic efficiency). Bork’s interpretation has been so roundly discredited that some have called for a halt of its bashing. See Daniel R. Ernst, *The New Antitrust History*, 35 N.Y.L. SCH. L. REV. 879, 882–83 (1990).

133. BORK, *supra* note 3, at 50.

134. Richard A. Posner, *The Rule of Reason and the Economic Approach: Reflections on the Sylvania Decision*, 45 U. CHI. L. REV. 1, 16 (1977).

The Chicago School next elevated the importance of the rationality assumption. Although Posner once said that the “basic tenet of the Chicago [S]chool [is] that problems of competition and monopoly should be analyzed using the tools of general economic theory,”¹³⁵ economists disagree on what those tools are. So the Chicago School differentiated itself by starting “from the [strong] assumption that [market participants] are rational profit maximizers.”¹³⁶ Adopting this presumption allowed Chicago School theorists to more easily predict how rational profit maximizers should act.

A key component in the Chicago School’s thinking is not that rational decision making leads to perfect decision making, but that markets are self-correcting and will counteract faulty decision making. Except for the rare cases of price-fixing, mergers to monopoly, or other sustained market failures,¹³⁷ government intervention is often seen as unnecessary and harmful. The Chicago School’s theories do not treat *firm* behavior any differently from *individuals’ collective* behavior.

As Posner, Federal Trade Commissioner William Kovacic, and others have noted, it is inaccurate to say that the emphasis modern federal antitrust law has placed on neoclassical economics is solely attributable to the Chicago School.¹³⁸ Nevertheless, whether characterized as Chicago, post-Chicago,¹³⁹ or Harvard¹⁴⁰ School theory, antitrust’s economic theories for the past thirty years have largely assumed that rational profit-maximizing market participants have willpower.

135. Posner, *supra* note 129, at 933–34.

136. *Id.* at 928, 933–34 (explaining that neoclassical theories rely on the core theoretical assumption that individuals are perfectly rational, profit-maximizing decision makers); *see also* AREEDA & HOVENKAMP, *supra* note 4, ¶ 113, at 140 (“As a general proposition business firms are (or must be assumed to be) profit maximizers . . .”).

137. *See* Posner, *supra* note 129, at 933.

138. *See* Kovacic, *supra* note 5, at 29; Posner, *supra* note 129, at 925 (concluding that, because of the convergence between the Harvard and Chicago Schools’ thinking, “it is no longer worth talking about different schools of academic antitrust analysis”); *see also* Daniel A. Crane, *Chicago, Post-Chicago, and Neo-Chicago*, 76 U. CHI. L. REV. 1911, 1918–20 (2009) (book review) (discussing overlap among Chicago, post-Chicago, and Harvard Schools).

139. The post-Chicago approach, which uses game theory to examine ways in which established firms behave strategically in comparison to actual and potential rivals, has supplied a well-developed body of literature that highlights a broader view of predatory pricing, and predatory and exclusionary behavior more generally. Under the post-Chicago School theory, firms with substantial market power can engage in exclusionary conduct by raising their rivals’ cost. *See, e.g.*, Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals’ Costs to Achieve Power over Price*, 96 YALE L.J. 209 (1986).

140. *See* Kovacic, *supra* note 5, at 80 (noting that the Harvard School, through the contributions of Donald Turner, Phillip Areeda, and Justice Stephen Breyer, “has had as much to do as Chicago with creating many of the widely-observed presumptions and precautions that disfavor intervention by U.S. courts and enforcement agencies”); *see also* Einer Elhauge, *Harvard Not Chicago: Which Antitrust School Drives Recent U.S. Supreme Court Decisions?*, 3 COMPETITION POL’Y INT’L 59 (2007).

*B. How the Rationality, Profit Maximization, and Efficiency Assumptions
Permeate Modern Federal Antitrust Law*

As a result of the Chicago School's "powerful simplifications," such as "rationality, profit maximization, [and] the downward-sloping demand curve,"¹⁴¹ neoclassical economic principles now underlie much of modern federal antitrust law and pervade the doctrinal analysis that governs sections 1 and 2 of the Sherman Act as well as merger review.

In the section 1 context, which involves unreasonable restraints of trade, the Chicago School's rational choice theories played a central role in the Supreme Court's shift from its per se rule to its rule of reason standard.¹⁴² In *Continental T.V., Inc. v. GTE Sylvania, Inc.*,¹⁴³ the Court overturned *United States v. Arnold, Schwinn & Co.*¹⁴⁴ and held that nonprice vertical restraints were subject to the rule of reason. Then in *State Oil Co. v. Khan*,¹⁴⁵ the Court discarded its per se ban on maximum resale price maintenance agreements. Citing Posner's Seventh Circuit decision, Bork's *Antitrust Paradox*, and Areeda and Hovenkamp's treatise, the Court reasoned that a per se rule was inappropriate where "a considerable body of scholarship" suggested maximum resale price maintenance agreements were procompetitive and provided "insufficient economic justification for *per se* invalidation" of those agreements.¹⁴⁶ More recently, in *Leegin*,¹⁴⁷ the Court overruled its nearly century-old per se rule against vertical minimum price-fixing.¹⁴⁸ The Court again turned to the thinking of the Harvard and Chicago Schools and cited as authority an amicus brief by several economists to support the proposition that "authorities in the economics literature suggest the *per se* rule is inappropriate, and there is now widespread agreement that resale price maintenance can have procompetitive effects."¹⁴⁹

The departure from per se rules has its roots in the Chicago School's belief that the false negatives (and administrative costs) that result from the Court's rule of

141. Posner, *supra* note 129, at 931.

142. See Joshua D. Wright, *Overshot the Mark? A Simple Explanation of the Chicago School's Influence on Antitrust*, 5 COMPETITION POL'Y INT'L 1, 7 (2009) (book review) ("Perhaps the Chicago School's most important and visible victory has been the assault on the *per se* rule of illegality, which, at least for now, exists only in naked price-fixing cases and, in a weakened form, in tying cases.").

143. 433 U.S. 36 (1977).

144. 388 U.S. 365 (1967), *overruled by* *Continental T.V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36, 58 (1977).

145. 522 U.S. 3 (1997).

146. *Id.* at 15, 18.

147. 551 U.S. 877 (2007).

148. *Id.* at 889-907 (overruling *Dr. Miles Med. Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911)).

149. *Leegin*, 551 U.S. at 900 (citing Brief of Amici Curiae Economists in Support of Petitioner at 16, *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007) (No. 06-480)); see also Elhauge, *supra* note 140 (arguing that, while the Chicago School would have advocated for a rule of per se legality in the context of vertical restraints, the Court's adoption of the rule of reason demonstrates that the Court followed the teachings of the Harvard School).

reason standard are far less significant than the false positives that follow from its per se rules. False negatives are not a concern if one strongly believes in self-correcting markets arising from self-interested rational market participants. Instead, the greater concern is that government restraints (in the form of per se rules or legal presumptions of illegality) represent a greater threat to market efficiency.

Nevertheless, while embracing its rule of reason standard, the Court has, more recently, complained of antitrust's "interminable litigation,"¹⁵⁰ "inevitably costly and protracted discovery phase,"¹⁵¹ the risk of "frivolous suits,"¹⁵² and the "unusually high risk" of inconsistent results by antitrust courts.¹⁵³ So the current Court, like the earlier Warren and Burger Courts, lacks confidence in the judiciary's ability to examine difficult economic problems. But rather than provide more guidance for courts reviewing antitrust violations under section 1, the Court now requires the lower courts to undertake a complex economic rule of reason analysis with relatively little concrete guidance.

Put differently, the importation of the neoclassical ideas in construing section 1 has left the Court in an awkward position. On the one hand, the Court has relied on the Chicago School's organizing principles to introduce increased complexity in the law: if neoclassical economic theory suggests bright-line rules are prohibiting procompetitive conduct, the Court's response has been to expand the rule of reason. On the other hand, the Court has resorted to the Chicago School's principles as a justification for simplifying antitrust law by placing the upmost weight on administrability and predictability when creating bright-line rules that essentially immunize conduct deemed economically irrational.

The Court's construction of monopolization claims under section 2 likewise has shifted as a result of the Chicago School's influence, particularly in the predatory pricing context where the Court has crafted liability rules that are premised on the assumption that firms behave rationally. Under neoclassical thinking, predation claims specifically and attempted monopolization claims generally are highly unusual in the presence of low entry barriers and rational market participants. For any attempted monopolization claim, plaintiffs must demonstrate that "substantial barriers to entry protect the market," and these barriers are "'significant' enough to confer monopoly power."¹⁵⁴ Notwithstanding the firm's intent to monopolize a market and its anticompetitive conduct, a court could find that rational profit-maximizing entrants will materialize and rescue the consumer. Similarly, no rational firm would engage in predation given the difficulty of recouping its losses.¹⁵⁵ This reasoning led Frank Easterbrook in 1981 to opine that "there is no

150. *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 414 (2004).

151. *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 558 (2007) (quoting *Asahi Glass Co. v. Pentech Pharm., Inc.*, 289 F. Supp. 2d 986, 995 (N.D. Ill. 2003)).

152. *Leegin*, 551 U.S. at 895.

153. *Credit Suisse Sec. (USA), LLC v. Billing*, 551 U.S. 264, 281 (2007).

154. *United States v. Microsoft Corp.*, 253 F.3d 34, 81, 82 (D.C. Cir. 2001).

155. *See, e.g.*, BORK, *supra* note 3, at 145 ("Any realistic theory of predation recognizes that the predator as well as his victims will incur losses during the fighting, but such a theory supposes it may be a rational calculation for the predator to view the losses as an investment in future monopoly profits (where rivals are to be killed) or in future undisturbed profits

sufficient reason for antitrust law or the courts to take predation seriously.”¹⁵⁶ This view has largely carried the day at the Supreme Court.¹⁵⁷

In *Matsushita Electric Industrial Co. v. Zenith Radio Corp.*,¹⁵⁸ for example, the Court observed a “consensus among” Chicago School “commentators that predatory pricing schemes are rarely tried, and even more rarely successful.”¹⁵⁹ The Court adopted Bork’s view in *The Antitrust Paradox* that “[a]ny agreement to price below the competitive level requires the conspirators to forgo profits that free competition would offer them,” and, as such, “[f]or the investment to be rational, the conspirators must have a reasonable expectation of recovering, in the form of later monopoly profits, more than the losses suffered.”¹⁶⁰

Likewise, in *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*¹⁶¹ (which Bork successfully argued), the Court relied on *Matsushita* and the writings of various prominent Harvard and Chicago School scholars to declare that conduct will not amount to predatory pricing unless (i) the alleged scheme involved pricing below some measure of cost, and (ii) the predator had a rational prospect of recouping its losses from such below-cost predation.¹⁶² Consistent with the wealth-maximizing assumptions that underlie both schools of thought, the Court observed that “[r]ecoupment is the ultimate object of an unlawful predatory pricing scheme.”¹⁶³ Most recently in *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*,¹⁶⁴ the Court applied its *Brooke Group* test to claims of predatory bidding. “Without such a reasonable expectation” of recoupment, the Court wrote, “a rational firm would not willingly suffer definite, short-run losses.”¹⁶⁵ Given the risks in recoupment, a “rational business will rarely make this sacrifice.”¹⁶⁶

But the Court’s reliance on rational choice theory in *Brooke Group* and *Weyerhaeuser* is inconsistent with its recoupment requirement. The Court’s premise is that firms are rational and self-interested. If true, firms ordinarily would price their products at or above their marginal cost. Rational firms, Bork believed, would rarely, if ever, incur the substantial losses in pricing below marginal cost, unless they believed that the future supracompetitive profits, appropriately discounted, would exceed the immediate losses.¹⁶⁷ So if rational, profit-maximizing firms were pricing below marginal cost, this would reveal their reasonable expectation of recoupment. Under rational choice theory, the antitrust plaintiff should recover simply by proving that the defendant’s prices were below marginal

(where rivals are to be disciplined.”); see also Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 268 (1981).

156. Easterbrook, *supra* note 155, at 264.

157. See Leslie, *supra* note 33, at 289–91.

158. 475 U.S. 574 (1986).

159. *Id.* at 589.

160. *Id.* at 588–89 (citing BORK, *supra* note 3, at 145).

161. 509 U.S. 209 (1993).

162. *Id.* at 222–24.

163. *Id.* at 224.

164. 549 U.S. 312 (2007).

165. *Id.* at 319.

166. *Id.* at 323.

167. See BORK, *supra* note 3, at 145.

cost.¹⁶⁸ But the Court requires antitrust plaintiffs to separately prove a reasonable expectation of recoupment. This second element provides antitrust defendants another opportunity to avoid liability. Even if pricing below marginal cost, defendant could argue that entry barriers are sufficiently low, so that rational profit maximizers would defeat any attempted exercise of market power. If true, defendant, under rational choice theory, should not have priced below marginal cost in the first place. Although the Court has not adopted the Chicago School's view of per se legality for predatory pricing,¹⁶⁹ its rule essentially immunizes conduct deemed economically irrational.¹⁷⁰

Apart from the Sherman Act, the neoclassical economic theories' rationality assumption has influenced U.S. merger law. Some described the earlier Merger Guidelines as "a product of the new economic orientation in antitrust law, if not an outright product of Chicago School economic theories."¹⁷¹ These principles can be seen in two respects.

First, in response to critiques by Bork and others from the Chicago and Harvard Schools that the Structure-Conduct-Performance paradigm prohibited mergers

168. One could argue that imposing the second element of recoupment serves to minimize the costs of false positives from the first element, namely the Court's attempt in determining the product's "appropriate measure of cost." But if this were driving the Court's concern, then it would have specified what constitutes the appropriate measure of cost (such as average variable cost), which raises its own issues. See Russell Pittman, *Who Are You Calling Irrational? Marginal Costs, Variable Costs, and the Pricing Practices of Firms* (Econ. Analysis Grp., Discussion Paper EAG 09-3, 2009), available at <http://www.justice.gov/atr/public/eag/248394.pdf>.

169. See Herbert Hovenkamp, *The Harvard and Chicago Schools and the Dominant Firm*, in *HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST* 109, 110 (Robert Pitofsky ed., 2008) (characterizing *Brooke Group* as a victory for the Harvard School because the Court adopted the view that predatory pricing could be illegal provided there was an opportunity for recoupment).

170. The Tenth Circuit noted in the government's most recent predatory pricing case, "[r]ecent scholarship has challenged the notion that predatory pricing schemes are implausible and irrational." *United States v. AMR Corp.*, 335 F.3d 1109, 1114 (10th Cir. 2003) (citing Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L.J. 2239, 2241 (2000) ("[M]odern economic analysis has developed coherent theories of predation that contravene earlier economic writing claiming that predatory pricing conduct is irrational.")). The Tenth Circuit, while approaching the DOJ's predatory pricing claims "with caution," did "not do so with the incredulity that once prevailed." *AMR Corp.*, 335 F.3d at 1115. The DOJ still lost, however. See *id.* at 1120–21.

171. Herbert Hovenkamp, *Merger Actions for Damages*, 35 HASTINGS L.J. 937, 947 n.43 (1984); see also Eleanor M. Fox, *Introduction: The 1982 Merger Guidelines: When Economists Are Kings?*, 71 CAL. L. REV. 281, 283 (1983) ("The 1982 Merger Guidelines . . . represent a new positivism; a reduction of legal principles to a simple, unitary, quasi-scientific, outcome-oriented economic model that, in a generalized sense, has been offered as the model for solving all antitrust problems. By embodying only one substantive goal—allocative efficiency—the model offers the appearance of clarity, predictability, and reduced government intervention.").

among small firms that could generate efficiencies, the agencies allowed for a more fulsome consideration of efficiencies in the 1982 Guidelines.¹⁷²

Second, consistent with the Court's decision in *General Dynamics*,¹⁷³ the 1982 Guidelines embraced the neoclassical idea that, notwithstanding, a firm's market share may not accurately reflect the firm's long-term competitive viability. Thus, the Herfindahl-Hirschman Index (HHI) serves to reduce the risk of false positives by creating what are generally viewed as "safe harbors." If a merger's HHI (a measure of the industry concentration that will result from the merger)¹⁷⁴ falls within those safe harbors, the merger is typically not challenged. On the other hand, high market shares post-merger in highly concentrated industries are insufficient. The antitrust agencies must still prove a compelling competitive effects story (namely, how this merger significantly increases the risk of coordinated or unilateral anticompetitive effects) and why the exercise of market power will not be squelched by the entry (or expansion) of rational, profit-maximizing firms.

In short, since the Chicago School's ascendance in the mid-1970s, antitrust law has embraced neoclassical principles at every turn. While these principles may have been motivated by the desire to increase predictability (and, in turn, lead to fewer false positives), it is not altogether clear that the neoclassical antitrust theories led to those results. In some cases, the desire to subject conduct to a rule-of-reason framework, so as not to prohibit procompetitive conduct, decreased predictability. As discussed below, the behavioral economics literature provides insights into ways to further sharpen antitrust rules to result in fewer false positives *and* false negatives over the long run.

III. HOW CAN BEHAVIORAL ECONOMICS INFORM ANTITRUST POLICIES?

As the survey in Part II suggests, neoclassical economic theory now covers the landscape of federal antitrust law. When the antitrust agencies and federal courts analyze anticompetitive conduct or evaluate a proposed or consummated merger, they generally apply certain assumptions about firm and individual behavior, including: (i) markets characterized by low entry barriers do not pose antitrust concerns—these markets are not susceptible to the prolonged exercise of market power because rational profit maximizers will enter; (ii) many mergers generate

172. See BORK, *supra* note 3, at 217. During his tenure as Assistant Attorney General, Donald Turner of the Harvard School asked Oliver Williamson to study the issue, which resulted in a paper showing the economic irrationality of merger policy that did not take efficiencies into account. See Oliver E. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968). Williamson's paper, in turn, led to the inclusion of a narrow efficiencies defense in the first Merger Guidelines, which the 1982 Merger Guidelines revisions more fully embraced and expanded. See also U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § V.A (1982).

173. *United States v. Gen. Dynamics Corp.*, 415 U.S. 486 (1974).

174. HHIs are derived by summing the squares of each competitor's market share. The first important variable is the industry's HHI post-merger. The second important variable is the change in HHI, namely the number of points by which the merger increases the market's HHI. See HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 6.3.

significant efficiencies; (iii) rational big buyers often thwart the exercise of market power; and (iv) general deterrence of cartels is achievable under optimal deterrence theory.

These assumptions—which are based on the tenets of neoclassical economic theory of plausible behavior—can and do have outcome-determinative effects. Federal courts regularly grant defendants’ summary judgment motions if plaintiffs’ antitrust claims do not make “economic sense,” such as alleging economically irrational (non-profit-maximizing) behavior.¹⁷⁵ Now *Twombly* has opened the door for defendants at the pleading stage to argue that plaintiffs’ antitrust claims are economically implausible.¹⁷⁶ Similarly, “[c]urrent U.S. merger enforcement policy,” reported the Antitrust Modernization Commission (AMC), “is premised on assumptions about how concentration and other market characteristics (such as ease of entry) affect competition and market power.”¹⁷⁷ The problem the AMC identified is that the “[e]mpirical evidence gives only limited support for these assumptions.”¹⁷⁸ As one former antitrust official observed, the agencies’ “merger review process is applied sparingly,” as the “vast majority of transactions” (approximately ninety-seven percent) “are cleared within the initial waiting period.”¹⁷⁹

This is all to say that assumptions play a critical role in winnowing the types of conduct that go to discovery and/or trial, as well as the number of mergers that the antitrust agencies actually review as potentially anticompetitive. If the assumptions are infirm, then conceivably some of the conduct that is exonerated and the mergers that are not reviewed may be anticompetitive.

A. Assumption that Rational Profit Maximizers Will Defeat the Exercise of Market Power in Markets Characterized by Low Entry Barriers

Neoclassical antitrust analysis treats the potential for entry as significant—if not sometimes dispositive—in determining whether the existing market participants will exercise market power. The analysis assumes that markets characterized by low entry barriers are not susceptible to the prolonged exercise of market power

175. See Leslie, *supra* note 33, at 272 (noting plaintiff’s two-step rationality burden); see also *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 467 (1992) (citing *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587, 594 n.19, 596–97 (1986) (summary judgment is appropriate where antitrust claim “simply makes no economic sense”)); *In re Brand Name Prescription Drugs Antitrust Litig.*, 123 F.3d 599, 614 (7th Cir. 1997) (Posner, J.) (arguing that summary judgment for defendants is proper, even if there is some evidence of an antitrust violation, if plaintiff’s theory makes no economic sense).

176. See *Bell Atl. Corp. v. Twombly*, 550 U.S. 544 (2007).

177. ANTITRUST MODERNIZATION COMM’N, REPORT AND RECOMMENDATIONS 61–62 (2007) [hereinafter AMC REPORT], available at http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf.

178. *Id.* at 62.

179. Thomas O. Barnett, Assistant Attorney Gen., Antitrust Div., U.S. Dep’t of Justice, Merger Review: A Quest for Efficiency, Address to New York State Bar Association Antitrust Section Annual Meeting (Jan. 25, 2007), available at <http://www.justice.gov/atr/public/speeches/221173.htm>.

because (i) supracompetitive prices will attract rational profit-maximizing firms, (ii) these new entrants will replenish the lost output, and (iii) as a result of entry, prices will return closer to marginal cost.¹⁸⁰

With the exception of criminal prosecutions of cartels,¹⁸¹ this assumption pervades the Sherman Act case law. In the section 1 context, courts have observed that the absence of entry barriers means a predatory pricing conspiracy is implausible. In *Matsushita*, plaintiffs argued that they had adduced facts to show a plausible conspiracy to engage in predatory pricing.¹⁸² The Supreme Court, however, observed that the antitrust plaintiffs “offer no reason to suppose that entry into the relevant market is especially difficult, yet without barriers to entry it would presumably be impossible to maintain supracompetitive prices for an extended time.”¹⁸³

Likewise, in the section 2 context, for Bork and others, monopolies (other than those protected by the government) are short-term phenomena: the innovator’s supracompetitive profits serve as bait for imitators, who “first reduce and then annihilate [the monopolist’s] profit,” which reverts to the competitive mean.¹⁸⁴ Innovation attracts imitation, which leads to commoditization. Courts therefore will frequently analyze whether a firm can attempt to monopolize, or monopolize, a market by examining the likelihood of entry.¹⁸⁵

Entry barriers are also a key factor under the Merger Guidelines. The federal antitrust agencies lost a series of merger challenges when courts found that easy entry would deter any anticompetitive effects.¹⁸⁶ The agencies thereafter adopted a more extensive entry provision in their Guidelines, which set forth what the agencies believe is required: that entry be “timely, likely, and sufficient . . . to deter or counteract the competitive effects of concern.”¹⁸⁷ Merger analysis for the

180. See, e.g., *Ball Mem’l Hosp., Inc. v. Mut. Hosp. Ins., Inc.*, 784 F.2d 1325, 1335 (7th Cir. 1986) (Easterbrook, J.) (noting how “the lower the barriers to entry, and the shorter the lags of new entry, the less power existing firms have”).

181. The DOJ prosecutors have been successful in preserving the Court’s per se rule on horizontal price fixing, bid rigging, market or customer allocations, and output reductions. If executives conspire to fix prices, they are liable even though entry barriers are low or such behavior is economically irrational.

182. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 577–78 (1986).

183. *Id.* at 591 n.15.

184. JOSEPH A. SCHUMPETER, *THE THEORY OF ECONOMIC DEVELOPMENT* 89 (1934); see BORK, *supra* note 3, at 195–97.

185. See, e.g., *Bailey v. Allgas, Inc.*, 284 F.3d 1237, 1256 (11th Cir. 2002) (affirming summary judgment for defendant in Robinson Patman Act case where plaintiff failed to show the presence of entry barriers and noting that “the ease or difficulty of entry” is “[t]he most significant structural factor bearing on the ability to recoup predatory losses through inflated prices” because “[w]here a market has low barriers to entry, sellers charging supracompetitive prices will soon attract new competitors”); *AD/SAT v. Associated Press*, 181 F.3d 216, 229–30 (2d Cir. 1999) (affirming summary judgment for defendant on attempted monopolization claim and noting that the presence of “low barriers to market entry” suggested that the defendant would “face significant competition from new entrants”).

186. See AMC REPORT, *supra* note 177, at 71 n.40.

187. HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 9.0.

agencies “generally entails a hypothetical analysis of entry.”¹⁸⁸ In markets where entry theoretically would be timely (that is, occurring in less than two years), likely, and sufficient in magnitude, character, and scope to deter the exercise of market power, then the “merger is not likely to enhance market power.”¹⁸⁹ For mergers subject to a Second Request between the years 1996 and 2003, the FTC stated that it took no enforcement action where its staff concluded that entry would be timely, likely, and sufficient under the Merger Guidelines criteria.¹⁹⁰

When the antitrust agencies believe that entry barriers are sufficiently low to defeat the exercise of market power post-merger, there is typically no mechanism to minimize the risk of false negatives. Private parties and state attorneys general infrequently challenge mergers.¹⁹¹ On the other hand, if the agencies believe that entry barriers are sufficiently high to enable the exercise of market power, mechanisms exist to reduce the risk of false positives. The merging parties can seek to persuade a generalist court (which is less familiar about antitrust issues than the agencies) that a hypothetical rational entrant would defeat the exercise of market power. The section 7 case law is consistent with this approach: the merging parties can use evidence of low entry barriers to successfully rebut any presumption of anticompetitive harm. “In the absence of significant barriers,” the courts assume, “a company probably cannot maintain supracompetitive pricing for any length of time.”¹⁹²

The problem is that our understanding regarding the impact of ease of entry on competition is, as the AMC found, “limited.”¹⁹³ The behavioral literature identifies two market-entry error types: (i) excess entry (i.e., entry that fails because it is economically irrational), and (ii) sparse entry (i.e., entry that should but does not

188. FED. TRADE COMM’N, TRANSPARENCY AT THE FEDERAL TRADE COMMISSION: THE HORIZONTAL MERGER REVIEW PROCESS: 1996–2003, at 14 (2005) [hereinafter *MERGER REVIEW PROCESS*], available at <http://www.ftc.gov/os/2005/02/0502economicissues.pdf>.

189. HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 9.0.

190. See *MERGER REVIEW PROCESS*, *supra* note 188, at 78 (noting that of the nineteen cases identified, sixteen were in highly concentrated industries).

191. See Lawrence M. Frankel, *The Flawed Institutional Design of U.S. Merger Review: Stacking the Deck Against Enforcement*, 2008 UTAH L. REV. 159, 171–72.

192. *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 987 (D.C. Cir. 1990) (“The existence and significance of barriers to entry are frequently, of course, crucial considerations in a rebuttal analysis.”); see, e.g., *Cargill, Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104, 120 n.15 (1986) (recognizing and quoting from *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 591 n.15 (1986), that “without barriers to entry it would presumably be impossible to maintain supracompetitive prices for an extended time”); *United States v. Syufy Enters.*, 903 F.2d 659, 664 (9th Cir. 1990) (“If there are no significant barriers to entry . . . any attempt to raise prices above the competitive level will lure into the market new competitors able and willing to offer their commercial goods or personal services for less.”); *United States v. Waste Mgmt., Inc.*, 743 F.2d 976, 983 (2d Cir. 1984) (easy entry would eliminate any anticompetitive impact of merger in highly concentrated industry); *FTC v. Cardinal Health, Inc.*, 12 F. Supp. 2d 34, 54–55 (D.D.C. 1998) (finding that ease of entry “can be sufficient to offset the government’s prima facie case of anti-competitiveness”).

193. AMC REPORT, *supra* note 177, at 62.

occur because a firm exhibits irrationality in failing to pursue entry).¹⁹⁴ Both categories of market-entry error can cast light on ways in which antitrust law's assumptions about entry are imperfect.

Excess Entry. Entry occurs in some industries when it is economically irrational. Indeed, some industries “see perennially high rates of entry, intense competition, and high rates of failure.”¹⁹⁵ The behavioral economics and behavioral finance literature offer at least three possible explanations for this tendency.

One explanation is the “optimistic bias.”¹⁹⁶ The notion is that when individuals judge their likelihood of experiencing a good outcome in an event that they have some control over—obtaining a favorable job, financial security, or a happy marriage—they overestimate their likelihood of success.¹⁹⁷ In contrast, when individuals estimate the probability that something negative will happen to them—a car accident from reckless driving, a loss in the stock market, or a divorce—they underestimate its likelihood.

Economists Camerer and Lovallo have shown that this optimism bias carries over to entry decision making.¹⁹⁸ Their work found that, while participants in a given market may correctly realize that the average entrant's profit would be negative, the individual participants will incorrectly expect that their own profits will be positive. Moreover, their work found that optimism bias is most pronounced in situations they describe as “reference group neglect,”¹⁹⁹ where the potential entrant believes it has a particular expertise or skill in the given market—even where the entrant knows that its competitors believe that they also have a special skill. There “is more entry . . . when people are betting on their own relative skill rather than on a random device” and “[t]he more surprising finding is that overconfidence is even stronger when subjects self-select into the experimental sessions, knowing their success will depend partly on their skill (and that others have self-selected too).”²⁰⁰

A second and related explanation is that entrants may be driven by the desirability bias. Desirability bias (or “wishful thinking”) is the tendency of individuals to predict favorable outcomes in external events that they have no control over, but whose outcomes nevertheless implicate their self-perception.²⁰¹

194. See Don A. Moore, John M. Oesch & Charlene Zietsma, *What Competition? Myopic Self-Focus in Market-Entry Decisions*, 18 ORG. SCI. 440, 441 (2007).

195. *Id.* at 440 (citation omitted).

196. See Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, and Legal Policy*, 101 MICH. L. REV. 482, 505–08 (2002) (discussing the principle of overconfidence in the context of entry decision making).

197. Moore et al., *supra* note 194, at 440–41 (discussing entrepreneurs' tendency to rely too heavily on internal and personal qualities, rather than external market factors, when making decisions).

198. See Colin Camerer & Dan Lovallo, *Overconfidence and Excess Entry: An Experimental Approach*, 89 AM. ECON. REV. 306 (1999).

199. *Id.* at 315.

200. *Id.* at 311, 314.

201. See Robert A. Olsen, *Desirability Bias Among Professional Investment Managers: Some Evidence from Experts*, 10 J. BEHAV. DECISION MAKING 65, 65 (1997) (defining desirability bias as “the tendency to overpredict desirable outcomes and underpredict unwanted outcomes”); see also Tor, *supra* note 196, at 508–10, 515–16 (discussing the

Such errant predictions may occur if entrants (i) overestimate the likelihood that a market participant (or participants) will fail or (ii) underestimate the likelihood of events in the economy that will negatively affect their prospects of success. In terms of antitrust, a party entering a market with low entry barriers could overestimate the likelihood that it would obtain the financing to succeed over the long run or underestimate the likelihood that new entrants against whom it will compete for market share will succeed. As Professor Avishalom Tor, who has written extensively in the area of behavioral antitrust, has observed, “[e]ntrants who overestimate their prospects are more likely to fail than entrants who make accurate average estimates, but their presence also decreases other entrants’ probability of success and changes the composition of the final cohort of successful entrants.”²⁰²

A third and related bias occurs when entrants focus on themselves rather than understanding competition. One qualitative field study of entrepreneurs found that those who started their own businesses thought about their personal abilities, but “rarely mentioned external factors such as the capacity of the market they were entering or the strength of their competitors.”²⁰³ Thus entrants over-enter markets they perceive as easy for them (such as restaurants), and do not research the external environment or competition.²⁰⁴

Sparse Entry. At other times, entry does not occur when it is economically rational. Thus companies can maintain supracompetitive pricing in markets with low entry barriers. Between 1988 and 1996, the DOJ criminally prosecuted cartels in dozens of industries that, on the surface, appear to have moderate or low entry barriers, including turtles, chain link fences, and bicycle retailers.²⁰⁵ Other recent cartels involved college textbooks,²⁰⁶ packaged ice,²⁰⁷ scrap metal,²⁰⁸ bid rigging at public real estate foreclosure auctions,²⁰⁹ and retail gasoline and diesel fuel.²¹⁰ The behavioral economics literature offers two possible explanations for the absence of entry in these markets.

application of desirability bias to entry in the antitrust context).

202. Tor, *supra* note 196, at 531.

203. Moore et al., *supra* note 194, at 441.

204. *Id.* at 444.

205. See Stucke, *supra* note 68, at 565–66 (collecting cases revealing price fixing in markets that superficially, at least, appear to have moderate or low entry barriers).

206. Indictment, United States v. Saner, 313 F. Supp. 2d 896 (S.D. Ind. 2004) (No. IP 03181-CR), available at <http://www.justice.gov/atr/cases/f201500/201507.pdf>.

207. Information, United States v. Home City Ice Co., No. 07-CR-140 (S.D. Ohio Nov. 5, 2007), available at <http://www.justice.gov/atr/cases/f234200/234205.htm>.

208. Press Release, U.S. Dep’t of Justice, Cleveland Scrap Metal Dealer and Owner Indicted in Antitrust Conspiracy (Feb. 6, 2008), available at http://www.justice.gov/atr/public/press_releases/2008/229926.htm (conspiracy involved industrial scrap metal dealers who generally place collection boxes at manufacturers’ sites to collect scrap metal, then pick it up, process it, and resell it to customers).

209. Press Release, U.S. Dep’t of Justice, California Real Estate Executive Pleads Guilty to Bid Rigging (Apr. 16, 2010), available at http://www.justice.gov/atr/public/press_releases/2010/257801.htm.

210. Press Release, U.S. Dep’t of Justice, Convenience Store Company and Individual Charged with Retail Gasoline Price Fixing in Oklahoma (Sept. 19, 2008), available at http://www.justice.gov/atr/public/press_releases/2008/237430.htm.

One explanation is that, while information is available, individuals do not react to risk or uncertainty as a rational profit maximizer would. The efficient market hypothesis, like rational choice theory generally, assumes that so long as information is publicly available, rational, profit-maximizing traders will enter financial markets if there are irrational price moves to maintain market efficiency.²¹¹ Thus, under the efficient market hypothesis, stocks are consistently priced at a “rational” level: stock prices of actively traded companies quickly adjust to reflect the rational expectations generated by information as it becomes available.²¹² As recent events have proven (and as the behavioral finance literature shows), rational arbitrageurs do not, however, always exploit obvious fiscal opportunities to restore prices to their fundamental value.²¹³ The behavioral finance literature also suggests that sparse entry may result from the fact that the information needed to make a rational decision about entry can be costly to acquire, process, and verify.²¹⁴

A second explanation for sparse entry is the flip side of the overconfidence bias: while people are overconfident with respect to easy tasks, they rate themselves well below average on difficult tasks. So rates of entry, in one behavioral experiment, differed dramatically for difficult and simple tasks. In the experiment, participants over-entered when the quiz was simple (sixty-nine percent of the time), but entered less often on rounds when the quiz was difficult (thirty-nine percent of the time), even though they stood to profit in entering the difficult rounds.²¹⁵ There was no evidence that the university students learned to avoid these mistakes over twelve rounds.²¹⁶ In basing entry largely on their myopic judgment, the participants failed to see profitable opportunities where less competition existed.

These insights from the behavioral literature suggest that hypothetical entry barriers are only part of understanding market entry. At times, some businesses proclaim to the antitrust agencies that they would enter in response to a small but significant nontransitory increase in price (SSNIP). Accurately predicting an entrant’s success, however, requires a more complete understanding of the biases

211. See Stucke, *supra* note 68, at 569–70.

212. See Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information, and Securities Research*, 60 N.Y.U. L. REV. 761, 770–72 (1985) (explaining the efficient market hypothesis); Lynn A. Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611, 646–48 (1995) (describing the concept of the efficient market hypothesis in modern financial theory); see also Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 554–65 (1984) (detailing principles of market efficiency).

213. For an account of the rise and fall of the efficient market hypothesis, see FOX, *supra* note 8.

214. Lynn A. Stout, *The Mechanisms of Market Inefficiency: An Introduction to the New Finance*, 28 J. CORP. L. 635, 637 (2003) (noting that because information is costly to obtain, process, and verify, “it is impossible for every participant in securities markets to actually acquire, understand, and validate all the available information that might be relevant to valuing securities”); see also Frederick C. Dunbar & Dana Heller, *Fraud on the Market Meets Behavioral Finance*, 31 DEL. J. CORP. L. 455 (2006) (discussing examples where arbitrage should occur in financial markets, but does not).

215. Moore et al., *supra* note 194, at 449.

216. *Id.* at 450.

that skew the entrant's wealth maximization calculus. At other times, even if entry barriers are low, entry will not occur despite the profit opportunity. A more fulsome entry analysis should therefore consider factors apart from entry barriers, such as: (i) why entry does not occur in markets when antitrust's rational choice theory predicts it would, (ii) why others enter markets when it is economically irrational, and (iii) what a prospective entrant's likelihood of success is, in recognition of possible optimism bias.

B. Assumption that Companies Merge to Generate Significant Efficiencies

Antitrust policy assumes that companies often merge to obtain efficiencies. "All of us know," one Bush antitrust official remarked, "that the rationale for most mergers is procompetitive and that most mergers have no adverse effects on competition."²¹⁷ Some noted that the change from the 1960s is "more than anything else . . . the perception that many, if not most, mergers are efficiency-enhancing, a fact that has come to the forefront with the need to permit American firms to be competitive in international markets."²¹⁸ The antitrust agencies believe that "[t]he vast majority of mergers pose no harm to consumers, and many produce efficiencies that benefit consumers in the form of lower prices, higher quality goods or services, or investments in innovation."²¹⁹ The belief is that profit-maximizing firms merge to generate efficiencies and/or to achieve market power. If the merger generates neither, it is economically irrational.

The Merger Guidelines likewise state that "a primary benefit of mergers to the economy is their potential to generate significant efficiencies and thus enhance the merged firm's ability and incentive to compete, which may result in lower prices, improved quality, enhanced service, or new products."²²⁰ Although the Merger Guidelines treat efficiencies as a defense, the merging parties can use efficiencies to explain why the merger is unlikely to lead to coordinated effects; that is, the efficiencies will reduce the merged firm's marginal costs resulting in a "new maverick firm" that has less incentive to engage in tacit or express collusion.²²¹ Consequently, "[t]he Agencies will not challenge a merger if cognizable

217. William J. Kolasky, Deputy Assistant Attorney Gen., Antitrust Div. of the U.S. Dep't of Justice, *What Is Competition?*, Address Before the Seminar on Convergence (Oct. 28, 2002), available at <http://www.justice.gov/atr/public/speeches/200440.htm>.

218. Thomas E. Kauper, *Merger Control in the United States and the European Union: Some Observations*, 74 ST. JOHN'S L. REV. 305, 328 (2000).

219. FED. TRADE COMM'N & U.S. DEP'T OF JUSTICE, COMMENTARY ON THE HORIZONTAL MERGER GUIDELINES, at v (2006) [hereinafter GUIDELINES COMMENTARY], available at <http://www.usdoj.gov/atr/public/guidelines/215247.htm>.

220. HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 10; *see also* U.S. DEP'T OF JUSTICE, 1984 MERGER GUIDELINES § 1.0 (1984) ("[T]he [DOJ] seeks to avoid unnecessary interference with that larger universe of mergers that are either competitively beneficial or neutral."). For a detailed account of the evolution of the efficiencies defense, *see* William J. Kolasky & Andrew R. Dick, *The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers*, 71 ANTITRUST L.J. 207 (2003).

221. HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 10.

efficiencies are of a character and magnitude such that the merger is not likely to be anticompetitive in any relevant market.”²²²

At times, the antitrust agencies reject the merging parties’ efficiencies defense, and no federal court to date has relied on efficiencies in rejecting the antitrust agencies’ challenge to an otherwise anticompetitive merger. But efficiencies continue to play a significant role in the agencies’ merger review. In recent closing statements, for example, the DOJ highlighted the likely efficiencies from mergers in the highly concentrated telephone,²²³ satellite radio,²²⁴ airline,²²⁵ and home appliance²²⁶ industries. The DOJ noted that “one of the key parts” of its investigation of a proposed joint venture between two beer companies was having “verified that the joint venture” between Miller and Coors was “likely to produce substantial and credible savings that will significantly reduce the companies’ costs of producing and distributing beer.”²²⁷

Recent changes to the Merger Guidelines in 1997 and 2010 emphasize that “[e]fficiencies are difficult to verify and quantify . . . because much of the information relating to efficiencies is uniquely in the possession of the merging firms,” and that, “[m]oreover, efficiencies projected reasonably and in good faith by the merging firms may not be realized.”²²⁸ Indeed, in several notable cases—AOL/Time Warner and Sony/Columbia Pictures to name a few—the parties poorly predicted the mergers’ likely efficiencies.²²⁹ And if the events in the financial sector in the fall of 2008 are any indication, in many of the bank mergers that preceded the financial crisis, the banks failed to sustain their anticipated growths in

222. *Id.*

223. Press Release, U.S. Dep’t of Justice, Statement by Assistant Attorney General Thomas O. Barnett Regarding the Closing of the Investigation of AT&T’s Acquisition of Bellsouth: Investigation Concludes that Combination Would Not Reduce Competition (Oct. 11, 2006), *available at* http://www.justice.gov/atr/public/press_releases/2006/218904.pdf.

224. Press Release, U.S. Dep’t of Justice, Statement of the Department of Justice Antitrust Division on Its Decision to Close Its Investigation of XM Satellite Radio Holdings Inc.’s Merger with Sirius Satellite Radio Inc.: Evidence Does Not Establish that Combination of Satellite Radio Providers Would Substantially Reduce Competition (Mar. 24, 2008), *available at* http://www.justice.gov/atr/public/press_releases/2008/231467.pdf.

225. Press Release, U.S. Dep’t of Justice, Statement of the Department of Justice’s Antitrust Division on Its Decision to Close Its Investigation of the Merger of Delta Air Lines Inc. and Northwest Airlines Corporation (Oct. 29, 2008), *available at* http://www.justice.gov/atr/public/press_releases/2008/238849.htm.

226. Press Release, U.S. Dep’t of Justice, Department of Justice Antitrust Division Statement on the Closing of Its Investigation of Whirlpool’s Acquisition of Maytag (Mar. 29, 2006) [hereinafter Whirlpool Press Release], *available at* http://www.justice.gov/atr/public/press_releases/2006/215326.htm.

227. Press Release, U.S. Dep’t of Justice, Statement of the Department of Justice’s Antitrust Division on Its Decision to Close Its Investigation of the Joint Venture Between SABMiller Plc and Molson Coors Brewing Company (June 5, 2008), *available at* http://www.justice.gov/atr/public/press_releases/2008/233845.htm.

228. HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 10.

229. See ROBERT F. BRUNER, DEALS FROM HELL: M&A LESSONS THAT RISE ABOVE THE ASHES (2005) (summarizing major failed mergers); Tim Arango, *How the AOL-Time Warner Merger Went So Wrong*, N.Y. TIMES, Jan. 11, 2010, at B1.

profit.²³⁰ As economist F.M. Scherer observed, “making mergers is a risky proposition” and many “fail to live up to expectations and may indeed make matters worse rather than better.”²³¹ For Scherer, “[m]aking mergers is a form of gambling; skill matters, but there is an important chance component.”²³²

The unrealized efficiencies in these cases may have resulted from incomplete information or unanticipated events (such as an economic downturn). However, these phantom efficiencies may also be the result of the biases discussed in the behavioral economics literature.

One explanation is that in competitive settings—such as auctions and bidding wars—passion may trump reason. Rational choice theory assumes that in an auction, each profit-maximizing bidder assumes that the other bidders are also rational. In bidding wars (whether for antique furniture or a multi-million-dollar firm), passion and optimism may prevail, leading participants to overvalue the purchased assets.

In a recent experiment, neuroscientists and economists combined brain imaging techniques and behavioral economics research to better understand why individuals overbid.²³³ Specifically, they examined whether the fear of losing the social competition inherent in an auction game causes people to overpay. Members in the “loss-frame” group were given fifteen dollars at the beginning of each auction round. If they won the auction for that round, they would get to keep the fifteen dollars and the payoff from the auction.²³⁴ If they lost, they would have to return the fifteen dollars. Members in the “bonus-frame” group, on the other hand, were told that if they won that auction round they would get a fifteen-dollar bonus at the end of the round. Whether one gets fifteen dollars at the beginning or end of the auction round should not affect a rational player: the winner of each round gets fifteen extra dollars, the loser gets nothing. Nonetheless, the loss-frame group members outbid the bonus-frame group members, although both outbid the baseline group.²³⁵

A second possible explanation is that corporate executives suffer from “self-attribution bias,” meaning that (fueled by their successes with prior mergers) they are overconfident in their management skills and believe that the next merger will yield similar or greater efficiencies.²³⁶ A study of a sample of public acquisitions

230. See Ian Bickerton & Peter Thal Larsen, *Global, Universal, Unmanageable? Why Many Are Wary of Bank Mega-Mergers*, FIN. TIMES (London), Mar. 29, 2007, at 13 (arguing that the efficiencies from bank mergers remain unproven, and that “[d]espite a decade of banking mergers, there is no evidence that big banks are any more efficient or profitable than their smaller rivals”).

231. F.M. Scherer, *Some Principles for Post-Chicago Antitrust Analysis*, 52 CASE W. RES. L. REV. 5, 18 (2001).

232. *Id.*

233. Mauricio R. Delgado, Andrew Schotter, Erkut Y. Ozbay & Elizabeth A. Phelps, *Understanding Overbidding: Using the Neural Circuitry of Reward to Design Economic Auctions*, 321 SCIENCE 1849, 1849 (2008); see also THALER, *supra* note 46, at 50–62 (discussing experimental and field evidence).

234. Delgado et al., *supra* note 233, at 1851–52.

235. *Id.* at 1852.

236. Matthew T. Billett & Yiming Qian, *Are Overconfident CEOs Born or Made?*

that occurred between 1985 and 2002 found that CEOs who previously engaged in a successful acquisition appeared to overestimate their role in successful deals, leading to more deals, even though these subsequent deals are value destructive.²³⁷ Moreover, the study found that CEOs tend to engage in stock purchases that reflect this bias (engaging in more aggressive stock acquisitions prior to each successive deal).²³⁸

In short, antitrust enforcers do not regularly revisit mergers, so it is unclear whether the claimed efficiencies actually materialize. Thus, one cannot assume that most mergers are procompetitive. More empirical research is needed to determine to what extent close-call mergers generate significant efficiencies.²³⁹ Such research may help identify factors of when, and under what circumstances, the claimed efficiencies will likely occur.

C. Assumption that Rational Big Buyers Will Thwart the Exercise of Market Power

Neoclassical economics assumes that cartels are more unstable with big or “power buyers.” Big buyers use their purchasing power to negotiate a lower price by playing one cartel member off the other. If the cartel members stand firm, the big buyer can take its business to fringe firms outside of the cartel, sponsor a new entrant by offering non-price perks such as favorable product placement or more shelf space, or vertically integrate. Knowing this, rational cartel members likely will defect before the big buyer fulfills its threat. As Posner said,

The concentration of the buying side of a market does inhibit collusion. The bigger a buyer is, the more easily and lucratively a member of the cartel can cheat on his fellows; for with a single transaction, he may be able to increase his sales and hence profits dramatically. But with all the members thus vying for the large orders of big buyers, the cartel will erode.²⁴⁰

Evidence of Self-Attribution Bias from Frequent Acquirers, 54 MGMT. SCI. 1037, 1049 (2008).

237. *Id.*

238. *Id.*

239. For the benefits of verifying the parties’ ex ante efficiency claims after the merger, see Stucke, *supra* note 68, at 582–86. See also Robert Pitofsky, *Proposals for Revised United States Merger Enforcement in a Global Economy*, 81 GEO. L.J. 195, 222–27 (1992) (proposing enforcement agencies’ conditional clearance of certain mergers subject to post-merger verification of efficiencies); Dennis A. Yao & Thomas N. Dahdouh, *Information Problems in Merger Decision Making and Their Impact on Development of an Efficiencies Defense*, 62 ANTITRUST L.J. 23, 27 n.9 (1993) (suggesting, via analogy to performance bonding, that merging parties be required to divest important assets if the predicted efficiencies do not materialize).

240. *Hosp. Corp. of Am. v. FTC*, 807 F.2d 1381, 1391 (7th Cir. 1986) (Posner, J.). The court, however, noted that “the role of the third-party payor is not quite that of a large buyer,” since “as a practical matter Blue Cross could not tell its subscribers in Chattanooga that it will not reimburse them for *any* hospital services there because prices are too high.” *Id.* (emphasis in original).

Again, this assumption is important in weighing the costs of false positives and negatives. It is hard to test the degree to which large, sophisticated buyers reliably defeat the formation and maintenance of tacit or express collusion. Detecting cartels is difficult by itself. Determining whether a cartel would have formed *but for* the presence of a big buyer is even more difficult. One could study the extent to which cartels carved out markets with big buyers, but that would not explain how cartels thrived despite the existence of big buyers.

Support for the power buyer argument has waned in the federal antitrust agencies.²⁴¹ But the issue of power buyers still arises in the agencies' merger review. In deciding not to challenge Whirlpool Corporation's acquisition of Maytag Corporation, for example, the DOJ noted that "the large retailers through which the majority of these appliances are sold—Sears, Lowe's, The Home Depot and Best Buy—have alternatives available to help them resist an attempt by the merged entity to raise prices."²⁴²

Even when the antitrust agencies believe that power buyers could not defeat the exercise of market power, a generalist court may disagree. Although some courts have noted that evidence of power buyers is insufficient to independently rebut a *prima facie* case,²⁴³ the presence of power buyers remains an important factor in evaluating whether a merger violates section 7.²⁴⁴

The citric acid cartel is one example. In 1991, a federal district court judge denied the DOJ's challenge to Archer-Daniels-Midland's (ADM) long-term lease

241. See HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 8 ("The Agencies consider the possibility that powerful buyers may constrain the ability of the merging parties to raise prices. . . . However, the Agencies do not presume that the presence of powerful buyers alone forestalls adverse competitive effects flowing from the merger.").

242. Whirlpool Press Release, *supra* note 226.

243. *Chi. Bridge & Iron Co. v. FTC*, 534 F.3d 410, 440 (5th Cir. 2008) (noting that "courts have not considered the 'sophisticated customer' defense as itself independently adequate to rebut a *prima facie* case" and that "the economic argument for even partially rebutting a presumptive case, because a market is dominated by large buyers, is weak"); *FTC v. Cardinal Health, Inc.*, 12 F. Supp. 2d 34, 58 (D.D.C. 1998) ("Although the courts have not yet found that power buyers alone enable a defendant to overcome the government's presumption of anti-competitiveness, courts have found that the existence of power buyers can be considered in their evaluation of an anti-trust case, along with such other factors as the ease of entry and likely efficiencies.").

244. See, e.g., *FTC v. Tenet Health Care Corp.*, 186 F.3d 1045, 1054 (8th Cir. 1999) (questioning the district court's reliance on the testimony of managed care payers, since testimony is contrary to their economic interests "and thus is suspect"); *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 986 (D.C. Cir. 1990) (citing customers' ability to "closely examine available options and typically insist on receiving multiple, confidential bids for each order" as evidence that they could combat any price increase resulting from the mergers); *United States v. Syfy Enters.*, 903 F.2d 659, 670 (9th Cir. 1990) ("Distributors like Orion have substantial leverage over Syfy and they know it."); *United States v. Country Lake Foods, Inc.*, 754 F. Supp. 669, 694 (D. Minn. 1990) (refusing to enjoin a merger where three large customers accounted for ninety percent of all purchases in the relevant product market and crediting the customers' ability to monitor prices closely and aggressively challenge potential price increases by seeking alternative sources of supply outside the relevant geographic market).

agreement with a competitor. The court believed that ADM's customers were sufficiently powerful to counteract any non-cost-based price hike.²⁴⁵ The court observed that ongoing "consolidation of buying power [was] an effective means of counteracting any potential market power that might be exercised by sellers"—an observation that was "borne out by both economic theory and the facts."²⁴⁶ The court found that the power buyers had used a variety of tactics to obtain low prices from high fructose corn syrup (HFCS) suppliers, including "playing off suppliers against one another, swinging volume back and forth among suppliers, disciplining sellers by cutting them off entirely, successfully insisting on year long or multi-year tolling agreements, and holding out the threat of inducing a new entrant into HFCS production."²⁴⁷ Consequently, "the size and sophistication of buyers" in the industry was "a powerful 'other factor' that strongly mitigates against the possibility of any attempt by . . . suppliers to raise prices anticompetitively."²⁴⁸

The DOJ later prosecuted ADM and others for engaging in a cartel relating to citric acid. As one former DOJ official subsequently noted, it was "particularly ironic" that the perpetrators and victims of the citric acid cartel [Coca-Cola and Procter & Gamble] "included some of the very same firms that the district court found were unlikely to engage in or be vulnerable to cartel activity in refusing to enjoin an acquisition by ADM of one of its leading rivals in the high fructose corn syrup market back in 1991."²⁴⁹ In the ensuing private litigation, Judge Posner, writing for the Seventh Circuit, rejected the defendants' argument that the presence of large buyers (including Coca-Cola and Pepsi-Cola) as a matter of economic theory defeated the possibility of price fixing: although these "very large buyers" drove hard bargains and obtained large discounts from the list price of HFCS, "it does not follow that the defendants could not and did not fix the price of HFCS 55."²⁵⁰

Indeed, going down the DOJ's list of Sherman Act violations yielding a corporate fine of ten million dollars or more,²⁵¹ one finds other recent international price-fixing cartels with big buyers as victims. The lysine cartel—featured in the film *The Informant!* (based on a book of the same name)²⁵²—is one example. There the world's major lysine manufacturers orchestrated an international cartel that caused a seventy percent price increase in its first nine months. The cartel victims included Tyson Foods

245. See *United States v. Archer-Daniels-Midland Co.*, 781 F. Supp. 1400, 1416, 1422 (S.D. Iowa 1991).

246. *Id.* at 1422.

247. *Id.*

248. *Id.*

249. William J. Kolasky, Deputy Assistant Attorney Gen., Antitrust Div. of the U.S. Dep't of Justice, *Coordinated Effects in Merger Review: From Dead Frenchmen to Beautiful Minds and Mavericks*, Address Before the ABA Section of Antitrust Law Spring Meeting (Apr. 24, 2002), available at <http://www.justice.gov/atr/public/speeches/11050.pdf>.

250. *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 658 (7th Cir. 2002).

251. U.S. DEP'T OF JUSTICE, ANTITRUST DIVISION, *SHERMAN ACT VIOLATIONS YIELDING A CORPORATE FINE OF \$10 MILLION OR MORE* (Dec. 16, 2010), available at <http://www.justice.gov/atr/public/criminal/sherman10.pdf>.

252. *THE INFORMANT!* (Warner Bros. 2009) (based on KURT EICHENWALD, *THE INFORMANT* (2000)).

(the largest purchaser of lysine in the United States) and ConAgra (whose consumer brands are found in ninety-seven percent of U.S. households).²⁵³ The liquid crystal display panels cartel²⁵⁴ harmed “some of the largest computer, television and cellular telephone manufacturers in the world, including Apple, Dell and Motorola.”²⁵⁵ The air transportation cartel (among the “largest and most far-reaching antitrust conspiracies ever detected by the Division”)²⁵⁶ affected “thousands of businesses—from the corner store to the biggest corporation.”²⁵⁷ The Dynamic Random Access Memory cartel harmed some of the world’s largest manufacturers of personal computers and servers, including Dell, Compaq, Hewlett-Packard, Apple, IBM, and Gateway.²⁵⁸ The graphite electrodes conspiracy affected sales to steel mills in the United States and abroad.²⁵⁹

So how should a generalist court respond to the defense that large sophisticated buyers could readily defeat the exercise of market power? Sceptically. First, in the context of merger challenges, customer testimony is not always credible. Indeed, in contrast to the findings in *ADM*,²⁶⁰ some courts have found that customer testimony is not probative of the merger’s likely competitive effects, and consider such testimony to be lacking in foundation²⁶¹ or biased.²⁶²

253. *Company Profile*, CONAGRAFOODS, <http://investor.conagrafoods.com/phoenix.zhtml?c=202310&p=aboutus>.

254. *See generally* Information, *United States v. LG Display Co.*, No. CR-08-0803 (VRW) (N.D. Cal. Nov. 12, 2008), *available at* <http://www.justice.gov/atr/cases/f239300/239375.htm>.

255. Press Release, U.S. Dep’t of Justice, LG, Sharp, Chunghwa Agree to Plead Guilty, Pay Total of \$585 Million in Fines for Participating in LCD Price-Fixing Conspiracies (Nov. 12, 2008), *available at* http://www.justice.gov/atr/public/press_releases/2008/239349.pdf.

256. Scott D. Hammond, Deputy Assistant Attorney Gen., Antitrust Div. of the U.S. Dep’t of Justice, Recent Developments, Trends, and Milestones in the Antitrust Division’s Criminal Enforcement Program, Address to the 56th Annual Spring Meeting, ABA Section of Antitrust Law (Mar. 26, 2008), *available at* <http://www.justice.gov/atr/public/speeches/232716.pdf>.

257. Press Release, U.S. Dep’t of Justice, Major International Airlines Agree to Plead Guilty and Pay Criminal Fines Totaling More than \$500 Million for Fixing Prices on Air Cargo Rates (June 26, 2008), *available at* http://www.justice.gov/atr/public/press_releases/2008/234435.pdf.

258. *See* Information, *United States v. Samsung Electronics Co.*, No. CR-05-643 (PJH) (N.D. Cal. Oct. 13, 2005), *available at* <http://www.justice.gov/atr/cases/f212000/212010.htm>.

259. Government’s Rule 11 Memorandum, *United States v. SGL Carbon Aktiengesellschaft*, No. CR-99-244 (E.D. Pa. May 4, 1999), *available at* <http://www.justice.gov/atr/cases/f3800/3824.htm>.

260. *See United States v. Archer-Daniels-Midland Co.*, 781 F. Supp. 1400, 1416 (S.D. Iowa 1991).

261. *See United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1131 (N.D. Cal. 2004) (noting that customer witness speculation about “what they *could* do in the event of an anticompetitive price increase . . . was not backed up by serious analysis that they had themselves performed or evidence they presented,” and that “[t]here was little, if any, testimony by these witnesses about what they would or could do or not do to avoid a price increase” (emphasis in original)).

262. *See* *FTC v. Freeman Hosp.*, 69 F.3d 260, 272 (8th Cir. 1995); *see also* *FTC v. Arch Coal, Inc.*, 329 F. Supp. 2d 109, 145–46 (D.D.C. 2004) (“[W]hile the Court does not doubt

Second, the behavioral economics literature suggests that big buyers (like CEOs with respect to efficiencies and entry) may be overconfident of their negotiating prowess to defeat any non-cost-based price hike. As a result, when the antitrust agencies interview big buyers, those buyers may not accurately project their skill and power over sellers with market or monopoly power. Additionally, these buyers' responses might be contingent on how the issue is framed. For example, big buyers may be genuinely less concerned about protecting their customers (and thereby resist any non-cost-based wholesale price increase by the merging parties) than taking sales away from their rivals (and thus willing to accept a supracompetitive wholesale price, if that price was lower relative to the wholesale prices offered to their competitor retailers).

Once again, more empirical research is needed to determine under what circumstances large, sophisticated purchasers have been successful or unsuccessful in preventing the exercise of market power. In the short run, however, the revisions to the Merger Guidelines suggest that the agencies are willing to look beyond the mere fact that a large buyer exists to determine whether that large buyer is actually in a position to constrain anticompetitive conduct.²⁶³

D. Reliance on Optimal Deterrence Theory to Deter Cartels

The DOJ's criminal antitrust prosecutions are driven more by the facts than economic theory. But neoclassical economic theory still influences antitrust policies on optimal penalties. The generally accepted approach under neoclassical optimal deterrence theory is that a "rational" actor, seeking to maximize profit, will weigh the magnitude of a likely penalty and the probability of being detected against the gain from a violation before engaging in anticompetitive conduct.²⁶⁴ To achieve optimal deterrence, the total penalty levied against a cartel (which includes civil damages and criminal penalties) should equal the violation's expected net harm to others (plus enforcement costs) divided by the probability of detection and proof of the violation.²⁶⁵ The DOJ, however, unlike some law-and-economics

the sincerity of the anxiety expressed by SPRB customers, the substance of the concern articulated by the customers is little more than a truism of economics: a decrease in the number of suppliers *may* lead to a decrease in the level of competition in the market." (emphasis in original)).

263. HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 8.

264. See INT'L COMPETITION NETWORK WORKING GRP. ON CARTELS, *Defining Hard Core Cartel Conduct, Effective Institutions, Effective Penalties*, in BUILDING BLOCKS FOR EFFECTIVE ANTI-CARTEL REGIMES 53 (2005) [hereinafter ICN WORKING GROUP ON CARTELS], available at <http://www.internationalcompetitionnetwork.org/uploads/library/doc346.pdf>; Scott D. Hammond, Deputy Assistant Attorney Gen., Antitrust Div. of the U.S. Dep't of Justice, The Evolution of Criminal Antitrust Enforcement over the Last Two Decades, Address to the National Institute on White Collar Crime (Feb. 25, 2010), available at <http://www.justice.gov/atr/public/speeches/255515.pdf> ("If the potential penalties that can be imposed upon cartel participants are not perceived as outweighing the potential rewards of participating in a cartel, then the fine imposed becomes merely part of the cost of doing business.").

265. See William M. Landes, *Optimal Sanctions for Antitrust Violations*, 50 U. CHI. L. REV. 652, 656, 666–68 (1983).

scholars,²⁶⁶ believes that corporate (or individual) fines are inadequate to deter cartels and that the threat of incarceration is needed.

Over the last fifty years, Congress has considerably increased the maximum monetary criminal penalties and incarceration periods for antitrust violations. When the Sherman Act was enacted in 1890, violations were misdemeanors with a maximum fine of \$5000 and up to one year of incarceration.²⁶⁷ By 1954, however, the then head of the DOJ's Antitrust Division observed that "over the years a precedent has been established: almost never has anyone been committed to jail for a Sherman Act offense."²⁶⁸ Congress responded with stiffer criminal penalties in 1955,²⁶⁹ 1971,²⁷⁰ 1984,²⁷¹ 1990,²⁷² and most recently, 2004.²⁷³

Notwithstanding these repeated efforts to adjust the calculation for potential cartel members, it is hard to tell how well these stiffer criminal penalties are working.²⁷⁴ On the one hand, some cartels have "carv[ed] out the United States

266. See, e.g., Gary S. Becker, *Nobel Lecture: The Economic Way of Looking at Behavior*, 101 J. POL. ECON. 385, 391 (1993); Joseph C. Gallo, Kenneth Dau-Schmidt, Joseph L. Craycraft & Charles J. Parker, *Department of Justice Antitrust Enforcement, 1955-1997: An Empirical Study*, 17 REV. INDUS. ORG. 75, 101 (2000) (summarizing concerns in economic literature about incarcerating price fixers); Nuno Garoupa & Daniel Klerman, *Corruption and the Optimal Use of Nonmonetary Sanctions*, 24 INT'L REV. L. & ECON. 219, 220 (2004).

267. Sherman Act, ch. 647, §§ 1-2, 26 Stat. 209 (1890).

268. Stanley N. Barnes, Assistant Attorney Gen., Promoting Competition: Current Antitrust Problems and Policies, Address to the Metropolitan Economic Association (Oct. 25, 1954), in 21 VITAL SPEECHES OF THE DAY 982, 984 (1955).

269. Act of July 7, 1955, Pub. L. No. 135, 69 Stat. 282 (codified as amended at 15 U.S.C. § 1 (1958)) (increasing the maximum fine to \$50,000). The average fine imposed under the Sherman Act between 1946 and 1953 was reportedly \$2600. Victor H. Kramer, *Criminal Prosecutions for Violations of the Sherman Act: In Search of a Policy*, 48 GEO. L.J. 530, 532 n.9 (1960).

270. Antitrust Procedures and Penalties Act, Pub. L. No. 93-528, § 3, 88 Stat. 1706, 1708 (1974) (increasing the maximum criminal fines to \$1,000,000 for corporations and \$100,000 for all other persons and making Sherman Act violations felonies with prison terms of up to three years).

271. Criminal Fine Enforcement Act of 1984, Pub. L. No. 98-596, 98 Stat. 3134, reenacted in Criminal Fine Improvements Act of 1987, Pub. L. No. 100-185, 101 Stat. 1279 (codified as amended at 18 U.S.C. § 3571(d) (2000)) (increasing the maximum criminal fine for individuals convicted of an antitrust violation to \$250,000 and authorizing the agencies to calculate the maximum fine for corporations or individuals as twice the loss suffered by victims or twice the gain realized by the offender).

272. Antitrust Amendments Act of 1990, Pub. L. No. 101-588, § 4, 104 Stat. 2879, 2880 (codified as amended at 15 U.S.C. §§ 1-3 (2004)); see also S. REP. NO. 101-287 (1990), reprinted in 1990 U.S.C.C.A.N. 4108 (increasing the maximum criminal fines to \$10,000,000 for corporations and \$350,000 for individuals).

273. Antitrust Criminal Penalty Enhancement and Reform Act of 2004, Pub. L. No. 108-237, § 215, 118 Stat. 665, 668 (codified as amended at 15 U.S.C. §§ 1-3 (2006)) (increasing the maximum fines for corporations to \$100 million, the maximum fine for individuals to \$1 million, and the maximum incarceration period to ten years).

274. For an argument that the United States has not yet achieved optimal deterrence, see Stucke, *supra* note 28.

from their operations to avoid the risk of criminal sanctions.²⁷⁵ But despite (i) the escalating criminal and civil fines in the United States (and abroad), (ii) treble private civil damages, (iii) longer jail sentences, and (iv) a generous leniency program, there is no indication that the United States has reached optimal deterrence.²⁷⁶ Price-fixers continue to make a skewed cost-benefit calculus (if they are, in fact, engaging in any calculus) that leads them to believe that they are better off entering a cartel than not.

The behavioral economics literature suggests that situational and dispositional factors may account for such irrational behavior. Optimal deterrence theory assumes that financial gains should motivate, and financial penalties should deter, self-interested rational agents' behavior. But some executives refrain from price-fixing for ethical concerns, fear of social disapproval from their peers, or other informal norms.²⁷⁷ Thus, informal norms can have a powerful influence on behavior. One cannot assume that by criminalizing conduct, policy makers necessarily inculcate these moral and social concerns.²⁷⁸ In developing the informal norms against price-fixing by accentuating the conduct's immoral and unethical content, policy makers may be able to better deter cartels.²⁷⁹

Another factor is the optimism or overconfidence bias discussed above: just as individuals overestimate their likelihood of achieving efficiencies or gaining successful entry, price-fixers may also overvalue their likelihood of escaping prosecution. Yet another factor is the availability heuristic, under which the "perceived probability of detection will depend not only on how frequently offenses are detected but also on how salient or vivid the method of detection is."²⁸⁰ If potential cartel participants have little exposure to recent prosecutions, they are apt to undervalue the likelihood of being caught. Some antitrust lawyers therefore find it highly effective to include in antitrust compliance programs a former executive involved in a price-fixing scandal.²⁸¹

275. ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, *HARD CORE CARTELS: THIRD REPORT ON THE IMPLEMENTATION OF THE 1998 RECOMMENDATION* 27 (2005), available at <http://www.oecd.org/dataoecd/58/1/35863307.pdf>.

276. See Stucke, *supra* note 28, at 264–69; Maurice E. Stucke, *Morality and Antitrust*, 2006 COLUM. BUS. L. REV. 443, 470–74 (2006) [hereinafter Stucke, *Morality and Antitrust*].

277. See Harold G. Grasmick & Donald E. Green, *Legal Punishment, Social Disapproval and Internalization as Inhibitors of Illegal Behavior*, 71 J. CRIM. L. & CRIMINOLOGY 325 (1980); Paul H. Robinson, *Why Does the Criminal Law Care What the Layperson Thinks Is Just? Coercive Versus Normative Crime Control*, 86 VA. L. REV. 1839, 1861–62 (2000); Stucke, *supra* note 28, at 272–79.

278. See Caron Beaton-Wells & Fiona Haines, *Making Cartel Conduct Criminal: A Case Study of Ambiguity in Controlling Business Behavior*, 42 AUSTL. & N.Z. J. CRIMINOLOGY 218 (2009).

279. See Stucke, *Morality and Antitrust*, *supra* note 276, at 505–23 (discussing how antitrust agencies can promote moral norms to better deter antitrust crimes).

280. McAdams & Ulen, *supra* note 16, at 18.

281. See ABA SECTION OF ANTITRUST LAW, ANTITRUST COMPLIANCE: PERSPECTIVES AND RESOURCES FOR CORPORATE COUNSELORS 34 (2005). Besides these dispositional factors, a host of situational factors also may be at work. See Stucke, *supra* note 28, at 15–42 (discussing the situational factors and the extent to which they may influence cartel formation).

Ultimately the economic model must account for social policies that can influence the executives' decision to engage in price-fixing, including the perceived probability of detection.²⁸² Thus, the optimal means to deter cartels will involve a pluralism of mechanisms, including criminal and civil penalties, structural means (improved merger review), and developing informal norms that highlight price-fixing's ethical and moral implications.

IV. RECOMMENDATIONS RELATED TO THE PRACTICAL APPLICATION OF BEHAVIORAL ECONOMICS GOING FORWARD

The behavioral economics literature, as Part III discusses, can help the antitrust agencies explore which of their assumptions premised on neoclassical theory are sheltering anticompetitive conduct and increasing the costs of false negatives. This Part proposes several actions that the agencies can undertake to advance behavioral antitrust. As a first principle, behavioral economics can instill in antitrust policy makers the importance of nuance and not being tethered to particular mainstream modes of thinking when factual reality does not square with economic orthodoxy.

A. To Be Applied Well, Behavioral Antitrust Requires More Empirical Work

Some skeptics will continue to question whether irrational conduct has any implications for antitrust analysis. But whatever its label, behavioral economics at its core is empirical. The literature first identifies normative assumptions underlying the prevalent economic theories; second, empirically tests these assumptions and considers alternative explanations; and third, uses the anomalies to create new theories that are further empirically tested.

We believe that behavioral economics identifies enough holes in the simplistic rationality assumption to fortify the argument for more empirical work in antitrust policy. One need not be a behavioral economist to agree. Commissioner Kovacic, among others, has long called for more empirically driven research policies, noting how

[i]nvestments in knowledge have long-term capital qualities. Investments in activities—research, workshops, partnerships with academia—that build knowledge help ensure that the agency stays abreast of important developments in economic theory, empirical study, and legal analysis. Among other applications, this knowledge-building is a crucial element of effective case selection. A superior knowledge base increases the agency's ability to attempt more complex and demanding matters, helps the agency ground its cases in the best possible conceptual and empirical foundations, and provides assurance

282. ICN WORKING GROUP ON CARTELS, *supra* note 264, at 54 (recognizing that while the calculation method of optimal deterrence theory “is widely considered to be correct, there are some doubts as to its practicability (difficulties of calculation and proof) and some concerns about the companies’ rights being impaired if other criteria are completely disregarded in setting the fines”).

that the agency will not find itself trapped in the wrong analytical model.²⁸³

Competition policy's greatest failing has been its incomplete understanding of how competition works in particular markets in particular communities at particular time periods, and the interplay among private institutions, government institutions, and informal social, ethical, and moral norms. By undertaking more empirical research, competition authorities will understand better the competitive dynamics of particular markets and how legal and informal norms interact to influence individual behavior and competition generally.

Competition authorities can use many interdisciplinary avenues to improve their understanding of market dynamics across different industries. This Article addresses two avenues: post-merger and post-conviction review.²⁸⁴

1. Post-Merger Review

To illustrate the benefits of post-merger review, we will use a merger between two nearby nonprofit hospitals in California's Oakland-Alameda County region.²⁸⁵ The state of California sought to enjoin this hospital merger under the federal antitrust laws. The geographic market definition was crucial.²⁸⁶ The district court was confronted with the issue of where patients could practicably turn for acute hospital inpatient services. If one defined the geographic market broadly, then one would assume that the merged hospitals would face stiff competition from over twenty hospitals in the San Francisco and East Bay areas. With conflicting economic expert testimony, the district court not surprisingly followed the approach by other courts that relied on the Elzinga-Hogarty economic analysis for defining the relevant geographic market. As the district court stated:

[T]he first prong of the Elzinga-Hogarty test requires a determination of the merging hospitals' "service area," that area from which they attract their patients. In the second step, two measurements are taken of the flow of patients into and out of the test market. The Little In From Outside ("LIFO") measurement calculates the percentage of patients who reside inside the test market that are admitted to those hospitals located within the test market. A LIFO of 100% would indicate that all hospital admittees who are residents of the test market are admitted to hospitals located within the test market. The Little Out From Inside ("LOFI") measurement calculates the percentage of the test market's

283. William E. Kovacic, *Rating the Competition Agencies: What Constitutes Good Performance?*, 16 GEO. MASON L. REV. 903, 922 (2009).

284. See Stucke, *supra* note 68, at 579–91 (discussing in greater detail the need for such empirically driven research, its benefits, and several possible concerns of these proposals); Maurice E. Stucke, *New Antitrust Realism*, GCP: THE ONLINE MAGAZINE FOR GLOBAL COMPETITION POLICY, Jan. 2009, at 13–16.

285. *California v. Sutter Health Sys.*, 130 F. Supp. 2d 1109, 1130 (N.D. Cal. 2001).

286. The parties agreed that the relevant product market was "the cluster of services comprising acute inpatient care," including the services provided by Kaiser hospitals. *Id.* at 1119.

hospitals' patients who reside in the test market. A LOFI of 100% would indicate that all hospital patients admitted to hospitals in the test market are residents of the test market. A LIFO and LOFI of 75% is considered a weak indication of the existence of a market and a LIFO and LOFI of 90% is considered a strong indication of a market.²⁸⁷

The plaintiff alleged an Inner East Bay geographic market. Plaintiff's economic expert showed that eighty-five percent of all patients admitted to hospitals in the proposed Inner East Bay market resided in the Inner East Bay; the remaining fifteen percent of patients resided outside the Inner East Bay.²⁸⁸ Similarly, eighty-five percent of patients who resided in the Inner East Bay were admitted to hospitals inside this area, while the remaining fifteen percent sought hospital treatment outside this area.²⁸⁹ The state of California argued that the eighty-five percent LIFO and LOFI results, along with its other evidence, were sufficient to prove geographic market.²⁹⁰ The district court disagreed. The state's eighty-five percent results failed to meet "the preferred 90% threshold" of LIFO and LOFI calculations that represent "a strong showing that a market exists."²⁹¹

The district court also believed that big buyers (namely the health plans), when faced with a price increase, had numerous mechanisms to discipline the hospitals. The merging parties' hospitals were approximately two and a half miles apart.²⁹² The state of California argued that many patients, because of traffic and loyalty considerations to their doctors, would be unwilling to travel east through the Caldecott Tunnel and west across the Bay Bridge to these other hospitals.²⁹³ The court disagreed. The health plan providers could keep hospital prices low by "steering" patients to lower cost health care providers.²⁹⁴ Hospitals had high fixed costs in terms of the physical plant, equipment and maintaining a highly skilled staff, and consequently would be sensitive to such declines in patient volume.²⁹⁵ So if the hospitals post-merger tried to increase prices for acute inpatient care, then the rational profit-maximizing health plans would steer enough members away from the hospitals to defeat the exercise of market power.²⁹⁶ Indeed, the president and CEO of the second largest health plan in the East Bay downplayed the possibility of a price increase by the hospitals post-merger, in part due to health plans' ability to steer patients to lower cost facilities.²⁹⁷

The district court also expressed greater concern over the costs of false positives (more so than false negatives), fearing that "judicial intervention in a competitive

287. *Id.* at 1120–21 (citation omitted) (internal quotation marks omitted).

288. *Id.* at 1121.

289. *Id.*

290. *Id.* at 1121–22.

291. *Id.* at 1123.

292. Steven Tenn, *The Price Effects of Hospital Mergers: A Case Study of the Sutter-Summit Transaction 1* (FTC Bureau of Econ., Working Paper No. 293, 2008), available at <http://www.ftc.gov/be/workpapers/wp293.pdf>.

293. *Sutter Health Sys.*, 130 F. Supp. at 1126, 1130–31.

294. *Id.* at 1130.

295. *Id.*

296. *Id.* at 1130–32.

297. *Id.*

situation can itself upset the balance of market force, bringing about the very ills the antitrust laws were meant to prevent.’ This appears to have even more force in an industry, such as healthcare, experiencing significant and profound changes.’²⁹⁸ (The court also held that defendants successfully established a failing company defense.)²⁹⁹ Accordingly, the district court permitted the merger to go through.

So what happened post-merger? Did the merged hospital try to raise prices at one or both hospitals? If so, did the powerful health plans, as the defendants argued and as the health plan CEO and district court predicted, steer customers to the other Bay Area hospitals and defeat the exercise of market power? Often the antitrust agencies don’t know the answer to these questions. The competition agencies devote considerable resources investigating ex ante the merger. The agencies’ lawyers and economists work very hard to predict the merger’s likely competitive effects. But they often examine only half of the picture, namely the state of competition several years before the merger. Indeed, the antitrust agencies could simply abandon hospital mergers where the LIFO and LOFI figures fall below ninety percent or big buyers could steer patients to other hospitals.

After the FTC, DOJ, and California’s Attorney General lost six straight hospital merger challenges in the 1990s, the FTC announced its Hospital Merger Retrospectives Project.³⁰⁰ To better understand hospital competition and the effects of hospital mergers and to update its prior assumptions about the consequences of particular transactions and the nature of competitive forces in health care, the FTC reviewed several consummated hospital mergers, including a retrospective study of the merger between the Bay Area hospitals.³⁰¹ The FTC used detailed claims data from three large health insurers to compare the post-merger price change for the merging hospitals to a set of control group hospitals.

So what happened post-merger? Not only did prices increase post-merger, but the price increase was among the largest of any comparable hospital in California. The merged entity significantly raised prices for one of the merging hospitals, between 23.2% and 50.4% relative to the control group.³⁰²

298. *Id.* at 1137 (quoting *FTC v. Tenet Health Care Corp.*, 186 F.3d 1045, 1055 (8th Cir. 1999)).

299. *Id.* at 1133–37.

300. See Deborah Haas-Wilson & Christopher Garmon, *Two Hospital Mergers on Chicago’s North Shore: A Retrospective Study 2* (FTC Bureau of Econ., Working Paper No. 294, 2009), available at <http://www.ftc.gov/be/workpapers/wp294.pdf>.

301. See Tenn, *supra* note 292; Aileen Thompson, *The Effect of Hospital Mergers on Inpatient Prices: A Case Study of the New Hanover-Cape Fear Transaction* (FTC Bureau of Econ., Working Paper No. 295, 2009), available at <http://www.ftc.gov/be/workpapers/wp295.pdf>; see also Haas-Wilson & Garmon, *supra* note 300.

302. The price increase at the other hospital was not statistically different from the control group for any of the insurers. Tenn, *supra* note 292, at 20. One explanation Tenn provided for this asymmetry was

that as a major provider of hospital services to commercial patients in the Oakland-Berkeley area, Alta Bates was a significant price constraint on Summit. However, Summit may have been less of a constraint on Alta Bates’ price since Summit was a relatively minor provider of hospital services to commercial patients.

Id. at 22.

But the FTC's findings raise larger unanswered questions: faced with this steep price increase, did the health plan providers try to steer patients to other hospitals? Did patients resist? As for the CEO who confidently predicted his company's ability to defeat any price increase, what went wrong?

Rather than continue to rely on empirically unsupported assumptions, now is the time for the antitrust agencies to review systematically what actually happens post-merger. The agencies should institute specific mechanisms to test empirically the following key assumptions underlying the Horizontal Merger Guidelines: (i) anticompetitive effects are likely to occur only in highly concentrated (not moderately concentrated to unconcentrated) markets; (ii) even in highly concentrated markets, anticompetitive unilateral or coordinated effects are unlikely, absent certain economic conditions; (iii) anticompetitive effects are unlikely, absent high entry barriers; and (iv) many companies merge to generate significant efficiencies.

First, the federal antitrust agencies should conduct a post-merger analysis of any merger subject to an extended Second Request review in which the agency: (i) took no enforcement action; (ii) permitted the merger in part to be consummated pursuant to a consent decree; or (iii) challenged the merger in court, but lost. The antitrust agency, two to five years after the merger was consummated, should examine the state of competition in that industry, including pricing levels and non-price components such as innovation, productivity, services, and quality, to the extent observable, and test some of its predictions when it originally reviewed the merger.

The agencies' predictions and assumptions are often discussed in the agencies' internal closing memoranda. When ending a merger investigation, the agencies typically discuss in the closing memorandum why the merger was unlikely to substantially lessen competition. The closing memorandum consequently offers testable predictions (such as whether an entrant or big buyer would defeat the exercise of market power or consumers would shift to another product or geographic area) for the subsequent post-merger review.

To mitigate the burden on the agencies and market participants, the agencies can develop a two-stage post-merger review. In the first stage, the agency staff would conduct a quick-look review of competition in that industry. The staff would interview a small but representative sample of industry participants (for example, in a merger involving household consumer products, the staff would interview buyers from food, drug, and mass merchandiser retailers) about the status of competition and request from the merged entity a limited quantity of data, including relevant price data. If the quick-look review suggests that competition significantly diminished, the agencies would engage in a more in-depth review and analyze whether they had predicted correctly.

The agency would report whether other variables, besides the merger, might explain the increase in prices or reduction in innovation, productivity, services, and quality. For those companies identified as potential entrants in the original merger review, the reviewing agency would analyze, based on its interviews with these identified entrants, why they chose not to enter, or if they did enter, why they were ineffectual. The reviewing agency would describe which, if any, of the merging parties' efficiencies it could verify post-merger, the magnitude of the efficiencies, and the extent consumers directly benefited from such efficiencies.

The federal antitrust agencies would also summarize their findings for the public, and describe annually what specific actions, if any, they are undertaking with respect to this data, including how they are incorporating the findings from this data in their merger review.

Second, the Obama administration should request, and Congress should provide, the DOJ with subpoena authority for non-public information to conduct such post-merger review for its industries. The DOJ's Antitrust Division appears to be more limited in conducting such general post-merger review. Its subpoena authority in civil investigations comes from the Antitrust Civil Process Act,³⁰³ which limits an antitrust investigation to premerger activities or suspected antitrust violations.³⁰⁴ The FTC, in contrast, has broader statutory authority to gather information on the effects of its enforcement measures.³⁰⁵ This subpoena authority should be sufficiently broad to enable the DOJ to test (and eliminate) other explanations as to why competition (which includes important parameters beyond price) increased or diminished post-merger. The federal antitrust agencies should also coordinate with other federal agencies in sharing such information, subject to the data producer's ability to challenge the dissemination of its commercially sensitive information.

Third, any publicly held company that seeks to rely on an efficiency defense before the antitrust agencies and/or the courts should be required to publicly report its claimed efficiencies in its filings with the U.S. Securities and Exchange Commission. (If such disclosure would divulge a trade secret or other confidential research, development, or commercial information that would be ordinarily protected from public disclosure under Fed. R. Civ. P. 26(c), then the antitrust agencies may excuse the public disclosure of such information.) For each year post-merger (for the period that it claims the efficiencies will be realized), the company should report the actual amount of efficiencies realized versus the projected amount. This should temper the company executives from inflating the claimed efficiencies, and hold them accountable to the shareholders for pursuing a growth-by-acquisition strategy, while informing the agencies on those efficiencies for particular industries that are more likely to be cognizable and substantial.

The FTC's recent hospital merger retrospectives have been very helpful. But there does not exist today a built-in mechanism for routine post-merger review across agencies. Empirically testing and refining the neoclassical economic theories underlying much of the Merger Guidelines have several benefits. Such empirical work promotes effective learning by creating feedback about the relation between the situational conditions and the appropriate response. By instituting a regular and systematic review of close-call mergers, the agencies reduce the likelihood of false negatives and positives in merger review, promote more effective antitrust enforcement, increase transparency of the merger review process, and make themselves more accountable for their decisions. An empirically driven competition policy may also temper the claims, which have also increased over the past quarter century, of partisanship in antitrust enforcement.

303. 15 U.S.C. §§ 1311–14 (2006).

304. *See* 15 U.S.C. § 1311(c).

305. *See* 15 U.S.C. § 46.

2. Post-Conviction Review

To better understand why executives engage in price-fixing and to advance the empirical research on coordinated effects, the agencies should report, two to five years after prosecuting a cartel, the state of competition in that industry, as described above. With criminal cartel prosecutions, the DOJ typically seeks fines and incarceration. Whether these measures were sufficient to restore competition and deter recidivism should be assessed.

After securing its criminal convictions, the DOJ by itself or through a pilot program with social scientists should interview the price-fixers and publicly report the following: How were the cartels (including those with many members) formed and enforced? Did they act as many profit-maximizer game theories predict, or were they more trusting and cooperative than these theories' predicted outcomes?³⁰⁶ If so, why? As the number of conspirators increased, were there other specific factors that enabled them to collude? Why did certain companies repeatedly violate the antitrust laws? What steps did the company take after its earlier conviction to increase antitrust compliance, and why were they unsuccessful?

The DOJ also should make available a computerized database identifying all civil and criminal antitrust consent decrees, pleas, or litigated actions involving cartel activity under section 1 of the Sherman Act. The database should include certain industry characteristics, such as: (i) the number of conspirators (and best estimate of their market shares); (ii) the length of conspiracy; (iii) the product or services market in which collusion occurred; (iv) the number of competitors (and their market share) who were not formerly alleged to be part of the conspiracy; (v) the number of entrants (and their market shares) during the period of the conspiracy; and (vi) the nature of the conspiracy.³⁰⁷ This data can help those in academia, private practice, and the antitrust agencies to better understand collusion and further develop screening mechanisms to identify industries more susceptible to collusion.³⁰⁸

One cannot assume that such empirical testing and learning will arise independently within competition policy. The Supreme Court and lower courts cannot undertake such empirical testing, as their view is limited to the evidence the parties supply. Nor can academia and the private bar fulfill this mission. Compiling such data can often be costly, and the data may be nonpublic. In undertaking this

306. For a comprehensive examination of how cartels facilitate trust, see Christopher R. Leslie, *Trust, Distrust, and Antitrust*, 82 TEX. L. REV. 515 (2004).

307. Keeping the data consistent can be difficult. Market definition at times is problematic. Identifying conspirators may depend on the sufficiency of evidence and burden of proof, which differs in the civil and criminal contexts. Other firms could have been involved in the conspiracy, but the evidence was insufficient to prosecute. The criteria should be whether a criminal or civil complaint was brought against the firm (and whether the matter was criminal or civil). Granted, the data at times may underreport the number of firms involved in the cartel, but having data with such caveats is better than no data.

308. Rosa Abrantes-Metz & Patrick Bajari, *Screens for Conspiracies and Their Multiple Applications*, ANTITRUST, Fall 2009, at 66 (describing screening mechanisms to detect cartels).

empirical testing and learning, the competition authorities can enrich the marketplace of ideas. The data lowers the search costs for academics and increases transparency.

*B. Possibilities for Incorporating Behavioral Economics into
Existing Antitrust Doctrine*

Besides the empirical evidence needed to improve the predictive capabilities of antitrust's economic theories, is there a role for behavioral economics to play in antitrust analysis? Even with further empirical work, behavioral economics may not ultimately supply a single organizing principle. It is unlikely that behavioral economics will yield a single concentration measure (like the HHI) to predict which mergers may substantially lessen competition. Nor will behavioral economics offer a rule at a broad level of generality that dictates when unilateral conduct crosses the debated lines from beneficial to benign to anticompetitive.

But this is no reason to ignore the behavioral economics literature. Life is messier than the Chicago School's unifying vision of self-correcting markets filled with rational profit-maximizing agents that pursue their economic self-interest. Relying on market fundamentalism only will lead to future market crises and government bailouts. Along the way to the next financial crisis, there will be cases where the Chicago School's rigid assumptions (which, in turn, supply the model's predictive capabilities) fail to explain or predict the market behavior. Behavioral economics can better explain behavior that the Chicago School ignores or marginalizes.

So even without additional empirical work, behavioral economics may play a role in the agencies' analysis in (i) instructing the courts and agencies to reevaluate hard cases where, on the one hand, neoclassical analysis suggests that the conduct is not or should not be anticompetitive, but sufficient evidence suggests the contrary; (ii) informing the competition agencies whether they are indeed fulfilling their mission; and (iii) providing insights into possible applications of section 5 of the FTC Act.

1. Use of "Real World" Evidence That Is Not Explainable
by Neoclassical Economic Theory

At times neoclassical economic theory cannot easily be reconciled with evidence of the parties' behavior, intent, motives, or post-merger plans.³⁰⁹ In some instances, economic theory suggests an oligopoly's ability to tacitly collude (for example, to successfully implement a predatory pricing scheme) is impossible, despite the evidence of anticompetitive intent and the fact that the companies for forty to fifty years were able to raise prices twice annually like clockwork.³¹⁰

309. See Leslie, *supra* note 33, at 318–38 (discussing evidence of antitrust violations, which were implausible under neoclassical economic theory, for predatory pricing, price-fixing, group boycotts of suppliers, and a conspiracy to conceal an invalid patent).

310. See *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 257 (1992) (Stevens, J., dissenting).

In other instances, the Chicago School's economic theories suggest that, absent interbrand market power, a manufacturer cannot raise the price for its aftermarket parts or services. Rational consumers considering the purchase of the equipment "will inevitably factor into [their] purchasing decision the expected cost of aftermarket support."³¹¹ As the Court's *Kodak* decision reflects, economic theory may be inconsistent with economic reality, with evidence of increased prices and excluded competition.³¹² The Chicago School's beliefs, some skeptics may say, were raised in Justice Scalia's dissent in *Kodak*. But it is questionable whether the current Court would reach the same outcome in *Kodak*, especially if they, like Professor Hovenkamp and Justice Scalia, "believe that markets generally work well when left alone, [and] intervention is justified only in the relatively few cases where the judiciary can fix the problem more reliably, more cheaply, or more quickly than the market can fix itself."³¹³

Chairman Leibowitz's and Commissioner Rosch's concurring statements in the *Ovation* case³¹⁴ provide another illustration of the extent to which documents reflecting the parties' intentions and incentives can affect merger analysis.³¹⁵

Ovation Pharmaceuticals, Inc. acquired two drugs to treat patent ductus arteriosus (PDA), a serious congenital heart defect in newborns. First, Ovation acquired from Merck the drug Indocin.³¹⁶ Several months later, Ovation acquired

311. *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 495 (1992) (Scalia, J., dissenting).

312. In *Kodak*, the district court permitted truncated discovery and thereafter granted summary judgment for the defendant. There was no evidence that higher service prices did (or would likely) lead to a disastrous drop in Kodak's equipment sales. Kodak's service prices increased. But there was no evidence of Kodak's equipment sales decreasing as a result. Contrary to Kodak's theoretical claim, there was no evidence that Kodak actually priced its equipment at below-market prices and its services at supra-competitive prices for an overall competitive price. Also contrary to defendant's theoretical claim, the information costs were significant. Customers had to inform themselves of the total cost at the time of purchase. Such accurate lifecycle pricing of complex, durable equipment is difficult, costly, and customer-specific. Contrary to defendant's theoretical claim, there was no evidence that Kodak's competitors necessarily provided this lifecycle information. Such information was costly for competitors to obtain, and even if Kodak's competitors had the lifecycle information, it may have been more profitable for the competitors to follow Kodak's lead and reap supra-competitive prices in their own service and parts market. *See id.* at 474 n.21.

313. HERBERT HOVENKAMP, *THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION* 124 (2005).

314. We refer to this case as "Ovation" since the actions stemmed from Ovation Pharmaceuticals, Inc. In March 2009, H. Lundbeck A/S acquired Ovation Pharmaceuticals and renamed it Lundbeck. Accordingly, the ensuing federal court litigation bears Lundbeck's name. *FTC v. Lundbeck, Inc.*, Civil Nos. 08-6379 (JNE/JJG), 08-6381 (JNE/JJG), 2010 WL 3810015 (D. Minn. Aug. 31, 2010).

315. Concurring Statement of Comm'r Jon Leibowitz, *FTC v. Lundbeck, Inc.* (F.T.C. Dec. 16, 2008) [hereinafter Leibowitz Concurrence], available at <http://www.ftc.gov/os/caselist/0810156/081216ovationleibowitzstmt.pdf>; Concurring Statement of Comm'r J. Thomas Rosch, *FTC v. Lundbeck, Inc.* (F.T.C. Dec. 16, 2008) [hereinafter Rosch Concurrence], available at <http://www.ftc.gov/os/caselist/0810156/081216ovationroschstmt.pdf>.

316. Complaint, *FTC v. Lundbeck, Inc.*, Nos. 08-6379 (JNE/JJG) and 08-6381

from Abbott Laboratories the U.S. rights to the drug NeoProfen.³¹⁷ After acquiring NeoProfen, Ovation raised the price it charged hospitals for Indocin by nearly 1300 percent.³¹⁸ In December 2008, the FTC challenged under section 7 of the Clayton Act Ovation's acquisition of NeoProfen as a merger to monopoly in a market for drugs used to treat PDA.³¹⁹ Although Commissioner Rosch voted in favor of the section 7 challenge, he argued in his concurrence that Ovation's earlier acquisition of Indocin was also subject to challenge under section 7.³²⁰

Here again the actual evidence is hard to reconcile with the Chicago School's neoclassical economic theories. Specifically, Indocin for many years was the only FDA-approved pharmaceutical treatment for PDA.³²¹ Given Indocin's market position, Merck (its original owner) could have charged a monopoly price for its drug. Indeed, under the Court's dicta in *Trinko*, Merck's charging a monopoly price would serve "an important element of the free-market system," in that monopoly pricing serves as an inducement to "attract[] 'business acumen' in the first place" and engage in "risk taking that produces innovation and economic growth."³²²

So one is left with two monopolists, each presumably a rational profit maximizer, choosing dramatically different pricing policies for a patented drug. Why didn't Merck, a large sophisticated company, sell Indocin at the monopoly price (under thirty dollars per vial at the time of the acquisition)? Perhaps reputational effects, said Commissioner Rosch. If Merck sold a product used to treat premature babies at a monopoly price, "that could damage its reputation and its sales of those more profitable products."³²³ It could also be that ethics and conscience had an impact on Merck's pricing decision. But in a world of rational profit maximizers, consumers would applaud, not condemn, Merck. Charging parents whose babies were born with this potentially life-threatening congenital heart defect the monopoly price would signal others to invest in such innovative drugs. Instead, reality suggests that consumers and Chicago School economists differ at times in their perception of what is fair.³²⁴

But, in Commissioner Rosch's view, that dynamic changed when Ovation acquired Indocin from Merck. Commissioner Rosch found "reason to believe that the sale of Indocin to Ovation had the effect of eliminating the reputational constraints on Merck that had existed prior to the sale."³²⁵ Specifically, Ovation lacked Merck's "large product portfolio," so Ovation "arguably was not concerned, as Merck had been, that the sale of Indocin at a monopoly price would damage its

(JNE/JJG), 2010 WL 3810015, ¶ 1 (D. Minn. Dec. 16, 2008) [hereinafter Ovation Complaint], available at <http://www.ftc.gov/os/caselist/0810156/081216ovationcmpt.pdf>.

317. *Id.*

318. *Id.* ¶ 3.

319. *Id.*

320. Rosch Concurrence, *supra* note 315, at 1.

321. Ovation Complaint, *supra* note 316, ¶ 17.

322. *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004).

323. Rosch Concurrence, *supra* note 315, at 1.

324. See, e.g., Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, in *ADVANCES IN BEHAVIORAL ECONOMICS*, *supra* note 34, at 252, 264.

325. Rosch Concurrence, *supra* note 315, at 1.

reputation and sales of more profitable products.”³²⁶ Thus, Commissioner Rosch reasoned that, because Merck did not charge a monopoly price for its drug used to treat premature babies, Merck “arguably would not have the incentive to acquire another treatment that might prevent it from pricing Indocin at a monopoly price.”³²⁷ Because there was evidence that the transaction substituted “Ovation, a firm that had an incentive to protect its ability to engage in monopoly pricing, for Merck, which lacked the same incentive” and that “Merck had no incentive to acquire NeoProfen, but Ovation had an incentive to do so in order to maintain its monopoly pricing in the PDA market,” Commissioner Rosch, joined by Chairman Leibowitz, stated that he would have challenged Ovation’s first acquisition as well.³²⁸ A district court judge has since dismissed the FTC’s and Minnesota’s claims on the grounds of market definition, and the case is now before the Eighth Circuit.³²⁹

More generally, it may be the case that behavioral economics finds its best fit in merger review, which is perhaps the closest antitrust enforcers come to engaging in a traditional regulatory process.³³⁰ The expert agencies rely on a routine (including the presumptions discussed in Part III) to winnow their review of thousands of merger filings to a small percentage. For these mergers, the agencies engage in highly fact-specific inquiries; their conclusions in the form of closing statements and/or a consent decree are case specific and do not constitute binding precedent; and the review of the proposed merger is done *ex ante* rather than *ex post*.

The merger review process offers the agencies the benefit of an extensive factual record, including investigational submissions of the parties, interviews with customers and competitors, and the parties’ documents. At times, neoclassical theory cannot explain the evidence of the merging parties’ behavior, intent, motives, or post-merger plans. In this vein, the recent changes to the Merger Guidelines open the door for greater consideration of “direct evidence” of the type that Chairman Leibowitz and Commissioner Rosch credited in *Ovation*. The

326. *Id.*

327. *Id.*

328. *Id.*; Leibowitz Concurrence, *supra* note 315, at 1 (noting that Merck kept prices low, “perhaps because it was worried that a significant price increase would have harmed its reputation” and that “[f]or that reason, I would have supported the approach proposed by Commissioner Rosch”); *see also* Interview with J. Thomas Rosch, Commissioner, Federal Trade Commission, ANTITRUST, Spring 2009, at 32, 40, available at <http://www.ftc.gov/speeches/rosch/090126abainterview.pdf> (noting that the *Ovation* statement involved “the notion that economic theory should increasingly focus on incentives rather than on market structure”).

329. *See* FTC v. Lundbeck, Inc., Nos. 08-6379 (JNE/JJG) and 08-6381 (JNE/JJG), 2010 WL 3810015 (D. Minn. Aug. 31, 2010).

330. *See* AMC REPORT, *supra* note 177, at 51 (noting how merger enforcement “has shifted in emphasis from a litigation-based system focused on judicial review of consummated deals to an administrative regime in which [FTC and DOJ] review mergers above a certain size prior to consummation”); Spencer Weber Waller, *Prosecution by Regulation: The Changing Nature of Antitrust Enforcement*, 77 OR. L. REV. 1383, 1400 (1998) (discussing the shift from a prosecutorial to regulatory antitrust model and, with regard to HSR merger review, how “regulation and administrative law-making have replaced the courts as the source for the creation and enforcement of antitrust law”).

revised Merger Guidelines, for example, explain that merger review is a “fact-specific process through which the Agencies . . . apply a range of analytical tools to the reasonably available and reliable evidence to evaluate competitive concerns”³³¹ and will evaluate “several categories and sources of evidence,”³³² including the parties’ documents and testimony.³³³ And unlike the prior Guidelines, the revised Merger Guidelines enumerate several categories of such direct evidence.

The fact that the Guidelines now explicitly recognize that such evidence is entitled to weight on par with economic modeling may provide both the agencies, as well as the parties, with a structure for evaluating evidence in light of the insights that behavioral economics offers. As Commissioner Rosch has observed, this, in turn, could allow the agencies to more carefully scrutinize the close cases that neoclassical thinking predicts should be procompetitive or competitively neutral, but where actual evidence of how the firms do and will behave show otherwise.³³⁴ Behavioral economics thus can fill in the analysis and explain the real-world evidence when neoclassical economic theory cannot.

2. A Better-Informed Competition Advocate

The federal antitrust agencies are well suited to consider how the behavioral economics literature can inform antitrust analysis.

First, at a macro institutional level, the agencies can draw on the behavioral insights they have gained outside of federal civil antitrust law to better inform their competition missions. To this end, the DOJ can use its expertise in prosecuting white-collar crimes generally (and price-fixing conspiracies in particular) to inquire why executives, with so much to lose, fix prices, and why cartels are more durable and their members more trustful than neoclassical economic theory predicts.

Similarly, the FTC can marry insights gained from its Bureau of Consumer Protection about the types of conduct that are likely to deceive consumers, with insights from its Bureau of Economics about when such deception harms competition (as opposed to individual harm that does not significantly impair competition). The alleged competitive harm in several recent Commission cases—*N-Data*,³³⁵ *Rambus*,³³⁶ and *Intel*³³⁷—was premised, in part, on deception. More generally, the FTC can explore ways that it can bring its consumer protection mission in line with a goal of creating and preserving consumer choice (as opposed to narrowly focusing on seller behavior through mandated disclosures or antifraud

331. HORIZONTAL MERGER GUIDELINES, *supra* note 32, § 1.0.

332. *Id.* § 2.0.

333. *See id.* §§ 2.1.1, 2.2.

334. Rosch, Managing Irrationality, *supra* note 26, at 9.

335. Complaint, *In re Negotiated Data Solutions LLC* (F.T.C. Sept. 22, 2008) (No. C-4234), available at <http://www.ftc.gov/os/caselist/0510094/080923ndscomplaint.pdf>.

336. *In re Rambus, Inc.*, No. 9302 (F.T.C. Aug. 2, 2006), available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>, *rev'd*, 522 F.3d 456, 468 (D.C. Cir. 2008).

337. Complaint, *In re Intel Corp.* (F.T.C. Dec. 16, 2009) (No. 9341), available at <http://www.ftc.gov/os/adjpro/d9341/091216intelcmpt.pdf>.

laws).³³⁸ A goal of protecting consumer choice requires enacting policies that, from the consumer's perspective, remove barriers to optimal decision making; removing those barriers, in turn, depends on analyzing how consumers make decisions in the first place. Moreover, a focus on consumer choice is broad enough to encompass the insights from the FTC's ongoing studies into behavioral economics, but not so broad as to necessarily displace the neoclassical emphasis on providing consumers with full decision-making authority.

Second, the FTC and DOJ have developed substantive areas of expertise in certain complex and important industries, including defense, media, healthcare, petroleum, and pharmaceuticals. At times, the agencies will observe behavior in these industries that often leads to anticompetitive effects—even though rational choice theory may predict otherwise. The agencies can challenge these practices as presumptively illegal under a truncated rule-of-reason/“inherently suspect” analysis.³³⁹ The FTC, in particular, has recently signaled an interest in applying the “inherently suspect” test to specific practices.³⁴⁰ This framework would reduce the cost of error under the Court's per se rule, without imposing the high litigation costs and risk of false positives and negatives under the rule of reason.³⁴¹

Third, from a procedural standpoint, the DOJ and FTC also have the benefit of an extensive investigational process that allows them to evaluate on the basis of the parties' documents, investigational hearings, and economic analysis, whether and to what extent harm to competition is occurring. In post-merger reviews, for example, the agencies can investigate whether rational profit maximizers did indeed enter the markets (and if not why not). Private antitrust plaintiffs typically do not possess such extensive information, which at times is non-public and costly to collect. Moreover, when it so chooses, the FTC can pursue administrative litigation and issue a ruling in the first instance that not only has the force of law

338. See, e.g., Neil W. Averitt & Robert H. Lande, *Using the “Consumer Choice” Approach to Antitrust Law*, 74 ANTITRUST L.J. 175 (2007).

339. See, e.g., *FTC v. Ind. Fed'n of Dentists*, 476 U.S. 447 (1986); *N. Tex. Specialty Physicians v. FTC*, 528 F.3d 346, 370 (5th Cir. 2008); *Polygram Holding, Inc. v. FTC*, 416 F.3d 29 (D.C. Cir. 2005).

340. See, e.g., *Realcomp II Ltd., No. 9320*, slip op. at 39 (F.T.C. Oct. 30, 2009), available at <http://www.ftc.gov/os/adjpro/d9320/091102realcompopinion.pdf> (finding certain practices of multistate listing service were “inherently suspect” and that the plaintiff did not come forward with evidence to carry its burden and explain why those practices should be legal), *aff'd*, 635 F.3d 815 (6th Cir. 2011). See generally Geoffrey D. Oliver, *Of Tenors, Real Estate Brokers and Golf Clubs: A Quick Look at Truncated Rule of Reason Analysis*, ANTITRUST, Spring 2010, at 40 (providing overview of “inherently suspect” analysis).

341. As Professors Tor and Rinner's recent work on behavioral antitrust shows, executives may engage in resale price maintenance (RPM) when doing so is irrational. See Tor & Rinner, *supra* note 28. Before *Leegin* and *Sylvania*, manufacturers were unlikely to swim the narrow channel of *Colgate* unless they had a compelling procompetitive justification for their action. Thus, one benefit of moving RPM's legal standard from rule-of-reason to a quick-look standard is that the presumption of illegality would require executives to evaluate more closely (and justify to their counsel) why they want to institute RPM, and be able to substantiate why the procompetitive benefits actually outweigh the anticompetitive effects.

(subject to federal appellate review), but also provides a roadmap for federal appellate courts to consider in their review.

Fourth, from a policy standpoint, the DOJ and FTC can regularly assess whether the agency remedies are indeed effective—a process that the FTC has engaged with on both the antitrust³⁴² and consumer protection sides.³⁴³ Other agencies at times seek to promulgate rules to protect the consumer that are anticompetitive. At times, firms compete to exploit or help bounded rational consumers. Distinguishing between the two can be challenging. So the federal antitrust agencies, by understanding behavioral economics, can better understand when firms are providing consumers commitment devices to deal with their bounded willpower (Christmas savings club accounts, for example) or competing in better ways to simply exploit them. Antitrust authorities can offer a more nuanced and powerful message that accounts for consumers' interest *and* protects competition than overly simplistic assumptions that “big is bad,” or that humans behave as rational self-interested consumers with perfect willpower.

3. Providing Insights into Possible Applications of Section 5 of the FTC Act

Behavioral economics can inform the FTC's application of its section 5 authority, which prohibits “[u]nfair methods of competition” and “unfair or deceptive acts or practices.”³⁴⁴ Although the FTC routinely uses its section 5 authority in the consumer protection context, it has also applied its stand-alone section 5 authority in the antitrust context³⁴⁵ (although the scope of the FTC's section 5 authority in that context remains the subject of much debate).

In *FTC v. Sperry & Hutchinson Co.*, the Supreme Court stated that section 5 empowers the FTC to “define and proscribe an unfair competitive practice, even though the practice does not infringe either the letter or the spirit of the antitrust

342. See FED. TRADE COMM'N, A STUDY OF THE COMMISSION'S DIVESTITURE PROCESS (1999), available at <http://www.ftc.gov/os/1999/08/divestiture.pdf>.

343. A good example of such work occurred when the FTC's Bureau of Economics staff released a study showing that the Department of Housing and Urban Development's (HUD) proposed broker compensation disclosures confused consumers, leading many of them to choose loans that were more expensive. See FED. TRADE COMM'N, BUREAU OF ECON., THE EFFECT OF MORTGAGE BROKER COMPENSATION DISCLOSURES ON CONSUMERS AND COMPETITION: A CONTROLLED EXPERIMENT (2004), available at <http://www.ftc.gov/os/2004/01/030123mortgagesummary.pdf>. The FTC recommended that HUD should modify the mandated disclosures and encourage customers to engage in educated comparison shopping on loan costs. In so doing, the FTC melded behavioral economics and neoclassical economics, by using insights it had gained from studies of consumer behavior to suggest ways HUD could more effectively arm consumers with information that they were likely to credit in ways that were consistent with their self-interest.

344. 15 U.S.C. § 45(a)(1) (2006).

345. See, e.g., Complaint, *In re Negotiated Data Solutions LLC* (F.T.C. Jan. 23, 2008) (No. C-4234), available at <http://www.ftc.gov/os/caselist/0510094/080923ndscomplaint.pdf> (alleging a pure section 5 violation in standard setting context); Complaint, *In re Valassis Comm., Inc.* (F.T.C. Apr. 19, 2006) (No. C-4160), available at <http://www.ftc.gov/os/caselist/0510008/0510008c4160ValassisComplaint.pdf> (alleging a pure section 5 violation under an invitation to collude theory).

laws” and to “proscribe practices as unfair or deceptive in their effect upon consumers.”³⁴⁶ Besides this broad statement, the Court has provided little guidance on section 5’s scope or application. Congress amended the FTC Act in 1994 to incorporate the consumer injury test, which the FTC had earlier adopted.³⁴⁷ Although the codification provided guidance on what is unfair, the Commission, academics, and practitioners are still sorting through what types of conduct section 5 might cover.³⁴⁸

In the context of those debates, three of the current Federal Trade Commissioners have observed that, because the Supreme Court has contracted the reach of sections 1 and 2 of the Sherman Act, using section 5 of the FTC Act might be justified in those cases where anticompetitive conduct is occurring, but where the current antitrust doctrine does not supply a cause of action.³⁴⁹ The FTC is uniquely positioned to draw on the behavioral economics literature in these circumstances. As Susan Creighton, former FTC Commissioner Tom Leary, and others have suggested, “[p]erhaps the least controversial application of a stand-alone Section 5 claim should be its use in ‘frontier’ settings, where it is as an avenue for redressing anticompetitive acts or practices that have newly emerged and have not yet been fully absorbed into the fabric of the Sherman or Clayton acts.”³⁵⁰ In these cases, the behavioral economics literature may better explain than neoclassical theory why harm is occurring. So rather than try to jam a square peg (the evidence of anticompetitive effects and purpose) in the round hole (the current neoclassical economic theory underpinning the Clayton and Sherman Acts case law), section 5 may provide a more logical home for initially bringing such frontier cases.

346. 405 U.S. 233, 239 (1972).

347. Federal Trade Commission Act Amendments of 1994, Pub. L. 103-312, 108 Stat. 1691, § 9 (1994) (codified as amended at 15 U.S.C. § 45(n) (2006)).

348. 2 DEE PRIDGEN & RICHARD M. ALDERMAN, CONSUMER PROTECTION AND THE LAW § 9:7, at 50–51 (2009–2010 ed. 2009).

349. See, e.g., Concurring and Dissenting Statement of Comm’r J. Thomas Rosch, *In re Intel Corp.*, No. 9341 (F.T.C. Dec. 16, 2009), available at <http://www.ftc.gov/os/adjpro/d9341/091216intelstatement.pdf>; William E. Kovacic, Fed. Trade Comm’n, *The Application of Section 5 of the Federal Trade Commission Act*, Address to ABA Fall Forum (Nov. 12, 2009), available at <http://www.ftc.gov/speeches/kovacic/091112abaforum.pdf> (slides accompanying speech) (discussing the retrenchment of the Sherman Act and Clayton Act by the Supreme Court from 1975 to the present as a possible justification for using section 5); Jon Leibowitz, Comm’r, Fed. Trade Comm’n, “Tales from the Crypt”: Episodes ’08 and ’09: The Return of Section 5, Remarks to Workshop on Section 5 of the FTC Act (Oct. 17, 2008), available at <http://www.ftc.gov/bc/workshops/section5/docs/jleibowitz.pdf>.

350. Susan A. Creighton & Thomas G. Krattenmaker, Wilson Sonsini Goodrich & Rosati, *Some Thoughts About the Scope of Section 5*, Remarks to Workshop on Section 5 of the FTC Act (Oct. 17, 2008), available at <http://www.ftc.gov/bc/workshops/section5/docs/screighton.pdf>; see also Thomas B. Leary, Of Counsel, Hogan & Hartson, LLP, *A Suggestion for the Revival of Section 5*, Address to Workshop on Section 5 of the FTC Act (Oct. 17, 2008), available at <http://www.ftc.gov/bc/workshops/section5/docs/tleary.pdf> (“[R]eliance on Section 5 might be most useful in cases where the Commission does, in fact, have reason to believe that there has been a violation of the Sherman Act or the Clayton Act, but where there is not yet an established body of precedent to support that view.”).

Behavioral economics, of course, does not arm an antitrust enforcer or court with unfettered discretion. Any governmental action must be sufficiently predictable, objective, and transparent under rule-of-law principles. When the FTC relies on behavioral economics in the context of section 5, several safeguards are already in place. First, the FTC lacks authority to impose criminal penalties, seek treble monetary damages or obtain retrospective relief under section 5. Second, private plaintiffs cannot bring in federal court follow-on treble damage class actions for section 5 violations.³⁵¹ Third, the FTC's decisions are subject to review by the federal appellate court of the respondent's choosing, as well as the Supreme Court. Indeed, when the Commission last used section 5 in the early 1980s, its findings of liability were struck down in a trio of federal appellate decisions, which found, among other things, that the Commission failed to establish predictable rules and legally cognizable anticompetitive effects.³⁵² By all indications, the Roberts Court will impose these same requirements.³⁵³

But as an added safeguard for novel cases, the FTC should use behavioral economics to explain strong evidence of both anticompetitive purpose and effects. If corporate executives engage in conduct with the purpose and actual effect of harming competition, then it makes little sense to immunize such anticompetitive conduct because it is unexplainable under the Chicago School's neoclassical economic theories.

CONCLUSION

Competition policy is entering a new age. Interest in antitrust law has increased worldwide, and the United States no longer holds a monopoly on competition policy. The question for competition authorities is whether and to what extent do bounded rationality, self-interest, and willpower matter.

Courts and agencies will continue to rely on the assumption of rational, self-interested profit maximizers with perfect willpower, which has become so embedded in antitrust policy, to predict or explain anticompetitive harm. But reliance on these rational-choice theories will recede in the coming years as they

351. As Commissioner Kovacic has noted, there is still the risk that plaintiffs will sue under state baby FTC Acts. See Dissenting Statement of William E. Kovacic, *In re Negotiated Data Solutions LLC*, No. C-4234 (F.T.C. Jan. 23, 2008), available at <http://www.ftc.gov/os/caselist/0510094/080122kovacic.pdf>. It remains to be seen, however, to what extent this threat will come to fruition.

352. See, e.g., *E.I. du Pont de Nemours & Co. v. FTC*, 729 F.2d 128 (2d Cir. 1984); *Official Airline Guides, Inc. v. FTC*, 630 F.2d 920 (2d Cir. 1980); *Boise Cascade Corp. v. FTC*, 637 F.2d 573 (9th Cir. 1980).

353. See *Pac. Bell Tel. Co. v. LinkLine Commc'ns, Inc.*, 129 S. Ct. 1109, 1120–21 (2009) (Roberts, C.J.) (noting that the Court has “repeatedly emphasized the importance of clear rules in antitrust law”); see also *Town of Concord v. Boston Edison Co.*, 915 F.2d 17, 22 (1st Cir. 1990) (Breyer, J.) (stating that antitrust rules “must be clear enough for lawyers to explain them to clients”); *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 234 (1st Cir. 1983) (Breyer, J.) (“Rules that seek to embody every economic complexity and qualification may well, through the vagaries of administration, prove counter-productive, undercutting the very economic ends they seek to serve.”).

fail to explain actual market behavior. Here, the behavioral economics literature and other interdisciplinary economic theories will advance competition policy in understanding such behavior.

Business marketing executives have long understood behavioral economics. Next came the behavioral economists and legal scholars, and now antitrust lawyers and policy makers are starting to study behavioral economics. The Supreme Court's economic thinking, as reflected in *Trinko* and *Leegin*, still lags. But behavioral antitrust is no longer on the horizon.

Behavioral economics is not a celebration of our shortcomings. Putting aside self-interest, which is not accepted as a desirable norm, we will continually strive toward improving our cognitive abilities and willpower. Perhaps one day, society may evolve in terms of rationality and willpower to more closely mirror the Chicago School model. In the *Paradiso*, Dante described the light in the form of a river pouring its splendour on the banks. But as Beatrice explained, "The river and the topazes that pass into it and out and the laughter of the flowers are shadowy forecasts of their truth; not that these things are imperfect in themselves, but the defect is in thyself, that thy vision is not yet so exalted."³⁵⁴ In understanding better how we err, we perhaps can find ways to improve ourselves and the way we interact with others and, in doing so, instill rules of law that more accurately reflect this enhanced understanding.

354. DANTE ALIGHIERI, *THE DIVINE COMEDY: PARADISO*, Canto XXX, at 435 (John D. Sinclair trans., Oxford Univ. Press 1961).