

2003

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Chris Guthrie, *Prospect Theory, Risk Preference, and the Law*, 97 *Northwestern University Law Review*. 1115 (2003)

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Citation: 97 Nw. U. L. Rev. 1115 2002-2003

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This work was originally published in
97 Nw. U. L. Rev. 1115 2002-2003

PROSPECT THEORY, RISK PREFERENCE, AND THE LAW

Chris Guthrie*

INTRODUCTION

The corollary of the oft-repeated aphorism “nothing is certain but death and taxes”¹ is that life is rife with uncertainty. When deciding whether to enter into a contract or to take a precaution while driving or to settle a civil dispute or to obey a particular law, we do not know how our decisions will turn out. Will the other party perform his contractual obligations? Will the precautions we take behind the wheel prevent us from causing harm to others? Will we do better at the bargaining table or at trial? Will we get caught and punished if we break the law?

Nearly every action we take and nearly every decision we make involve consequences we cannot foresee. To understand how people behave in an uncertain world, and to make viable recommendations about how the law should try to shape that behavior, legal scholars must employ, even if only implicitly, a model or theory of decisionmaking. Only with an understanding of how people are likely to respond to legal rules can legal scholars, judges, legislators, and regulators promulgate rules that encourage desirable behavior and discourage undesirable behavior.²

Law and economics scholars have long used a decision theory called “rational choice theory” or “expected utility theory” in their analyses of legal behavior.³ Rational choice theory, which describes how people would behave if they followed the dictates of a series of logical axioms, posits that

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¹ Letter from Benjamin Franklin to Jean-Baptiste Leroy (Nov. 13, 1789), in JOHN BARTLETT, *FAMILIAR QUOTATIONS* 310 (16th ed. 1992) (1855) (“Our Constitution is in actual operation; everything appears to promise that it will last; but in this world nothing is certain but death and taxes.”).

² See, e.g., Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 *VAND. L. REV.* 1499, 1499 (1998) (“Nearly all interesting legal issues require accurate predictions about human behavior to be resolved satisfactorily.”).

³ See, e.g., Thomas S. Ulen, *Firmly Grounded: Economics in the Future of the Law*, 1997 *WIS. L. REV.* 433, 436 (“The single most important contribution that law and economics has made to the law is the use of a coherent theory of human decision-making (‘rational choice theory’) to examine how people are likely to respond to legal rules.”).

people make outcome-maximizing decisions.⁴ Rational-choice-based analyses of law and legal behavior have been enormously influential, but legal scholars have begun to question the wisdom of relying on them because there is “too much credible experimental evidence that individuals frequently act in ways that are incompatible with the assumptions of” the theory.⁵

Persuaded by this evidence, “behavioral law and economics” or “law and psychology” scholars,⁶ as well as others who would not necessarily place themselves in this camp, have begun to use an alternative decision theory called “prospect theory”⁷ in their analyses.⁸ Developed by cognitive psychologists Daniel Kahneman and Amos Tversky, prospect theory is an empirical theory that describes how people actually make decisions. Like rational choice theory, prospect theory assumes that people try to maximize outcomes; unlike rational choice theory, however, prospect theory posits that people often fail to do so in systematic and predictable ways. Of greatest relevance to this Article, prospect theory predicts that people generally make risk-averse decisions when choosing between options that appear to be gains and risk-seeking decisions when choosing between options that appear to be losses. In short, people are often willing to take risks to avoid losses but are unwilling to take risks to accumulate gains.

My primary purpose in this Article is to summarize some of the nascent efforts by legal scholars to use prospect theory in their analyses of legal behavior. I begin by describing prospect theory in Part I. Although prospect theory includes several empirical observations about decisionmaking, I focus on its central insight that people tend to view gains and losses differently when making choices. After describing prospect theory, I explore in Part II some notable efforts by legal scholars to use it to analyze

⁴ For a thoughtful treatment of rational choice theory, see Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051, 1060–66 (2000).

⁵ *Id.* at 1055. Some began questioning the rational actor assumptions on empirical grounds long ago. See, e.g., Mark Kelman, *Consumption Theory, Production Theory, and Ideology in the Coase Theorem*, 52 S. CAL. L. REV. 669 (1979).

⁶ Those writing in this field are variously referred to as “behavioral law and economics” scholars, see, e.g., BEHAVIORAL LAW AND ECONOMICS (Cass Sunstein ed., 2000); Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998); Cass Sunstein, *Behavioral Law and Economics: A Progress Report*, 1 AM. L. & ECON. REV. 115 (1999), “new law and psychology” scholars, see, e.g., Jeffery J. Rachlinski, *The ‘New’ Law and Psychology: A Reply to Critics, Skeptics, and Cautious Supporters*, 85 CORNELL L. REV. 739 (2000), “law and behavioral science” scholars, see, e.g., Korobkin & Ulen, *supra* note 4, and “legal decision theorists,” see Gregory Mitchell, *Taking Behaviorism Too Seriously? The Unwarranted Pessimism of the New Behavioral Analysis of Law*, 43 WM. & MARY L. REV. 1907, 1915 (2002). Whatever term is used, scholars writing in this field employ insights from cognitive psychology to describe human behavior.

⁷ See *infra* Part I.

⁸ The “prospect theory” described and discussed in this paper is not to be confused with the prospect theory of patents developed by Edmund Kitch. See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 267 (1977).

decisionmaking in a number of doctrinal areas. I do not identify and describe every such effort, but I do assemble a diverse collection of some of prospect theory's "greatest hits" in the legal literature. Finally, in Part III, I acknowledge some concerns about the use of prospect theory in legal analysis. Despite these concerns, I conclude that prospect theory is a valuable tool that can inform law teaching, legal scholarship, and policymaking.

I. PROSPECT THEORY

In the preface to *Choices, Values, and Frames*, Nobel laureate Daniel Kahneman⁹ describes the process by which he and Amos Tversky¹⁰ developed their theory of decisionmaking.¹¹ Driven by intellectual curiosity and guided by intuitions about human behavior, Kahneman and Tversky proceeded as follows:

We would meet every afternoon for several hours, which we spent inventing interesting pairs of gambles and observing our own intuitive preferences. If we agreed on the same choice, we provisionally assumed that it was characteristic of humankind and went on to investigate its theoretical implications, leaving serious verification for later. This unusual mode of empirical research enabled us to move quickly. In a few giddy months we raced through more than twenty diverse theoretical formulations.¹²

In 1975, Kahneman and Tversky labeled their emerging decision theory "value theory."¹³ Following three years of refinements and a name change, Kahneman and Tversky formally introduced "prospect theory" in their path-breaking article, *Prospect Theory: An Analysis of Decision Under Risk*, in a 1979 issue of *Econometrica*.¹⁴ According to this "alternative account of

⁹ See, e.g., Daniel Altman, *A Nobel That Bridges Economics and Psychology*, N.Y. TIMES, Oct. 10, 2002, at C1 (reporting that Kahneman won the 2002 Nobel Prize in Economics).

¹⁰ Had he been alive in 2002, Tversky would no doubt have shared the Nobel Prize with Kahneman. See *id.*

¹¹ CHOICES, VALUES, AND FRAMES, at ix-x (Daniel Kahneman & Amos Tversky eds., 2000).

¹² *Id.* at x.

¹³ *Id.*

¹⁴ Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979) [hereinafter Kahneman & Tversky, *Prospect Theory*]. For additional work by Kahneman and Tversky on prospect theory, see Daniel Kahneman & Amos Tversky, *Choices, Values, and Frames*, 39 AM. PSYCHOL. 341, 342-44 (1984) [hereinafter Kahneman & Tversky, *Choices*] (explaining prospect theory and risky choice); Daniel Kahneman & Amos Tversky, *The Psychology of Preferences*, 246 SCI. AM. 160 (1982) [hereinafter Kahneman & Tversky, *Preferences*] (analyzing how individuals evaluate risky options); Amos Tversky & Daniel Kahneman, *Advances in Prospect Theory: Cumulative Representation of Uncertainty*, 5 J. RISK & UNCERTAINTY 297, 298 (1992) [hereinafter Tversky & Kahneman, *Advances*] (extending prospect theory from risky decisions to uncertain decisions); Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCI. 453 (1981) [hereinafter Tversky & Kahneman, *Framing*] (providing an overview of prospect theory); Amos Tversky & Daniel Kahneman, *Loss Aversion in Riskless Choice: A Reference-Dependent Model*, 106 Q.J. ECON. 1039 (1991) (prospect theory and riskless choice); Amos Tversky & Daniel Kahneman, *Rational Choice and the Framing of Decisions*, 59 J. BUS. S251, S257-60 (1986) [hereinaf-

choice,”¹⁵ people make risky or uncertain decisions in the following four ways:

First, people evaluate decision options relative to some reference point, generally the status quo. When choosing between options that appear to be gains relative to that reference point, people tend to make risk-averse choices;¹⁶ when choosing between options that appear to be losses, people tend to make risk-seeking choices.¹⁷ For example, people will generally choose a definite \$1,000 prize over a 50% chance at receiving a \$2,000 prize but will opt to face a 50% chance at having to pay a \$2,000 fine over having to pay a definite \$1,000 fine. This result is inconsistent with rational choice theory, which generally assumes either risk neutrality or risk aversion in the face of both gains and losses.¹⁸

Second, individuals' risk preferences tend to reverse when they are faced with low-probability gains and losses. Individuals tend to make risk-seeking choices when selecting between options that appear to be low-probability gains and risk-averse choices when selecting between options that appear to be low-probability losses. For example, when choosing between a definite \$50 prize and a 5% chance at winning a \$1,000 prize, individuals tend to make the risk-seeking choice and opt for the gamble.¹⁹ When choosing between paying a definite \$50 fine and facing a 5% chance at having to pay a \$1,000 fine, individuals tend to make the risk-averse choice and opt to make the sure payment.²⁰ Again, this empirical finding conflicts with rational choice theory, which generally assumes either risk neutrality or risk aversion in the face of both gains and losses (whether low-probability or not).²¹

ter Tversky & Kahneman, *Rational Choice*] (contrasting prospect theory and rational choice theory).

¹⁵ Kahneman & Tversky, *Prospect Theory*, *supra* note 14, at 263. Prospect theory is the most prominent alternative decision theory. *See, e.g.*, SCOTT PLOUS, *THE PSYCHOLOGY OF JUDGMENT AND DECISION MAKING* 95 (1993) (observing that prospect theory is “the most widely accepted” alternative to rational choice or expected utility theory).

¹⁶ *See, e.g.*, Tversky & Kahneman, *Advances*, *supra* note 14, at 306. “A risk averter is defined as one who, starting from a position of certainty, is unwilling to take a bet which is actuarially fair.” KENNETH J. ARROW, *The Theory of Risk Aversion*, in *ESSAYS IN THE THEORY OF RISK-BEARING* 90, 90 (1971).

¹⁷ *See, e.g.*, Tversky & Kahneman, *Advances*, *supra* note 14, at 306. A risk seeker's preference is the opposite of a risk averter's preference. That is, a risk seeker will reject “a sure thing in favor of a gamble of lower or equal expectation.” Kahneman & Tversky, *Choices*, *supra* note 14, at 341.

¹⁸ *See, e.g.*, Jeffrey J. Rachlinski, *Gains, Losses and the Psychology of Litigation*, 70 S. CAL. L. REV. 113, 121 (1996) (noting that “[e]xpected utility theory predicts that people make either risk-averse or risk-neutral choices”).

¹⁹ *See id.*

²⁰ *See id.*

²¹ *See supra* note 18. As demonstrated by these two empirical findings, people exhibit what Kahneman and Tversky later called a “fourfold pattern of risk attitudes”: risk aversion for most gains, risk seeking for most losses, risk seeking for low-probability gains, and risk aversion for low-probability losses. *Id.* Kahneman and Tversky describe this “fourfold pattern” as prospect theory's “major empirical generalization about choice under risk.” *Id.* at 307. For a detailed account of this “fourfold pattern,”

Third, individuals tend to value losses more heavily than gains of the same magnitude.²² As Kahneman and Tversky stated, “The aggravation that one experiences in losing a sum of money appears to be greater than the pleasure associated with gaining the same amount.”²³ In fact, the available empirical evidence suggests that losses generally loom at least twice as large as equivalent gains.²⁴ Thus, a prospective \$1,000 loss will have much greater effect on a decision maker than a prospective \$1,000 gain.²⁵

Fourth, and finally, individuals tend to overvalue certainty.²⁶ People “overweight outcomes that are considered certain, relative to outcomes which are merely probable.”²⁷ For example, most individuals prefer a definite prize of a one-week tour of England over a 50% chance at winning a three-week tour of England, France, and Italy; yet when given a choice between a 5% chance at that three-week tour and a 10% chance at the week-long tour of England, they prefer the chance at the three-week tour.²⁸

Legal scholars have used all four components of prospect theory—framing of ordinary gains and losses, framing of low-probability gains and losses, loss aversion, and the certainty effect—to develop, or at least inform, various analyses of law and legal behavior. Here, I will focus primarily on the first component of the theory: that individuals generally make risk-averse choices when selecting between options framed as gains and risk-seeking choices when selecting between options framed as losses.²⁹

see Chris Guthrie, *Framing Frivolous Litigation: A Psychological Theory*, 67 U. CHI. L. REV. 163, 176–81 (2000). Note that the risk patterns with respect to moderate-to-high probability gains and losses are more stable and predictable than those with low-probability gains and losses. See *id.* at 178 n.64.

²² See, e.g., Kahneman & Tversky, *Prospect Theory*, *supra* note 14, at 279.

²³ *Id.*

²⁴ See, e.g., Chip Heath et al., *Goals as Reference Points*, 38 COGNITIVE PSYCHOL. 79, 87 (1999) (internal citations and parenthetical omitted) (“Studies of risky choice and riskless choice have presented converging evidence that losses are weighted approximately two times more than equivalent gains.”); Richard H. Thaler et al., *The Endowment Effect, Loss Aversion, and Status Quo Bias*, in *THE WINNER’S CURSE: PARADOXES AND ANOMALIES OF ECONOMIC LIFE* 63, 70 (Richard H. Thaler ed., 1992) (observing that the ratio of the slopes of the value function of small or moderate gains and losses is two to one).

²⁵ For more on loss aversion and its implications (e.g., the endowment effect, the status quo bias), see Russell Korobkin’s contribution to this symposium. Russell Korobkin, *The Endowment Effect and Legal Analysis*, 97 NW. U. L. REV. 1227 (2003).

²⁶ Kahneman & Tversky, *Prospect Theory*, *supra* note 14, at 265.

²⁷ *Id.*

²⁸ *Id.* at 267.

²⁹ The legal literature tends to use the terms “framing” or “framing effect” to refer to this phenomenon. From a technical perspective, however, this term actually captures two related, but distinct, phenomena: framing effects and reflection effects. See N.S. Fagley, *A Note Concerning Reflection Effects Versus Framing Effects*, 113 PSYCHOL. BULL. 451 (1993).

Different choices caused by phrasing the same outcomes as though they were gains versus phrasing them as though they were losses is the framing effect,” while the reflection effect involves risky choices that do not have the same outcomes but “whose outcomes are opposite in sign (although they do have the same magnitude).

Id.

II. APPLICATIONS TO LEGAL ANALYSIS

Kahneman and Tversky's prospect theory is applicable to every area of the law. From classic first-year law school subjects to advanced elective courses, prospect theory sheds light on the way people behave in each legal arena and the way legal doctrine has evolved. Below, I describe prospect theory analyses in several doctrinal areas, beginning with subjects normally encountered during the first year of law school (Civil Procedure, Torts, Contracts, and Criminal Law) and concluding with subjects normally encountered thereafter (Professional Responsibility, Tax, Corporations, Securities, and Antitrust).

A. *Civil Procedure*

Civil procedure is the body of law governing how litigants resolve disputes in the civil justice system.³⁰ Litigants and their lawyers must make any number of risky decisions to resolve disputes, including deciding what to claim, how to defend against those claims, what motions to pursue, what evidence to discover, and whether to settle or proceed to trial. Behavioral law and economics scholars have used prospect theory to shed light on the way litigants, their lawyers, and even judges make these litigation decisions.

1. *Suit and Settlement.*—Promulgated by the Supreme Court Advisory Committee in 1938, Rule 1 of the Federal Rules of Civil Procedure mandates that the Federal Rules “be construed and administered to secure the just, speedy, and inexpensive determination of every action.”³¹ The Advisory Committee placed renewed emphasis on this mandate when it revised Rule 1 in 1993 to require courts not only to “construe” the rules to secure the just, speedy, and inexpensive determination of cases but also to “administer” the rules in this fashion.³² The Advisory Committee explained that it revised Rule 1 “to ensure that civil litigation is resolved not only

³⁰ Of course, most disputes are resolved before they ever enter the civil justice system. See Richard E. Miller & Austin Sarat, *Grievances, Claims, and Disputes: Assessing the Adversary Culture*, 15 LAW & SOC'Y REV. 525 (1981).

³¹ FED. R. CIV. P. 1. According to Charles Alan Wright and Arthur Miller: “There probably is no provision in the federal rules that is more important than this mandate. It reflects the spirit in which the rules were conceived and written, and in which they should be, and by and large have been, interpreted” CHARLES ALAN WRIGHT & ARTHUR R. MILLER, *FEDERAL PRACTICE AND PROCEDURE: CIVIL 3D* § 1029 (1987); see also JACK H. FRIEDENTHAL ET AL., *CIVIL PROCEDURE 1* (3d ed. 1999) (“[T]he purpose underlying the establishment of most rules of civil procedure, in any judicial system, is to promote the just, efficient, and economical resolution of civil disputes.”).

³² See FED. R. CIV. P. 1, advisory committee's note. As Wright and Miller explain, “This addition is to recognize the affirmative duty of the court to exercise its authority fairly and without undue cost or delay. It continues the trend in the rules to recognize the management role of federal judges.” CHARLES ALAN WRIGHT & ARTHUR R. MILLER, *FEDERAL PRACTICE AND PROCEDURE* § 1011 (2d ed. Supp. 2001). For more on the management role of federal judges, see Judith Resnik, *Managerial Judges*, 96 HARV. L. REV. 376 (1982).

fairly, *but also without undue cost or delay.*"³³

Despite the Advisory Committee's desire to ensure the speedy and inexpensive attainment of justice, the labyrinthine structure created by the rules virtually guarantees the opposite result. With provisions for liberal pleading, expansive discovery, complicated motion practice, and mandatory pretrial meetings, the Federal Rules require litigants to traverse pretrial and trial processes that are almost invariably lengthy and costly.³⁴ These processes "have produced skyrocketing litigation expenses" and have induced parties to "settle lawsuits based on tactics and expenses as much as—if not more than—their predictions of how a judge would apply law to fact."³⁵ Indeed, settlement is the norm in our civil justice system, and there is no doubt that parties often settle to avoid the costs of continued litigation.

Attentive to the transaction costs imposed by the litigation process, law and economics scholars have used rational choice theory to model litigant decisionmaking. Promulgated by such prominent scholars as Robert Cooter,³⁶ John Gould,³⁷ Benjamin Klein,³⁸ William Landes,³⁹ Richard Posner,⁴⁰ George Priest,⁴¹ Daniel Rubinfeld,⁴² and Steven Shavell,⁴³ the economic theory of suit and settlement posits that litigants are rational actors who make risk-neutral or risk-averse⁴⁴ choices to maximize their outcomes in litigation.⁴⁵ The economic theory predicts that when deciding whether to

³³ FED R. CIV. P. 1, advisory committee's note (emphasis added).

³⁴ See generally Jonathan T. Molot, *How Changes in the Legal Profession Reflect Changes in Civil Procedure*, 84 VA. L. REV. 955 (1998).

³⁵ *Id.* at 979; see also Samuel R. Gross & Kent D. Syverud, *Getting to No: A Study of Settlement Negotiations and the Selection of Cases for Trial*, 90 MICH. L. REV. 319, 320 (1991) (arguing that "the nature of our civil process drives parties to settle so as to avoid the costs, delays, and uncertainties of trial, and, in many cases, to agree upon terms that are beyond the power or competence of courts to dictate").

³⁶ See Robert D. Cooter & Daniel L. Rubinfeld, *Economic Analysis of Legal Disputes and Their Resolution*, 27 J. ECON. LITERATURE 1067 (1989) (reviewing the law and economics literature on litigation).

³⁷ See John P. Gould, *The Economics of Legal Conflicts*, 2 J. LEGAL STUD. 279 (1973) (using economic theory to explain the resolution of lawsuits).

³⁸ See George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984) (using economic theory to describe which cases settle and which go to trial).

³⁹ See William M. Landes, *An Economic Analysis of the Courts*, 14 J.L. & ECON. 61 (1971) (using economic theory to explain litigation behavior in the criminal justice system).

⁴⁰ See Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399, 399 (1973) (using economic theory to explain judicial administration).

⁴¹ See Priest & Klein, *supra* note 38.

⁴² See Cooter & Rubinfeld, *supra* note 36.

⁴³ See Steven Shavell, *Suit, Settlement, and Trial: A Theoretical Analysis Under Alternative Methods for the Allocation of Legal Costs*, 11 J. LEGAL STUD. 55, 56 (1982) (developing an economic model of litigation to explain allocation of legal costs).

⁴⁴ See, e.g., Cooter & Rubinfeld, *supra* note 36, at 1076 (assuming risk neutrality and risk aversion).

⁴⁵ See, e.g., Priest & Klein, *supra* note 38, at 4 ("According to our model, the determinants of settlement and litigation are solely economic, including the expected costs to parties of favorable or ad-

settle a case or to go forward to trial, litigants compare the value of settlement to the expected value of trial and select whichever promises more. Because the transaction costs associated with fully litigating a case generally exceed the costs of settlement,⁴⁶ litigants will settle virtually every civil case because of the cost savings they expect to obtain.⁴⁷

Behavioral law and economics scholars accept the economic theory's "premise that litigants *try* to achieve the best possible outcome," but they question its "ability to identify the most favorable options when risk and uncertainty are involved."⁴⁸ Because litigation is an uncertain process requiring litigants to make risky decisions, behavioral law and economics scholars contend that the economic theory's reliance on rational choice theory is misguided.⁴⁹ Relying instead on prospect theory, behavioral law and economics scholars have developed two litigation theories: the "framing theory," which explains litigant decisionmaking in "ordinary" litigation, and the "frivolous framing theory," which explains litigant decisionmaking in "frivolous" or "low-probability" litigation.⁵⁰

a. Ordinary Litigation.—Developed by Jeff Rachlinski⁵¹ and other scholars,⁵² the framing theory posits that plaintiffs and defendants are

verse decisions, the information that parties possess about the likelihood of success at trial, and the direct costs of litigation and settlement. The most important assumption of the model is that potential litigants form rational estimates . . .").

⁴⁶ See, e.g., Cooter & Rubinfeld, *supra* note 36, at 1075 (observing that "trial costs are so much greater than settlement costs that many authors choose the simplifying assumption that settlement costs are nil").

⁴⁷ Samuel Gross and Kent Syverud explain the economic model as follows: "[T]he parties will settle whenever the defendant's maximum offer is greater than the plaintiff's minimum demand. Because litigation costs are *added* to the defendant's maximum offer and *subtracted* from the plaintiff's minimum demand, settlement will normally occur. Indeed, if plaintiffs and defendants always agreed in their predictions of trial outcomes, there would be no trials at all." Gross & Syverud, *supra* note 35, at 324.

⁴⁸ Rachlinski, *supra* note 18, at 118.

⁴⁹ *Id.* at 116 (observing that research shows "it is unlikely that the economic model accurately describes the behavior of litigants").

⁵⁰ Guthrie, *supra* note 21, at 168 (describing "ordinary" litigation as litigation in which the plaintiff has a moderate-to-high probability of recovering at trial and "frivolous" litigation as litigation in which the plaintiff has a low probability of recovering at trial). For a defense of this definition of frivolous litigation, see *id.* at 185–87.

⁵¹ Rachlinski, *supra* note 18.

⁵² See ROBIN M. HOGARTH, JUDGEMENT AND CHOICE 105 (Wiley ed., 2d ed 1987) (observing the Framing Theory pattern); Linda Babcock et al., *Forming Beliefs About Adjudicated Outcomes: Perceptions of Risk and Reservation Values*, 15 INT'L REV. L. & ECON. 289 (1995) (applying prospect theory to data obtained from negotiators involved in a hypothetical products liability case); Robin M. Hogarth, *Ambiguity and Competitive Decision Making: Some Implications and Tests*, 19 ANNALS OPERATIONS RES. 31, 38–41 (1989) (providing experimental evidence consistent with the Framing Theory); Russell Korobkin & Chris Guthrie, *Psychological Barriers to Litigation Settlement: An Experimental Approach*, 93 MICH. L. REV. 107, 129–42 (1994) [hereinafter Korobkin & Guthrie, *Psychological Barriers*] (predicting that the framing of a settlement offer will affect settlement behavior); Russell Korobkin & Chris Guthrie, *Psychology, Economics and Settlement: A New Look at the Role of the Lawyer*, 76 TEX. L. REV. 77 (1997) [hereinafter Korobkin & Guthrie, *A New Look*] (exploring lawyer and client

inclined to make different decisions in ordinary litigation because of the way they are likely to perceive litigation options. In most lawsuits, plaintiffs choose either to accept a certain settlement from the defendant or to proceed to trial in hopes of obtaining an even more favorable judgment. Most defendants, by contrast, must choose either to pay a certain settlement to the plaintiff or to pursue the gamble that further litigation will reduce the amount they must pay. Thus, plaintiffs generally choose between options that appear to them to be gains, while defendants generally choose between options that appear to them to be losses. Consistent with prospect theory's predictions regarding decisionmaking, the framing theory predicts that plaintiffs are generally more likely to prefer settlement, the risk-averse option, while defendants are more likely to be attracted to trial, the risk-seeking option.⁵³

To demonstrate this phenomenon, Rachlinski presented a simple copyright litigation problem to law students, half of whom played the role of plaintiff and half the role of defendant.⁵⁴ The plaintiff-subjects could either accept a \$200,000 settlement offer made by the defendant or face a 50% chance of winning \$400,000 at trial (and a 50% chance of winning nothing); the defendant-subjects could either pay a \$200,000 settlement to the plaintiff or face a 50% chance of losing \$400,000 at trial (and a 50% chance of losing nothing).⁵⁵ In this simple litigation problem, the plaintiff-subjects thus faced a choice between two options with identical expected values: a certain \$200,000 settlement or an expected trial verdict valued at \$200,000 ($50\% \times \$400,000 + 50\% \times \$0 = \$200,000$). Like the plaintiff-subjects, the defendant-subjects faced a choice between two options with identical expected values: a certain \$200,000 settlement payment to plaintiff or an expected trial verdict valued at $-\$200,000$ ($50\% \times -\$400,000 + 50\% \times \$0 = -\$200,000$).

The economic theory of suit and settlement predicts that both plaintiff-subjects and defendant-subjects would be indifferent between the two options (assuming risk neutrality) or would prefer settlement (assuming risk aversion). Consistent with the framing theory, however, Rachlinski found that 77% of the plaintiff-subjects preferred settlement, the risk-averse option, while 69% of the defendant-subjects preferred trial, the risk-seeking option.⁵⁶ The defendant-subjects, choosing between options that appeared to be losses, were induced to take risks that the economic theory would not have predicted. Rachlinski⁵⁷ and others⁵⁸ have found ample support for the

evaluations of settlement options); Peter J. van Koppen, *Risk Taking in Civil Law Negotiations*, 14 LAW & HUM. BEHAV. 151 (1990) (offering empirical support for the Framing Theory).

⁵³ See, e.g., Rachlinski, *supra* note 18, at 118–19.

⁵⁴ *Id.* at 128–29.

⁵⁵ *Id.* at 128.

⁵⁶ *Id.* at 128–29.

⁵⁷ *Id.* at 135–44.

⁵⁸ See, e.g., Babcock et al., *supra* note 52, at 296–97; Hogarth, *supra* note 52, at 40–41; Korobkin &

framing theory among experimental subjects and even among litigants in actual cases.⁵⁹

b. Frivolous Litigation.—Although the framing theory holds true in most cases, it appears not to hold true in situations involving frivolous litigation. In frivolous or low-probability litigation, the plaintiff typically chooses between a relatively small settlement amount and a low likelihood of obtaining a much larger amount at trial. Defendants, by contrast, typically must choose either to pay some small settlement or face a low likelihood of having to pay a much larger amount at trial. In short, plaintiffs in frivolous suits typically confront decision options that appear to be low-probability gains, while defendants choose between options that appear to be low-probability losses.⁶⁰ Decisionmakers confronted with low-probability gains, like plaintiffs in frivolous suits, tend to make risk-seeking decisions, while those confronted with low-probability losses, like defendants in frivolous suits, tend to make risk-averse decisions.⁶¹ In short, litigant risk preferences are likely to be reversed in frivolous suits, with plaintiffs relatively more attracted to trial than are defendants.

To demonstrate this phenomenon, I presented a simple litigation problem to law students, half of whom played the role of plaintiff and half the role of defendant.⁶² The plaintiff-subjects could either accept a \$50 settlement payment or face a 1% chance at a \$5,000 judgment at trial; defendant-subjects could either pay a certain \$50 settlement to plaintiff or face a 1% chance at having to pay a \$5,000 judgment at trial.⁶³ In this simple frivolous litigation problem, the plaintiff-subjects faced a choice between two options with identical expected values: a certain \$50 settlement or an expected trial verdict valued at \$50 ($1\% \times \$5,000 + 99\% \times \$0 = \50). Like the plaintiff-subjects, the defendant-subjects faced a choice between two options with identical expected values: a certain \$50 settlement payment to plaintiff or an expected trial verdict valued at $-\$50$ ($1\% \times -\$5,000 + 99\% \times \$0 = -\$50$).

The economic theory predicts that both plaintiff-subjects and defendant-subjects would be indifferent between the two options (assuming risk neutrality) or would prefer settlement (assuming risk aversion). Consistent with the frivolous framing theory, however, I found that 62% of the plaintiff-subjects preferred trial, the risk-seeking option, while 84% of the defendant-subjects preferred settlement, the risk-averse option.⁶⁴ Faced with low-probability gains, plaintiffs appear to make risk-seeking choices unan-

Guthrie, *Psychological Barriers*, *supra* note 52, at 130–42; van Koppen, *supra* note 52, at 158–64.

⁵⁹ Rachlinski, *supra* note 18, at 150–60.

⁶⁰ Guthrie, *supra* note 21, at 187.

⁶¹ See *supra* text accompanying notes 19–20.

⁶² Guthrie, *supra* note 21, at 188–89.

⁶³ *Id.*

⁶⁴ *Id.* at 189.

ticipated by the economic theory. In this and other experimental work,⁶⁵ researchers have found support for the frivolous framing theory's predictions regarding litigant behavior in frivolous suits.

2. *Judicial Management of Settlement.*—What about judges? Prior to the enactment of the Federal Rules in 1938, “parties preparing for trial were generally left to their own devices.”⁶⁶ With the adoption of the Federal Rules, however, judges began to play a much more active role “managing” pretrial litigation.⁶⁷ In an influential article, Judith Resnik observed the trend toward “managerial judging” with some alarm: “I believe that the role of judges before adjudication is undergoing a change as substantial as has been recognized in the posttrial phase of public law cases.”⁶⁸ Specifically, “judges are not only adjudicating the merits of issues presented to them by litigants, but also are meeting with parties in chambers to encourage settlement of disputes and to supervise case preparation.”⁶⁹

Today, Resnik's insightful observations seem both quaint and prophetic because the managerial role is now so firmly entrenched in the work of federal trial judges. As Resnik herself explained in a subsequent article, “[t]he 1938 Rules provided a vague category called the pre-trial and left it utterly to the discretion of the district judge as to whether it would be filled and if so, how,” but by the 1990s, there was a “mandate that judicial involvement with lawyers begin soon after the filing of lawsuits and continue through conclusion.”⁷⁰ Expressed most forcefully in revisions to Rule 16⁷¹ and in the Civil Justice Reform Act of 1990,⁷² judges are now expected to play an active role in the management and settlement of cases.⁷³ As Marc Galanter and Mia Cahill have observed, judges now “actively intervene in a significant portion of civil cases in American courts.”⁷⁴

⁶⁵ See *id.* at 189–90; see also Cynthia S. Fobian & Jay J.J. Christensen-Szalanski, *Ambiguity and Liability Negotiations: The Effects of the Negotiators' Role and the Sensitivity Zone*, 54 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 277 (1993) (reporting experimental work consistent with the Frivolous Framing Theory).

⁶⁶ Resnik, *supra* note 32, at 391–92.

⁶⁷ See generally *id.*

⁶⁸ *Id.* at 378.

⁶⁹ *Id.* at 376–77.

⁷⁰ Judith Resnik, *Changing Practices, Changing Rules: Judicial and Congressional Rulemaking on Civil Juries, Civil Justice, and Civil Judging*, 49 ALA. L. REV. 133, 187 (1997).

⁷¹ See, e.g., FED R. CIV. P. 16(a)(5) (giving the court discretion to “direct the attorneys for the parties and any unrepresented parties to appear before it for a conference or conferences before trial for such purposes as . . . facilitating the settlement of the case”).

⁷² See, e.g., Civil Justice Reform Act of 1990, 28 U.S.C. § 471 (2000) (directing the court to implement a plan which would “improve litigation management”); *id.* § 473(a) (“Each court . . . shall consider and may include . . . control of the pretrial process through involvement of a judicial officer . . . [or] authorization to refer appropriate cases to alternative dispute resolution programs . . .”).

⁷³ See Stephen McG. Bundy, *The Policy in Favor of Settlement in an Adversary System*, 44 HASTINGS L.J. 1, 58–60 (1992).

⁷⁴ Marc Galanter & Mia Cahill, “Most Cases Settle”: *Judicial Promotion and Regulation of Set-*

In his study of lawyers' attitudes toward judicial intervention in settlement talks, Judge Wayne Brazil found that "many lawyers believe that to be successful as a settlement facilitator a judge must be fair; i.e., litigants and lawyers must perceive him or her as impartial, open-minded, not identified with one side or class of litigants, or with one perspective on debatable matters."⁷⁵ If judges are prone to framing effects, however, their ability to be "fair" in settlement talks might be compromised by the manner in which they perceive litigation options.

To explore whether judges are susceptible to framing effects when managing settlement talks, Rachlinski, Judge Andrew Wistrich, and I gave a large sample of federal magistrate judges a litigation problem involving a copyright dispute.⁷⁶ Under this hypothetical dispute between two mid-sized publishing companies, the plaintiff-company alleges that the defendant-company infringed on the plaintiff-company's copyright. The judges learned that there is a 50% chance that the plaintiff-company will prevail at trial and win \$200,000 (and a 50% chance that the plaintiff-company will not win anything at all). The judges also learned that each party will spend \$50,000 if the case goes forward to trial.⁷⁷

Half of the judges reviewed the case from the plaintiff's perspective: "You have learned that the defendant intends to offer to pay the plaintiff \$60,000 to settle the case. Do you believe that the plaintiff should be willing to accept \$60,000 to settle the case?"⁷⁸ Thus, these judges learned that the plaintiff-company faced a choice between a certain \$60,000 gain or an expected trial judgment of \$50,000 (50% x \$200,000 judgment + 50% x \$0 judgment - \$50,000 attorney's fees = \$50,000 expected value).

The other half of the judges reviewed the case from the defendant's perspective: "You have learned that the defendant intends to offer \$140,000 to settle the case. Do you believe that the defendant should be willing to pay \$140,000 to settle the case?"⁷⁹ Thus, the judges in this group learned that the defendant-company faced a choice between a certain \$140,000 loss or an expected trial judgment of -\$150,000 (50% x -\$200,000 judgment + 50% x \$0 judgment - \$50,000 attorney's fees = -\$150,000 expected value).

Regardless of whether they assessed the problem from the plaintiff's perspective or the defendant's perspective, the judges evaluated the prospects of a litigant choosing between a settlement worth \$10,000 more than the expected value of trial. The only difference between the litigants was

lements, 46 STAN. L. REV. 1339, 1342 (1994).

⁷⁵ WAYNE D. BRAZIL, *SETTLING CIVIL SUITS: LITIGATORS' VIEWS ABOUT APPROPRIATE ROLES AND EFFECTIVE TECHNIQUES FOR FEDERAL JUDGES* 56 (1985).

⁷⁶ Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 796-97 (2001).

⁷⁷ *Id.* at 796.

⁷⁸ *Id.* at 796-97.

⁷⁹ *Id.* at 797.

that the plaintiff's options appeared to be gains (\$60,000 settlement vs. \$50,000 trial) while the defendant's options appeared to be losses (-\$140,000 settlement vs. -\$150,000 trial), due to the initial positions of the parties. Consistent with prospect theory, we found that the framing of decision options influenced the judges' recommendations. Nearly 40% of the judges assessing the problem from the plaintiff's perspective indicated that they would recommend settlement to the plaintiff, while only 25% of the judges assessing the problem from the defendant's perspective indicated that they would recommend settlement to the defendant.⁸⁰

As demonstrated by this experiment, framing can negatively influence judicial intervention in settlement talks.⁸¹ The experimental evidence suggests that judges are likely to perceive settlement to be more attractive to plaintiffs than to defendants in ordinary litigation. This, in turn, suggests that judges are likely to advocate settlement more strenuously for plaintiffs than for defendants, even though the experimental evidence suggests that plaintiffs are more likely than defendants to be attracted to settlement in the first place. By urging plaintiffs to accept an amount that is less than appropriate or by failing to urge defendants to pay an appropriate amount, judges could promote unfair settlements that undercompensate plaintiffs and underdeter defendants.⁸²

B. Torts

Based on their review of prospect theory and other well-established cognitive phenomena, Jon Hanson and Douglas Kysar argue that "any legal concept that relies in some sense on a notion of reasonableness or that is premised on the existence of a reasonable or rational decisionmaker will need to be reassessed in light of the mounting evidence that a human is 'a reasoning rather than a reasonable animal.'"⁸³ Reasonableness is a concept that pervades tort law. Not surprisingly, then, several legal scholars have used prospect theory and other cognitive phenomena to analyze tort doctrine, including the negligence standard, comparative fault, the doctrine of informed consent, and products liability doctrines.

⁸⁰ *Id.*

⁸¹ Framing can also affect other forms of dispute resolution, including, for example, mediation. See, e.g., Jean R. Sternlight, *Lawyers' Representation of Clients in Mediation: Using Economics and Psychology To Structure Advocacy in a Nonadversarial Setting*, 14 OHIO ST. J. ON DISP. RESOL. 269, 309–12, 338 (1999); Joseph B. Stulberg, *Trainer Accountability*, 38 FAM. & CONCILIATION CTS. REV. 77, 80 (2000).

⁸² Guthrie et al., *supra* note 76, at 798.

⁸³ Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630, 634–35 (1999) (quoting Alexander Hamilton, in Laurence, J. Peter, PETER'S QUOTATIONS: IDEAS FOR OUR TIME 315 (1977)). But see Gregory C. Keating, *Reasonableness and Rationality in Negligence Theory*, 48 STAN. L. REV. 311 (1996) (distinguishing between "reasonableness" and "rationality").

1. *Negligence Standard.*—Negligence, the primary basis for liability in tort, is generally determined by the so-called “reasonable person” standard. According to this familiar doctrine, a defendant (or plaintiff) will be held responsible for harm caused by her negligent conduct if she failed to behave as a reasonable person would have behaved under the circumstances.⁸⁴ This hypothetical reasonable person is often assumed to be a rational actor who performs implicit (if not explicit) cost-benefit analyses and takes action only where the benefits of doing so exceed the costs.⁸⁵

Conformity “with reasonable-person standards of behavior requires rationality and control over one’s own risk-taking behavior;”⁸⁶ yet, as Steve Croley observes, prospect theory and other cognitive phenomena demonstrate that people often make irrational risky decisions because of the way they perceive their decision options.⁸⁷ Holding imperfectly rational people to the “reasonable person” standard is akin to imposing absolute or strict liability on them. As Croley states, “negligent conduct should be expected when tort law’s negligence test—embodied by the reasonable person—sets an ideal standard that, applied to nonidealized individuals, is sometimes tantamount to a strict liability standard.”⁸⁸ Based on this observation, Croley questions the fairness of holding people liable under the reasonable person standard as well as the efficacy of expanding individual tort liability as a means of deterring unsafe conduct.⁸⁹

2. *Comparative Fault Versus Contributory Negligence.*—Prospect theory also illuminates the influence that a comparative fault regime can have on the resolution of negligence cases. At common law, a defendant could escape liability for negligence in any circumstance in which the plaintiff’s own negligence contributed to his accident.⁹⁰ By the 1960s and 1970s, however, most jurisdictions had abandoned these contributory negligence regimes in favor of comparative fault.⁹¹ In a comparative fault regime, a plaintiff’s negligence results in a reduced recovery rather than no

⁸⁴ RESTATEMENT (SECOND) OF TORTS § 283 (“Unless the actor is a child, the standard of conduct to which he must conform to avoid being negligent is that of a reasonable man under like circumstances.”).

⁸⁵ See, e.g., Steven P. Croley, *Vicarious Liability in Tort: On the Sources and Limits of Employee Reasonableness*, 69 S. CAL. L. REV. 1705, 1726 n.73 (1996).

⁸⁶ *Id.* at 1725.

⁸⁷ *Id.* at 1719–23.

⁸⁸ *Id.* at 1728.

⁸⁹ Croley reaches the tentative conclusion in this article that deterrence is better achieved through enterprise liability than through expanded individual liability. *Id.* at 1738 (“Even though firms cannot monitor their agents perfectly (to say the least), it seems possible that the palpable and day-to-day influence that a firm would have on its individual agents would curb unreasonable decisionmaking by those agents more than would the prospect of personal tort liability. Or at least that is the question.”).

⁹⁰ See DAN B. DOBBS, *THE LAW OF TORTS* 494 (2000).

⁹¹ See *id.* at 503–04 (noting that Mississippi enacted the first comparative negligence statute in 1910, but that most states enacted comparative negligence in the 1960s and 1970s).

recovery at all.⁹² Suppose, for example, that a defendant negligently injures plaintiff, that plaintiff's own negligence is deemed 25% responsible for his injuries, and that plaintiff incurred \$100,000 in damages. In a contributory negligence regime, the plaintiff's negligence would preclude him from recovering any damages at all. Under comparative fault, by contrast, the plaintiff recovers \$75,000, which is the full damage amount reduced by the amount that reflects his relative contribution to the accident.

Comparative fault regimes vary from state-to-state. Some states have adopted a "pure" comparative fault regime in which plaintiff can recover no matter how much responsibility she bears for the accident,⁹³ but most states follow an "incomplete" or "modified" comparative fault rule⁹⁴ in which the plaintiff can recover provided her negligent contribution to the accident is either less than (in about a dozen states)⁹⁵ or equal to but not greater than (in about twenty states) the defendant's negligence.⁹⁶ Regardless of the approach adopted by a particular jurisdiction, comparative fault is more forgiving than contributory negligence because it does not bar recovery. Most scholars have identified this as the primary virtue of comparative fault regimes.⁹⁷

Another scholar, Gail Hollister, used prospect theory to highlight an additional virtue of comparative fault. According to Hollister, comparative fault is more likely than contributory negligence to induce defendants to settle.⁹⁸ To develop this argument, Hollister analyzed two studies, one published in 1959⁹⁹ and the other in 1969,¹⁰⁰ both of which assessed the impact of comparative fault on tort cases in Arkansas. In both studies, researchers found that a majority of lawyers believed that the abandonment of contribu-

⁹² *Id.* at 503 ("Under a pure comparative fault regime, the rule merely reduces the amount of the award to a plaintiff who is chargeable with contributory fault.")

⁹³ *Id.* at 505 ("Around a dozen states as well as the major federal statutes adopt this system.")

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ See, e.g., *id.* at 494 ("The traditional contributory negligence rule was extreme not merely in results but in principle. No satisfactory reasoning has ever explained the rule. It departed seriously from ideals of accountability and deterrence because it completely relieved the defendant from liability even if he was by far the most negligent actor." (footnote omitted)); William L. Prosser, *Comparative Negligence*, 41 CAL. L. REV. 1, 37 (1953) (observing that "the desirability of the division of damages" made possible under a comparative fault regime "speaks for itself"); Gary T. Schwartz, *Contributory and Comparative Negligence: A Reappraisal*, 87 YALE L.J. 697 (1978) (proposing a fairness-based rationale for comparative fault).

⁹⁸ Gail D. Hollister, *Using Comparative Fault To Replace the All-or-Nothing Lottery Imposed in Intentional Tort Suits in Which Both Plaintiff and Defendant Are at Fault*, 46 VAND. L. REV. 121, 170-72 (1993).

⁹⁹ Maurice Rosenberg, *Comparative Negligence in Arkansas: A 'Before and After' Survey*, 13 ARK. L. REV. 89 (1959).

¹⁰⁰ Note, *Comparative Negligence—A Survey of the Arkansas Experience*, 22 ARK. L. REV. 692 (1969) [hereinafter *1969 Study*].

tory negligence for comparative fault had influenced settlement rates.¹⁰¹ Of those who shared this belief, 75% in the 1959 study¹⁰² and 91.8% in the 1969 study¹⁰³ believed that comparative fault had increased the likelihood of settlement. In short, “[t]he proportion of cases settled prior to trial [was] definitely greater under the new rule than under the contributory negligence rule.”¹⁰⁴

To explain this apparent¹⁰⁵ increase in settlement rates under comparative fault, Hollister turned to prospect theory.¹⁰⁶ As applied to ordinary litigation, prospect theory demonstrates that plaintiffs are generally drawn to settlement, while defendants are drawn to trial.¹⁰⁷ Trial is more appealing to defendants because it offers them the prospect of avoiding a loss. That prospect is greater in a contributory negligence jurisdiction, where a defendant can avoid liability altogether by establishing that plaintiff was negligent, than in a comparative fault jurisdiction, where a defendant who establishes that plaintiff was negligent can only reduce the damages it must pay. A defendant, in other words, has a better chance of escaping loss in a contributory negligence regime than in a comparative fault regime. This suggests that defendants are more likely to find trial attractive (and settlement unattractive) in a contributory negligence regime than in a comparative fault regime. Thus, comparative fault appears not only to be more just than contributory negligence but also to increase the likelihood that negligence cases will settle.

3. *Informed Consent.*—The informed consent doctrine first appeared in 1957 when the California Court of Appeals decided *Salgo v. Leland Stanford, Jr., University Board of Trustees*.¹⁰⁸ In *Salgo*, the court stated that a physician could be held liable for failing to provide a patient with sufficient information to enable that patient to make an informed decision about medical treatment.¹⁰⁹ Since *Salgo*, courts have struggled to conceptualize the informed consent doctrine, but the basic idea has become an intuitive one: a patient can recover in negligence if she suffered an injury caused by

¹⁰¹ Rosenberg, *supra* note 99, at 99 (reporting that 61.2% of the lawyers surveyed observed an impact on settlement); *1969 Study*, *supra* note 100, at 702 (reporting that 70% of the lawyers surveyed observed an impact on settlement).

¹⁰² Rosenberg, *supra* note 99, at 99.

¹⁰³ *1969 Study*, *supra* note 100, at 702.

¹⁰⁴ *Id.*

¹⁰⁵ I use the term “apparent” because the authors of the study relied on attorneys’ perceptions of settlement rates rather than actual settlement data. The attorneys may have been mistaken.

¹⁰⁶ Hollister, *supra* note 98, at 170 (arguing that prospect theory explains why “defendants were less willing to settle when there was a possibility of totally avoiding liability by proving the plaintiff’s contributory negligence”).

¹⁰⁷ See generally *supra* Part II.A.1.a.

¹⁰⁸ 317 P.2d 170 (1957). For one take on the birth of the informed consent doctrine in *Salgo*, see Jay Katz, *Informed Consent—A Fairy Tale? Law’s Vision*, 39 U. PITT. L. REV. 137, 149–50 (1977).

¹⁰⁹ 317 P.2d at 181.

her physician's failure to disclose relevant information about medical treatment.¹¹⁰

Because the law treats a cause of action based on the informed consent doctrine as a species of negligence, the plaintiff-patient must generally prove duty, breach, causation, and damages. This means that the plaintiff-patient must establish: that there was a doctor-patient relationship (duty); that the doctor failed to provide requisite information about the treatment (breach); that if the doctor had provided this information, the plaintiff-patient would have made a different treatment decision (causation); and that the plaintiff suffered physical injury as a consequence of the non-disclosure of information (damages).¹¹¹

Causation is the critical element. To establish causation, the plaintiff-patient must prove that she would have made a different treatment decision and thereby avoided injury if her doctor had provided her with the relevant information. Thus, the law requires the judge or jury to assess whether the plaintiff would actually have made a different decision. Aaron Twerski and Neil Cohen question whether the judge or jury can make this determination given what cognitive psychologists have learned about the way the presentation of information influences decisionmaking:¹¹² “[T]o hypothesize what decision a patient would have made if provided with additional information—as we must if we are to determine causation—is highly conjectural unless we are sure how the information would have been framed.”¹¹³

To illustrate their point, Twerski and Cohen describe a study published in the *New England Journal of Medicine*.¹¹⁴ In that study, researchers asked three groups of subjects—students, patients, and doctors—to imagine that they had lung cancer and that they had to decide based on the information presented by the researchers whether to undergo surgery or radiation treatment. The researchers provided the subjects with identical information, but they framed it differently: some of the subjects learned the probability of survival (e.g., a 68% chance of living), while others learned the probability of mortality (e.g., a 32% chance of dying). Consistent with prospect theory, the researchers found that the framing of the options systematically influenced the subjects' decisionmaking.¹¹⁵ The researchers observed that this effect was “substantial” and evident in all three subject populations, even among the doctors.¹¹⁶

¹¹⁰ DOBBS, *supra* note 90, at 653 (noting that “unless patients are incapacitated, they are entitled to material information about the nature of any proposed medical procedure”).

¹¹¹ See, e.g., *id.* at 654.

¹¹² See Aaron D. Twerski & Neil B. Cohen, *Informed Decision Making and the Law of Torts: The Myth of Justiciable Causation*, 1988 U. ILL. L. REV. 607, 626–27.

¹¹³ *Id.* at 635.

¹¹⁴ See Barbara J. McNeil et al., *On the Elicitation of Preferences for Alternative Therapies*, 306 N. ENG. J. MED. 1259 (1982).

¹¹⁵ *Id.* at 1261.

¹¹⁶ *Id.* at 1262. People might frame medical treatment options differently from financial options.

Because patients' decisions are likely to vary depending on how information is presented, Twerski and Cohen argue that courts cannot realistically assess causation in an informed consent case. They explain:

The law does and can only consider the information the health professional . . . should deliver. It does not and cannot consider the multitude of factors that influence the way people actually make decisions. To decide causation without looking at the latter is wholly illusory. On the other hand, to insist on such an inquiry would involve the courts in the kind of investigation of human behavior that would severely compromise the judicial process.¹¹⁷

Twerski and Cohen propose a reconceptualization of the informed consent doctrine. Under their view, the plaintiff suffers a compensable injury whenever a doctor compromises the plaintiff's decision process, regardless of the decision outcome. They state:

Rather than focusing on personal injury damages flowing from the hypothetical "but for," which seeks to determine what the plaintiff would have decided had the defendant provided the information, we suggest that courts should identify and value the decision rights of the plaintiff which the defendant destroyed by withholding adequate information.¹¹⁸

In short, given the practical difficulties associated with the justiciability of causation in informed consent cases, Twerski and Cohen argue that "[t]he legal system should protect these [process] rights and provide significant recompense for their invasion, rather than continue its single-minded and ill-considered attention to personal injuries allegedly caused by the lack of information."¹¹⁹

4. *Products Liability*.—Like the law of informed consent, products liability law is concerned in part with the provision of information to consumers. Although most products liability law and scholarship rest on rational-actor assumptions about the information-processing abilities of consumers and manufacturers,¹²⁰ Hanson and Kysar have recently written a series of articles in which they argue persuasively that these rational-actor

See, e.g., Mitchell, *supra* note 6, at 2009 (arguing that "the specific context or subject matter of the framing problems . . . may exert significant effects on behavior").

¹¹⁷ Twerski & Cohen, *supra* note 112, at 608.

¹¹⁸ *Id.* at 609.

¹¹⁹ *Id.* Although they do not discuss this in the context of a potential cause of action based on informed consent, Barbara McNeil and her colleagues argue that physicians and patients might be able to improve patient decisionmaking and minimize the effects of decision framing on the patients. They suggest that "an awareness of the effects of presentation among physicians and patients could help reduce bias and improve the quality of medical decision making" and that "additional data, discussions, or analyses are probably needed" to increase the likelihood of informed patient decisionmaking. McNeil et al., *supra* note 114, at 1262; see also Peter H. Schuck, *Rethinking Informed Consent*, 103 YALE L.J. 899, 948–51 (1994) (arguing that risk information could be presented in such a way as to improve patient comprehension).

¹²⁰ See, e.g., Hanson & Kysar, *supra* note 83, at 638.

assumptions are misplaced.¹²¹ Building on earlier scholarship by Howard Latin¹²² and others,¹²³ Hanson and Kysar develop a three-part argument about products liability doctrine.

Drawing from cognitive psychology, Hanson and Kysar begin by arguing that consumers are likely to misperceive the risks posed by potentially dangerous products. Although they acknowledge that this research does not yield “an overall prediction about the manner in which consumers will perceive product risks,”¹²⁴ they conclude that consumers “are subject to a host of cognitive biases,” including framing,¹²⁵ which make them susceptible to manipulation.¹²⁶

Because consumers are susceptible to manipulation, Hanson and Kysar contend that product manufacturers use advertising, promotions, and price setting to shape consumer perceptions and thereby induce them to underestimate product risks:¹²⁷

Once it is acknowledged that consumer risk perceptions may be affected by, for instance, the manner in which information is framed, then it becomes inevitable that manufacturers will exploit those framing effects in a way that maximizes manufacturer profits. Other things being equal, it is in the manufacturer’s interest for consumers to have the lowest estimate of product risks possible: The lower the consumer’s risk estimate, the more consumers will be willing to pay for the product, leading to greater sales and increased profits for manufacturers.¹²⁸

Many products liability scholars have argued that product safety ought to be regulated by requiring manufacturers to provide adequate warnings,¹²⁹ but Hanson and Kysar believe that product warnings do not go far enough to protect easily swayed consumers. Because consumers are prone to misperceive risks, and because manufacturers will inevitably take advantage of

¹²¹ *Id.*; Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: A Response to Market Manipulation*, 6 ROGER WILLIAMS U. L. REV. 262 (2000) [hereinafter Hanson & Kysar, *A Response*]; Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420 (1999) [hereinafter Hanson & Kysar, *Some Evidence*].

¹²² See Howard Latin, “Good” Warnings, Bad Products, and Cognitive Limitations, 41 U.C.L.A. L. REV. 1193 (1994) (arguing that product warnings are an insufficient substitute for safer product designs given consumers’ inability to appreciate product risks).

¹²³ See, e.g., Steven P. Croley & Jon D. Hanson, *Rescuing the Revolution: The Revived Case for Enterprise Liability*, 91 MICH. L. REV. 683 (1993); Jon D. Hanson & Kyle D. Logue, *The Costs of Cigarettes: The Economic Case for Ex Post Incentive-Based Regulation*, 107 YALE L.J. 1163 (1998); Jon D. Hanson & Kyle D. Logue, *The First-Party Insurance Externality: An Economic Justification for Enterprise Liability*, 76 CORNELL L. REV. 129 (1990).

¹²⁴ Hanson & Kysar, *The Problem*, *supra* note 83, at 722.

¹²⁵ *Id.* at 684–87, 739–42.

¹²⁶ *Id.* at 723.

¹²⁷ *Id.* at 637.

¹²⁸ *Id.* at 724. Hanson and Kysar provide real-world evidence in their second article documenting efforts by manufacturers to manipulate consumers. See Hanson & Kysar, *Some Evidence*, *supra* note 121.

¹²⁹ Hanson & Kysar, *Some Evidence*, *supra* note 121, at 1424.

them, Hanson and Kysar argue that the legal system should impose enterprise liability on manufacturers.¹³⁰ This, they contend, would decrease, if not eliminate, manufacturers' incentives to manipulate consumer preferences through the framing of product risk information.¹³¹

C. Contracts

"Contracts concern the future," Melvin Eisenberg observes, "and are therefore always made under conditions of uncertainty."¹³² Rational choice theory posits that a contracting party confronted with uncertainty "will rationally select the option that maximizes his subjective expected utility," but "empirical evidence shows that actors characteristically violate the standard rational-choice or expected-utility model," due to what Eisenberg calls "the limits of cognition."¹³³ Legal scholars like Eisenberg have analyzed contract law, including the so-called "bargain-limiting principle" and the adequate assurance of performance doctrine, in light of these "limits of cognition."

1. *Bargain-Limiting Principles.*—Contract law generally calls for courts to enforce contracts according to their terms.¹³⁴ This basic principle, which Eisenberg labels the "bargain principle," has limits. In fact, "contract law sets a variety of limits on the full enforcement of bargain promises," including, for example, the doctrines of unconscionability, duress, and misrepresentation.¹³⁵ Although some of these doctrines exist to prevent one party from exploiting the other, many others, according to Eisenberg, "are best explained on the basis of the limits of cognition."¹³⁶

One doctrine Eisenberg explains and justifies using "the limits of cognition" is the "liquidated damages" doctrine. Although courts generally enforce explicit contract terms, they are reluctant to enforce liquidated damages provisions, which call for the payment of a specified sum in the event of a breach. Courts only enforce such provisions if the party seeking enforcement can establish both that actual damages were difficult to estimate at the time of contracting and that the specified amount of damages was or is reasonable.¹³⁷

¹³⁰ *Id.* at 1560. Hanson and Kysar's proposal has had its share of critics, even among some who otherwise accept their characterizations of consumer behavior. See James A. Henderson, Jr. & Jeffrey J. Rachlinski, *Product-Related Risk and Cognitive Biases: The Shortcomings of Enterprise Liability*, 6 ROGER WILLIAMS U. L. REV. 213 (2000). Hanson and Kysar respond to their critics in Hanson & Kysar, *A Response*, *supra* note 121.

¹³¹ Hanson & Kysar, *Some Evidence*, *supra* note 121, at 1560.

¹³² Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211, 213 (1995).

¹³³ *Id.*

¹³⁴ *Id.* at 211.

¹³⁵ *Id.* at 212.

¹³⁶ *Id.*

¹³⁷ See, e.g., U.C.C. § 2-718(1) (1995); RESTATEMENT (SECOND) OF CONTRACTS § 356 (1981).

Scholars and judges applying rational choice analyses argue that courts should enforce liquidated damages provisions because they reflect cost-benefit calculations made by the parties.¹³⁸ Relying on prospect theory and other “limits of cognition,” Eisenberg argues that contracting parties are, in fact, often unable to properly assess the costs and benefits of a liquidated-damages clause due to the uncertainties present at the time of contracting.¹³⁹ Because parties will not “act with full cognition to rationally maximize [their] subjective expected utility,” Eisenberg concludes that “special scrutiny of liquidated damages provisions is justified because such provisions are subject to the limits of cognition in a special way.”¹⁴⁰ (Eisenberg also refers to the limits of cognition to explain the cooling-off period in door-to-door sales,¹⁴¹ the excuse of express conditions,¹⁴² and certain special kinds of contracts, like form contracts.¹⁴³)

2. *Adequate Assurance of Performance Doctrine.*—Larry Garvin uses prospect theory and other cognitive phenomena to analyze the adequate assurance of performance doctrine in contract law.¹⁴⁴ Under the adequate assurance doctrine, a promisee who believes with reasonable certainty that the promisor will have difficulty performing his obligations under the contract can demand assurances from the promisor that he will perform. If the promisor provides inadequate (or no) assurances, the promisee may treat the contract as repudiated.¹⁴⁵ Adequate assurance is “really a sort of forced modification, compelling the recipient of the demand to grant ex post rights which the bargain ex ante had not provided.”¹⁴⁶

Garvin argues that courts and scholars have neglected to provide a satisfactory justification for the adequate assurance doctrine and that its “reallocation of risk is facially dubious, and could provide the insecure party

¹³⁸ According to Judge Richard Posner in *Lake River Corp. v. Carborundum Co.*: “[T]he parties will, in deciding whether to include a penalty [liquidated damages] clause in their contract, weigh the gains against the costs . . . and will include the clause only if the benefits exceed those costs . . .” 769 F.2d 1284, 1289 (7th Cir. 1985) (parenthetical omitted). Scholars who employ rational choice theory to analyze liquidated damages also assume that parties, not courts, are in the best position to calculate damages in the event of a breach. See, e.g., Lewis A. Kornhauser, *An Introduction to the Economic Analysis of Contract Remedies*, 57 U. COLO. L. REV. 683, 720–21 (1986).

¹³⁹ Eisenberg, *supra* note 132, at 227–28.

¹⁴⁰ *Id.* at 230. For another attempt to use cognitive psychology to analyze liquidated damages, see Robert A. Hillman, *The Limits of Behavioral Decision Theory in Legal Analysis: The Case of Liquidated Damages*, 85 CORNELL L. REV. 717 (2000).

¹⁴¹ Eisenberg, *supra* note 132, at 220.

¹⁴² *Id.* at 236–40.

¹⁴³ *Id.* at 240–48; see also Richard L. Hasen, Comment, *Efficiency Under Informational Asymmetry: The Effect of Framing on Legal Rules*, 38 U.C.L.A. L. REV. 391, 424–35 (1990) (incorporating framing into an economic analysis of form contracts).

¹⁴⁴ Larry T. Garvin, *Adequate Assurance of Performance: Of Risk, Duress, and Cognition*, 69 U. COLO. L. REV. 71 (1998).

¹⁴⁵ U.C.C. § 2-609 (1995).

¹⁴⁶ Garvin, *supra* note 144, at 74.

with a windfall.”¹⁴⁷ Garvin elaborates on the problem posed by adequate assurance as follows:

Adequate assurance is a first cousin to contract modification. If the party demanding assurances actually gets them, it has in essence secured a change in the express terms. Even the promisor’s unsupported promise that it will in fact perform goes beyond the bargain, in that the parties could have, but did not, arrange for periodic reassurance. Any greater assurance—paying in advance, or granting a security interest, or giving progress payments—gives the promisee more than it had when the contract was made. In essence, then, the promisee uses the mechanism of adequate assurance to secure a new contract, one that it had not bargained for and that, almost by definition, it could not get voluntarily from the promisor.¹⁴⁸

Despite this problem, however, Garvin argues that the cognitive phenomena described by Eisenberg and modeled by Kahneman and Tversky provide a justification for the doctrine because they show that contracting parties are unlikely to make sound risk assessments at the time of contracting. And “[i]f parties in fact cannot deal well with risk *ex ante*, then a greater case can be made for adjustments to risk *ex post*.”¹⁴⁹ Moreover, parties are unlikely to invoke the doctrine opportunistically because of the way they will frame their decision options:

When the promisor’s performance is in question, the promisee inevitably will frame its decision in terms of loss—do we cut our losses now by demanding assurances, or do we give the promisor some extra time to resolve the situation? By demanding assurances, the promisee imperils future transactions with the promisor, so there is a real risk to a demand. The promisee, framing the problem as a choice of losses, will probably choose, *ceteris paribus*, the riskier option—going ahead with the deal.¹⁵⁰

For these reasons, Garvin concludes that framing and other cognitive phenomena provide some justification for the adequate assurance doctrine and provide some insight into its appropriate limits.¹⁵¹

D. Criminal Law and Plea Bargaining

From contemplating whether to commit a crime to deciding whether to plead guilty upon arrest, criminal behavior (and its aftermath) involves risk-taking. As such, criminal law offers fertile ground for prospect theory-based analyses, yet relatively little such work has been done. One scholar,

¹⁴⁷ *Id.*

¹⁴⁸ *Id.* at 130 (footnotes omitted).

¹⁴⁹ *Id.* at 74–75.

¹⁵⁰ *Id.* at 159.

¹⁵¹ Garvin also uses prospect theory and other phenomena from cognitive psychology to analyze disproportionality in the award of consequential damages. See Larry T. Garvin, *Disproportionality and the Law of Consequential Damages: Default Theory and Cognitive Reality*, 59 OHIO ST. L.J. 339 (1998).

however, has undertaken a prospect theory-based analysis of plea bargaining.

Plea bargaining has long been a common practice in the criminal justice system. In his definitive account of the history of criminal justice in America, Lawrence Friedman reports that “[p]lea bargaining was common in state after state in the twenties. In the federal courts, plea bargaining apparently became standard practice in or around 1916; by the years 1927 through 1930, it had swept everything before it.”¹⁵² Today, upwards of ninety percent of all criminal cases result in pleas.¹⁵³

Plea bargaining appears to contradict a central tenet of prospect theory.¹⁵⁴ When criminal defendants are arrested and charged, they can choose either to accept “a certain loss of liberty or property” by entering into a plea agreement, or they can take their chances at trial in hopes of avoiding any loss at all. Because they face prospective losses, prospect theory predicts that most criminal defendants will make the risk-seeking choice and opt for trial, yet we know that most defendants opt instead to resolve their cases through pleas. What accounts for this apparent contradiction?

Richard Birke proposes four potential solutions to this puzzle.¹⁵⁵ First, Birke suggests that criminal defendants might be uniformly risk averse as a population. If so, criminal defendants would find the certainty of plea bargains appealing and would be put off by the uncertainty of trial. Although some criminal defendants might be risk averse, most of them (at least those actually guilty of committing crimes) would seem to be relatively more risk-seeking than the population as a whole given their willingness to bet that they can commit crimes and get away with it. Thus, Birke concludes, “the suggestion that criminals are unfailingly risk averse strains credulity” and cannot resolve the contradiction.¹⁵⁶

Second, Birke suggests that criminal defendants might perceive the trial-versus-plea-bargain decision as one involving gains rather than losses, and if so, their risk-averse behavior would be consistent with prospect theory.¹⁵⁷ Individuals adapt quickly to gains and losses and Birke suggests that defendants might enter “the domain of loss at the time of apprehension.”¹⁵⁸ If so, “the defendant expects to be punished after being caught, and by the time the prosecutor offers a plea bargain, the defendant has assimilated the loss and adjusted to a baseline to reflect the expectation of punishment.”¹⁵⁹

¹⁵² LAWRENCE M. FRIEDMAN, *CRIME AND PUNISHMENT IN AMERICAN HISTORY* 390 (1993).

¹⁵³ See Jennifer Gerarda Brown, *The Use of Mediation To Resolve Criminal Cases: A Procedural Critique*, 43 EMORY L.J. 1247, 1304 n.221 (1994).

¹⁵⁴ See Richard Birke, *Reconciling Loss Aversion and Guilty Pleas*, 1999 UTAH L. REV. 205, 207.

¹⁵⁵ *Id.* at 208–10.

¹⁵⁶ *Id.* at 245.

¹⁵⁷ *Id.* at 244.

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

Although this explanation might account for the plea-bargaining behavior of some criminal defendants, Birke observes that there is something counterintuitive about perceiving a prospective punishment as a gain. Thus, he concludes, this is at best a partial explanation.¹⁶⁰

In his third attempt to reconcile plea bargaining rates with prospect theory, Birke proposes that prosecutors may simply be offering such good deals that even risk-seeking criminal defendants are inclined to take them.¹⁶¹ “If the utility value of the plea is much higher than that of trial,” Birke explained, “the plea offer may overcome a tendency toward loss aversion.”¹⁶² If, for example, a criminal defendant can plead guilty to sexual assault with a three to five year sentence or face a 50/50 chance of a rape conviction with a fifteen to twenty-five year sentence, he might opt for the plea simply because it greatly exceeds the expected value of trial. Nonetheless, Birke concludes that this explanation is unlikely to account for the plea bargaining-prospect theory discrepancy. For doctrinal, political, and practical reasons, it is unlikely that prosecutors are routinely offering such attractive deals.

Thus, Birke proposes a final explanation for the high rate of plea bargaining—criminal defendants are induced to plead guilty due to the way prosecutors frame their offers:

Defendants plead because they are misinformed about the values of trials and pleas, and because pleas are framed as gains. Defendants are manipulated into pleading because they possess too little information to overcome framing effects inherent in the valuation of pleas and trials, and because they lack information to accurately value that which they so readily trade away—the right to trial. Naturally, defense attorneys respond to incentives of the court that encourage pleas, and these responses manifest themselves as information that distorts defendants’ views of their alternatives. Trial looks worse than it really is, and so the plea looks relatively better.¹⁶³

Although Birke contends that each of his accounts might help resolve the apparent inconsistency between prospect theory’s predictions and the rate of plea bargaining, he finds the latter explanation most compelling and argues that the criminal justice system should attempt to address the way prosecutors manipulate the information that they present to criminal defendants.¹⁶⁴

¹⁶⁰ *Id.* at 244–45.

¹⁶¹ *Id.* at 219.

¹⁶² *Id.*

¹⁶³ *Id.* at 247.

¹⁶⁴ Another possibility is that the conventional framing account simply does not apply to decisions involving the prospect of confinement the same way it applies to decisions involving prospective monetary losses. See Mitchell, *supra* note 6, at 2009.

E. Professional Responsibility

The Model Rules of Professional Conduct,¹⁶⁵ along with the numerous state codes of professional conduct based upon them,¹⁶⁶ prohibit lawyers from engaging in a wide range of behaviors deemed unethical.¹⁶⁷ Despite such prohibitions, there is a widespread perception among members of the bar and the public at large that unethical conduct is common in the legal profession. Various commentators have lamented that “lawyers, their ethics, and their professionalism are ‘lost,’ ‘betrayed,’ in ‘decline,’ in ‘crisis,’ facing ‘demise,’ near ‘death,’ and in need of ‘redemption.’”¹⁶⁸ Indeed, after four years of study, an ABA Commission has proposed, and the ABA House of Delegates has approved, revisions to the Model Rules motivated in part by “increased public scrutiny of lawyers,” “persistent concerns about lawyer honesty, candor and civility,” and “the need to enhance public trust and confidence in the legal profession.”¹⁶⁹

Lawyers who violate ethical rules may suffer reputational harm, face disciplinary action by the state bar, incur civil liability for legal malpractice, and may even face criminal liability for violations of related penal codes. Given these risks, why, or under what circumstances, would a lawyer engage in unethical conduct? If policymakers can identify the circumstances under which a lawyer is more likely to violate ethical rules, policymakers may be able to craft rules tailored to address those circumstances. Rational choice theory predicts that lawyers will violate ethical rules only when the expected benefits of violating a rule (e.g., better result for client and lawyer) exceed the expected costs (e.g., probability of detection multiplied by the

¹⁶⁵ In this Article, I will cite to the 2003 version of the Model Rules. MODEL RULES OF PROF'L CONDUCT (2003).

¹⁶⁶ According to the Executive Summary of the report issued by the ABA Commission on the Evaluation of the Rules of Professional Conduct, forty-two jurisdictions have adopted some version of the Model Rules. See COMM'N ON THE EVALUATION OF THE RULES OF PROF'L CONDUCT, ABA, EXECUTIVE SUMMARY: CHANGES THE COMMISSION PROPOSED (2001) [hereinafter RULES REVISION EXECUTIVE SUMMARY], available at www.abanet.org/cpr/e2k-exec_summ.html.

¹⁶⁷ See, e.g., MODEL RULES OF PROF'L CONDUCT R. 1.2(d) (2003) (“A lawyer shall not counsel a client to engage, or assist a client, in conduct that the lawyer knows is criminal or fraudulent”); *id.* at R. 3.1 (“A lawyer shall not bring or defend a proceeding, or assert or controvert an issue therein, unless there is a basis . . . for doing so that is not frivolous”); *id.* at R. 3.4(a) (“A lawyer shall not: (a) unlawfully obstruct another party’s access to evidence or unlawfully alter, destroy or conceal a document or other material having potential evidentiary value.”); *id.* at R. 4.1 (“In the course of representing a client a lawyer shall not knowingly: (a) make a false statement of material fact or law to a third person; or (b) fail to disclose a material fact to a third person when disclosure is necessary to avoid assisting a criminal or fraudulent act by a client”); *id.* at R. 4.4 (“In representing a client, a lawyer shall not use means that have no substantial purpose other than to embarrass, delay, or burden a third person, or use methods of obtaining evidence that violate the legal rights of such a person.”).

¹⁶⁸ Russell G. Pearce, *The Professionalism Paradigm Shift: Why Discarding Professional Ideology Will Improve the Conduct and Reputation of the Bar*, 70 N.Y.U. L. REV. 1229, 1257 (1995) (citing several sources); see also Deborah L. Rhode, *The Professionalism Problem*, 39 WM. & MARY L. REV. 283 (1998).

¹⁶⁹ RULES REVISION EXECUTIVE SUMMARY, *supra* note 166.

formal and informal sanctions that would be levied). Although prospect theory assumes that lawyers will weigh the costs and benefits of their conduct, prospect theory predicts that lawyers' behavior will also be influenced by the way they believe the relevant case or transaction is progressing. When things appear to be going well (gains), risky ethical violations will seem unattractive; when things appear to be going poorly (losses), however, those same ethical violations will hold more appeal.¹⁷⁰

Richard Painter develops this argument in an article on concealment.¹⁷¹ Painter begins his analysis by observing that "[a] lawyer may be more likely to assist a client who is using the lawyer's services to violate the law in situations where the facts are already bad, either for the client, for the lawyer or for both."¹⁷² To illustrate, Painter alludes to two cases: *SEC v. National Student Marketing Corp.*¹⁷³ and *In re Carter & Johnson*.¹⁷⁴

In the *National Student Marketing Corporation* case, National hired attorneys to facilitate its merger with another company. During their representation of National, the attorneys learned that National had overstated its earnings in prior financial statements. Rather than going back to the shareholders of the two companies to get approval of the merger in light of this discovery, the attorneys allowed the deal to go forward without the new approvals. Shareholders later sued the attorneys, and the court found that the attorneys' failure to obtain appropriate approvals of the deal had violated the Securities and Exchange Act.¹⁷⁵

In *Carter*, attorneys Carter and Johnson represented National Telephone during a two-year period in which National Telephone repeatedly violated securities laws against the advice of their attorneys. In a subsequent prosecution of Carter and Johnson, the SEC ruled that the attorneys had an obligation to take affirmative steps to correct National Telephone's violations, and because they had not done so, they were liable under the Securities and Exchange Act.

Explaining the lawyers' behavior in these two cases, Painter writes:

An important deal about to collapse, as in *SEC v. National Student Marketing*, or an ongoing securities fraud by a nearly insolvent client, as in *In re Carter and Johnson*, are already no-win situations for lawyers bound to lose their client, their unpaid legal bills and possibly their reputation. Lawyers who never

¹⁷⁰ See generally Richard W. Painter, *Lawyers' Rules, Auditors' Rules and the Psychology of Concealment*, 84 MINN. L. REV. 1399 (2000); Rachlinski, *supra* note 18.

¹⁷¹ Painter, *supra* note 170.

¹⁷² *Id.* at 1421 (parenthetical omitted).

¹⁷³ 457 F. Supp. 682 (D.D.C. 1978).

¹⁷⁴ Release No. 17,597, [1981 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 82,847, at 84,145 (Feb. 28, 1981).

¹⁷⁵ For Painter's analysis of a novel based on this case, see Richard W. Painter, *Irrationality and Cognitive Bias at a Closing in Arthur Solmssen's The Comfort Letter*, 69 FORDHAM L. REV. 1111 (2000).

would have facilitated the conduct that got their clients into trouble to begin with (and who even advised against the illegal conduct), when deciding how to cut their losses, may help conceal the client's violations and take other risks that a "rational" lawyer would not.¹⁷⁶

Painter thus concludes that prospect theory may account for the lawyers' behavior in these cases and "generally may explain why, sometimes, the worse things get, the more likely a lawyer is to compound his own and his client's troubles with violations of ethics rules, violations of law or both."¹⁷⁷

Consistent with Painter's analysis, Rachlinski reported experimental evidence demonstrating that those assuming the role of lawyer may be more likely to behave unethically when faced with a bad situation than a good situation. Rachlinski presented a litigation problem to law students assigned to assume the role of counsel for a defendant pharmaceutical company in a hypothetical products liability suit.¹⁷⁸ The subjects learned that the parents of a child allegedly injured by a drug manufactured by the defendant had sued the defendant for damages. The subjects further learned that the plaintiffs had recently offered to settle the case for \$3 million. Unknown to the plaintiffs, however, the defendant had discovered and withheld several relevant, incriminating documents during the discovery process. The subjects learned that they could be sanctioned if they agreed to settle the case without disclosing the documents to plaintiffs.¹⁷⁹

Rachlinski randomly assigned half of the subjects to a "gains" condition. Subjects in this group learned that their client, who had originally expected to have to pay plaintiffs \$5 million to settle the case, believed the case was "going well." Subjects assigned to the "losses" condition learned that their client, who had originally expected to pay plaintiffs only \$1 million, believed that the case was "going poorly." Rachlinski asked subjects in both groups to indicate whether they would agree to accept the plaintiffs' offers and settle the case.¹⁸⁰

Although the subjects faced the same decision of whether to settle the case for \$3 million prior to disclosing relevant and incriminating documents, the framing of the decision problem affected subjects' willingness to engage in risky, and arguably unethical, behavior. Only 12.5% of the sub-

¹⁷⁶ Painter, *supra* note 170, at 1421–22.

¹⁷⁷ *Id.* at 1422. Painter also observed that prospect theory might "explain why lawyers take big risks to conceal their own errors [not merely client errors]." *Id.*

As risk averse as lawyers are when tempted with the gains of assisting a client crime or fraud to begin with, once they are pressured into participation in the client's misconduct, or because of their own negligence fail to notice it in time, they may be willing to bear the additional risk of concealing the problem by lying or telling half truths to outside auditors, to regulators, or even to their own client's board of directors.

Id.

¹⁷⁸ Rachlinski, *supra* note 18, at 140.

¹⁷⁹ *Id.* at 141.

¹⁸⁰ *Id.* at 142.

jects assigned to the gains condition (the case is going well) indicated that they would engage in the ethically risky behavior of settling prior to disclosing. By contrast, 45% of those assigned to the losses condition (the case is going poorly) indicated that they would settle before disclosing.¹⁸¹ Consistent with the predictions of prospect theory, Rachlinski found that subjects facing losses were much more likely (nearly four times as likely!) to adopt a risk-seeking, and ethically dicey, litigation strategy. Although the subjects might not have known whether settling before disclosing violated the governing ethical rules, “settling before a party can find out unpleasant facts about one’s case smacks of impropriety and unfairness.”¹⁸² Many of the subjects appeared willing to sacrifice ethical principles in an attempt to avoid incurring losses.

F. Tax: Compliance and Enforcement

The U.S. income tax system requires taxpayers to pay a percentage of their income to the federal government. Prospect theory may tell us when taxpayers are more or less likely to comply with this requirement.

Tax compliance is a significant public policy issue. Although most Americans pay their taxes in full,¹⁸³ the Internal Revenue Service (IRS) estimates that it fails to collect about 17% of total federal income taxes due.¹⁸⁴ In 1992, this amounted to an estimated \$95 billion:¹⁸⁵ a figure greater than the amount appropriated that year to the Departments of Interior, Justice, Labor, State, and Housing and Urban Development combined!¹⁸⁶

The IRS has expansive enforcement powers, but it has insufficient resources to ensure that all taxpayers comply with the tax laws. As of 1995, the IRS audited fewer than two percent of taxpayers,¹⁸⁷ and only a small percentage of those audited were penalized for underpayment.¹⁸⁸ To collect as high a percentage of taxes as possible, the IRS needs to be able to predict

¹⁸¹ *Id.*

¹⁸² *Id.*

¹⁸³ See James Andreoni et al., *Tax Compliance*, 36 J. ECON. LITERATURE 818, 820 (1998) (estimating, based on a review of the 1988 Taxpayer Compliance Measurement Program audit, that “about two-thirds of all taxpayers intended to pay their taxes correctly”).

¹⁸⁴ James Andreoni and his colleagues report that “the difference between the federal income taxes households actually owe, and what they report and pay voluntarily on a timely basis” has remained about the same from 1973 to 1992. *Id.* at 819. In 1992, the gap between taxes owed and taxes paid was 17.3%. *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ See Historical Tables, at <http://w3.access.gpo.gov/usbudget/fy2004/pdf/hist.pdf> (the United States Government Printing Office). According to the Tables, the Department of Housing and Urban Development spent approximately \$25 billion, the Department of the Interior \$7 billion, the Department of Justice \$10 billion, the Department of Labor \$48 billion, and the State Department \$6 billion. *Id.*

¹⁸⁷ See Andreoni et al., *supra* note 183, at 820 (reporting that the audit rate was 4.75% in 1965, dropped to 0.8% by 1990, and rose to 1.7% by 1995).

¹⁸⁸ *Id.* at 821 (reporting that 4.1% of those audited in 1995 were penalized).

taxpayer noncompliance as accurately as possible. With a better understanding of expected taxpayer behavior, the IRS is more likely to craft policies and procedures that will deter noncompliance.

Rational choice theory predicts that when deciding whether to comply with the tax laws, individuals will base their decisions solely on “the cost of the tax and of the expected legal sanction from noncompliance. If the expected sanction exceeds the tax payment, the person will pay; otherwise, he will not.”¹⁸⁹ Due to the small chance of getting caught and punished,¹⁹⁰ the expected sanction facing noncomplying taxpayers is low, so rational choice theory predicts rampant noncompliance. As noted above, however, compliance rates are actually quite high.¹⁹¹ Thus, rational choice theory provides only limited insight into expected taxpayer behavior.

Prospect theory’s predictions about taxpayer behavior are potentially more helpful to policymakers. Prospect theory predicts that the framing of the tax decision will systematically influence taxpayer behavior.¹⁹² Taxpayers who anticipate receiving a refund from the IRS are in a “gains” frame. Although underreporting or evasion could result in an even larger refund, prospect theory predicts these taxpayers will “tend to avoid the risks associated with evasion since a perceived gain is already assured.”¹⁹³ By contrast, taxpayers who anticipate owing taxes to the IRS are in a “losses” frame. Because “the taxpayer expecting to owe money is more likely to see the additional payment as a loss, the probability is greater that he or she will risk filing a fraudulent return in order to reduce the anticipated loss.”¹⁹⁴ Elizabeth Loftus, credited with applying prospect theory to taxpayer behav-

¹⁸⁹ Eric A. Posner, *Law and Social Norms: The Case of Tax Compliance*, 86 VA. L. REV. 1781, 1783 (2000).

¹⁹⁰ See Andreoni et al., *supra* note 183, at 821 (“The fact that most taxpayers face a low probability of detection and small expected penalty puts the earlier statistics on noncompliance in a different light. For small amounts of evasion, such as slightly overstating charitable deductions or failing to report minor amounts of income, the expected cost of detection would appear to be extremely low for most taxpayers. So, we may ask, why are so many households honest, and why don’t cheaters cheat more?”); Posner, *supra* note 189, at 1784 (“Given the low penalty for tax evasion and the audit rate, tax evasion should be widespread.”).

¹⁹¹ See *supra* note 183.

¹⁹² See Elizabeth F. Loftus, *To File, Perchance To Cheat*, PSYCHOL. TODAY, Apr. 1985, at 34 (first observing this phenomenon).

¹⁹³ Henry S.J. Robbenn et al., *Decision Frame and Opportunity as Determinants of Tax Cheating: An International Experimental Study*, 11 J. ECON. PSYCHOL. 341, 344 (1990).

¹⁹⁴ *Id.* at 344–45; see also Kent W. Smith & Karyl A. Kinsey, *Understanding Taxpaying Behavior: A Conceptual Framework with Implications for Research*, 21 LAW & SOC’Y REV. 639, 649 (1987) (“[A]ny savings through legal or illegal tax-reducing activities that would result in a refund are framed as gains, while taxes paid out of one’s own pocket are framed as losses. Therefore, at filing time we would anticipate more planning and risk taking to reduce money owed than to increase refunds, even when the total tax obligation would be the same under either circumstance.”); Russell H. Weigel et al., *Tax Evasion Research: A Critical Appraisal and Theoretical Model*, 8 J. ECON. PSYCHOL. 215, 221 (1987) (observing that “the prospect of a large out-of-pocket cost may produce strain and consequent evasion behavior”).

ior in a 1985 *Psychology Today* article, explains the decisionmaking processes of two hypothetical taxpayers, Mary (who expects a refund) and Jane (who expects to owe the IRS additional taxes), to illustrate:

Mary is in a gain situation; she could gamble and cheat in hopes of achieving a larger return or file an honest return. Since she will get a refund either way, she will probably avoid the risk of cheating. Jane, on the other hand, is in a loss situation. She owes the IRS money. She could choose to pay what she owes, or she could gamble and cheat, in hopes of reducing what she owes. Since she is in a loss situation, she is more likely than Mary to risk filing a fraudulent return.¹⁹⁵

Scholars have collected experimental evidence that supports the prospect theory account of taxpayer behavior. In one study, Otto Chang and his colleagues gave executive MBA students a series of hypothetical tax reporting problems.¹⁹⁶ On average, the subjects were risk averse,¹⁹⁷ but the researchers found that those “viewing tax payments as a reduction of gain exhibited different behavior from those who viewed tax payments as certain losses.”¹⁹⁸ Only 23% of the subjects who viewed the tax payments as reduced gains were inclined to gamble, but a substantially higher 65% of those who viewed the tax payments as sure losses made risk-seeking tax decisions.¹⁹⁹

In another study, Henry Robbenn and his colleagues conducted experiments in six countries in which they asked subjects to assume the role of manager of a small business.²⁰⁰ They randomly assigned half of the subjects to a “gains” condition (refund) and half to a “losses” condition (payment). They asked the subjects to perform a number of tasks, including making decisions about tax filing. Although many of the subjects did not consciously perceive the refund as a potential gain or the taxes due as a potential loss, the researchers found that “[n]oncompliance was more likely to occur, occurred on more occasions, and involved larger amounts of money among subjects confronting the prospect of an additional tax payment after withholding.”²⁰¹ The researchers found similar results among those subjects who did perceive the decision frame the way the researchers had anticipated.²⁰²

¹⁹⁵ Loftus, *supra* note 192, at 37–38.

¹⁹⁶ Otto H. Chang et al., *Taxpayer Attitudes Toward Tax Audit Risk*, 8 J. ECON. PSYCHOL. 299, 301–07 (1987).

¹⁹⁷ *Id.* at 303.

¹⁹⁸ *Id.* at 307.

¹⁹⁹ *Id.* at 304.

²⁰⁰ Robbenn et al., *supra* note 193, at 348–59.

²⁰¹ *Id.* at 355.

²⁰² With respect to this subset of their subjects, the researchers also found that “[n]oncompliance was more likely to occur, occurred with greater frequency, and involved more money when subjects framed their withholding status as a loss.” *Id.* at 359.

The prospect theory account of tax compliance is supported not only by experimental evidence, but also by real-world empirical evidence. Robbenn and his colleagues reported that an IRS analysis of 1982 tax returns demonstrated that “income tax compliance varies as a function of the size of taxpayers’ refund or balance due.”²⁰³ The analysts found that “the voluntary compliance rate was higher (96%) for individuals whose returns claimed a refund of more than \$1,000 and lower (89%) for taxpayers facing a ‘balance due’ of over \$1,000.”²⁰⁴ The results were even more pronounced for business income in which “the voluntary compliance rate was 95% for individuals anticipating a refund in excess of \$1,000 versus 70% for taxpayers who owed a balance of more than \$1,000.”²⁰⁵ The researchers concluded that their results “provide another piece of evidence that the implications of Prospect Theory extend beyond hypothetical choices and support the theory’s relevance for understanding tax evasion behavior.”²⁰⁶

The theory, the experimental evidence, and the empirical evidence suggest that taxpayers are more likely to evade or underreport if they anticipate owing taxes because taxpayers will perceive themselves to be facing a loss.²⁰⁷ The IRS is not powerless in the face of these findings. To deter taxpayers from violating the tax code, the IRS could “increase the amounts that are withheld from wages and other sources of income, so that more taxpayers can expect a refund.”²⁰⁸ In other words, the IRS could attempt to place more taxpayers in a “gains” frame prior to April 15.²⁰⁹ And to increase its rate of detection of noncompliance, the IRS could target its enforcement efforts at those taxpayers who appear to have had too little withheld, given that those taxpayers are relatively more likely than others to evade or underreport.²¹⁰

²⁰³ *Id.* at 345 (citing to an unpublished report produced by the IRS Research Division).

²⁰⁴ *Id.* at 346.

²⁰⁵ *Id.*

²⁰⁶ *Id.* at 360.

²⁰⁷ Some taxpayers may not view the decision as this prospect theory account suggests. *See, e.g.*, Phyllis V. Copeland & Andrew D. Cuccia, *Multiple Determinants of Framing Referents in Tax Reporting and Compliance*, 88 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 499 (2002) (finding generally that taxpayer reporting decisions are framed both by the current cash position and by expectations based on prior filing experiences).

²⁰⁸ Loftus, *supra* note 192, at 38.

²⁰⁹ *But see* John S. Carroll, *Compliance with the Law: A Decision-Making Approach to Taxpaying*, 11 LAW & HUM. BEHAV. 319, 327 (1987) (arguing that “there are other ways to frame this situation that makes this policy recommendation more risky, such as framing each withholding as a loss, or comparing oneself to other people who may pay less taxes”).

²¹⁰ For other efforts to use prospect theory to analyze various aspects of tax doctrine, see Edward J. McCaffery, *Cognitive Theory and Tax*, 41 U.C.L.A. L. REV. 1861 (1994); Edward J. McCaffery & Jonathan Baron, *Framing the Family: Normative Evaluation of Tax Policies Involving Household Composition* (working paper, on file with author).

G. Corporate Law

Corporations conduct business in competitive markets. To survive in the competitive marketplace, corporations must, according to the traditional rational actor account, make economically rational decisions to maximize shareholder value.²¹¹ Those corporations “that depart too far or too often from this norm will lose access to needed capital and succumb to their more savvy competitors.”²¹² The managers of corporations “are presumed to understand this and act accordingly,”²¹³ yet managers are human and are unlikely to make such economically rational decisions.²¹⁴ In particular, managers are likely to be influenced by the way their companies are performing relative to salient “target points.”

Through experimental research, analyses of real-world data, and interviews with managers, researchers have discovered that managerial decisionmaking often depends on how well a corporation is performing against some benchmark or “target point.” Namely, if a corporation has exceeded a salient benchmark, the managers charting that corporation’s short-term path are likely to make risk-averse decisions.²¹⁵ If, however, the corporation appears to be falling short of that benchmark, the managers are much more likely to make risk-seeking decisions.²¹⁶

Consider, for example, experiments conducted by Dan Laughhunn, John Payne, and Roy Crum.²¹⁷ These researchers asked five groups of managers to make a series of hypothetical risky decisions on behalf of themselves (i.e., “investing their own money in the chosen alternatives as

²¹¹ See, e.g., Donald C. Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Misdlead Stock Market Investors (and Cause Other Social Harms)*, 146 U. PA. L. REV. 101, 101–02 (1997).

²¹² *Id.* at 102.

²¹³ *Id.*

²¹⁴ Professor Henry Hu laments:

Managers in a typical, healthy, publicly held corporation should generally be risk averse, not risk-seeking, and in just the right, shrewdly determined fashion. There is some reason to believe, nonetheless, that corporate managers have the unfortunate tendency to be human in dealing with risk.

In particular, there is some evidence of behavior consistent with predictions of prospect theory.

Henry T.C. Hu, *Risk, Time, and Fiduciary Principles in Corporate Investment*, 38 U.C.L.A. L. REV. 277, 330–31 (1990). See generally Robert B. Thompson, *Devil’s Advocate*, 30 VAND. LAW. 25, 25 (2000) (explaining that the Corporations course in law schools is “really about people and core human emotions”).

²¹⁵ See, e.g., James G. March & Zur Shapira, *Managerial Perspectives on Risk and Risk Taking*, 33 MGMT. SCI. 1404, 1413 (1987) (“In general, if one is above a performance target, the primary focus is on avoiding actions that might place one below it. The dangers of falling below the target dominate attention; the opportunities for gain are less salient. This leads to relative risk aversion on the part of successful managers, particularly those who are barely above the target.”).

²¹⁶ *Id.* (“For decision makers who are, or expect to be, below the performance target, the desire to reach the target focuses attention in a way that leads generally to risk taking.”).

²¹⁷ Dan J. Laughhunn et al., *Managerial Risk Preferences for Below-Target Returns*, 26 MGMT. SCI. 1238, 1242 (1980).

well as receiving the profits and losses from them”²¹⁸) or their companies (i.e., “investing company resources in the chosen alternatives with the resulting profits and losses accruing to the company”).²¹⁹ The participating managers represented fifty-three different companies in the United States, Canada, and Europe and had anywhere from five to thirty-five years of experience at varying levels within their companies.²²⁰ With the exception of decisions involving losses that could potentially destroy their companies, the managers made overwhelmingly risk-seeking decisions when faced with below-target returns. “On an overall basis, 71% of the managers in the study exhibited this form of behavior,” the researchers explained.²²¹ “Furthermore, the observed pattern of risk preference for below target returns was not significantly altered by the diversity of background of the different business managers, by the context of the decision-making progress, or by the size of the losses involved.”²²²

In addition to this experimental work, researchers have analyzed real-world empirical data and found evidence of this target-point phenomenon. Avi Fiegenbaum and Howard Thomas, for instance, examined U.S. corporations from 1960 to 1979 and found evidence that firms’ decisionmaking is influenced by target points:

[T]he main contribution of this study is that it showed that, when a target ROE [return on equity] value is introduced at either the firm or industry level, risk and return are negatively correlated for below-target firms and positively correlated for above-target firms regardless of the period or the underlying environmental conditions. Those findings suggest, in line with the behavioral assumptions of prospect theory, that most firms may be risk seeking when they are suffering losses or are below targeted aspiration levels. Conversely, they will tend to be risk averse following achievement of aspirations and targets.²²³

Similarly, Edward Bowman performed content analyses²²⁴ of the annual reports issued by companies in three different industries²²⁵ and found that

²¹⁸ *Id.*

²¹⁹ *Id.*

²²⁰ *Id.* at 1241.

²²¹ *Id.* at 1247–48.

²²² *Id.* at 1248. For more work like this, see John W. Payne et al., *Further Tests of Aspiration Level Effects in Risky Choice Behavior*, 27 *MGMT. SCI.* 953 (1981); John W. Payne et al., *Translation of Gambles and Aspiration Level Effects in Risky Choice Behavior*, 26 *MGMT. SCI.* 1039 (1980).

²²³ Avi Fiegenbaum & Howard Thomas, *Attitudes Toward Risk and the Risk-Return Paradox: Prospect Theory Explanations*, 31 *ACAD. MGMT. J.* 85, 97 (1988).

²²⁴ Edward H. Bowman, *Risk Seeking by Troubled Firms*, 23 *SLOAN MGMT. REV.* 33, 37 (1982) (“Content analysis involves a systematic counting, coding, and classifying of various words or phrases from written reports for purposes of testing or explicating some underlying phenomena.”).

²²⁵ The study included eighty-two companies from the food processing industry, forty-six companies from the computer-peripheral industry, and twenty-seven companies from the container industry. *Id.* at 38–39.

“troubled companies take larger risks.”²²⁶

Finally, researchers have interviewed managers about their decision-making. Zur Shapira in one study,²²⁷ and Kenneth MacCrimmon and Donald Wehrung in another,²²⁸ found that managers believed their decisions were influenced by their standing vis-à-vis relevant target points. Summarizing the results of these interview studies, James March and Zur Shapira reported that:

Both the managers interviewed by Shapira and those interviewed by MacCrimmon and Wehrung (1986) believe that fewer risks should, and would, be taken when things are going well. They expect riskier choices to be made when an organization is “failing.” In short, risk taking is affected by the relation between current position and some critical reference points.²²⁹

Legal scholars have incorporated this “target point” insight into analyses of corporate law. In one article, for instance, James Cox argues that corporate managers are more likely to engage in misconduct when they or their companies appear to be shy of some target level of return.²³⁰ To illustrate, Cox describes a hypothetical manager who wants to meet her company’s target sales goal and obtain a \$50,000 bonus contingent on meeting that goal. Cox further imagines that the manager can meet that sales goal if she illegally colludes with a competitor to set prices. If she has met her sales goal, she will choose not to collude, but if it appears she will not meet her sales goal, prospect theory suggests she is more likely to “choose the risk-preferring choice to collude since it has the only outcome that satisfies her target point regardless of its potential accompanying sanctions.”²³¹

In another article, Jack Coffee uses the target point insight to analyze the impact that hostile takeovers had on corporate management during the early-to-mid 1980s.²³² Coffee observes that in the past “takeovers typically involved larger firms digesting smaller firms” to obtain “synergistic gains,”

²²⁶ *Id.* at 40; see also Edward H. Bowman, *A Risk/Return Paradox for Strategic Management*, 21 SLOAN MGMT. REV. 17 (1980).

²²⁷ March & Shapira, *supra* note 215, at 1407 (citing Zur Shapira, *Tisk in Managerial Decision Making* (1986) (unpublished manuscript, Hebrew University)).

²²⁸ KENNETH R. MACCRIMMON & DONALD A. WEHRUNG, *TAKING RISKS: THE MANAGEMENT OF UNCERTAINTY* 139–40, 173 (1986).

²²⁹ March & Shapira, *supra* note 215, at 1409.

²³⁰ James D. Cox, *Private Litigation and the Deterrence of Corporate Misconduct*, 60 LAW & CONTEMP. PROBS. 1, 5 (1997).

²³¹ *Id.* at 6; see also Painter, *supra* note 170, at 1416 (“[P]rospect theory is a powerful tool for predicting when managers of public companies are likely to illegally conceal material facts from investors and regulators, and also when lawyers are likely to help them do it. Prospect theory suggests that managers and lawyers who evaluate disclosure decisions in a loss frame, in which concealment offers the possibility of avoiding all or most of the threatened losses, are likely to be more risk preferring than managers and lawyers deciding whether to conceal information simply in order to increase gains.”).

²³² John C. Coffee, Jr., *Shareholders Versus Managers: The Strain in the Corporate Web*, 85 MICH. L. REV. 1, 64–66 (1986).

but that more recently, large corporations have found that they might be the potential targets of hostile takeovers.²³³ Managers of these large corporations, therefore, likely raised their target points to protect themselves from hostile bidders. Because their target points were higher, however, managers were likely to find themselves falling short of them. Thus, managers may have become systematically more risk-seeking because of the threat of hostile takeovers.²³⁴ In short, “a massive ‘preference reversal’—a shift in attitude from risk aversion to risk preference—may have occurred within senior corporate echelons” due to hostile takeovers.²³⁵

H. Securities Law

Recognizing that investing in securities is fraught with risk and uncertainty, cognitive psychologists and behavioral economists have raised formidable challenges to the long-dominant assumption that investors, investment managers, and brokers behave rationally.²³⁶ Recently, legal scholars have also begun to use cognitive psychology to analyze securities markets, securities disputes, and securities regulation.

Donald Langevoort uses prospect theory (along with other work drawn from behavioral economics, cognitive psychology, and social psychology) to analyze investor-broker disputes arising out of risky investments gone bad.²³⁷ According to Langevoort, the typical investor-broker dispute arises as follows: the investor claims to be the victim of “a greedy broker abusing [her] trust in pursuit of commission income,” and the broker defends herself on the ground that the investor chose “to take risks to satisfy a lust for wealth” and “now cannot accept responsibility” for her rational, but unfortunate, investment decisions.²³⁸ Although Langevoort concedes that some of these disputes do involve greedy, rationally self-interested brokers and investors, he contends that most investor-broker disputes are a product of irrationalities or “cognitive illusions” that lead investors and brokers to assume irresponsible levels of risk. He argues that his “more nuanced view” of investors and brokers will lead to “better strategies for regulating the brokerage industry *ex ante*.”²³⁹

Drawing on prospect theory, Langevoort contends that investors make risk-seeking choices in part because they often perceive themselves to be confronting prospective losses in the market.²⁴⁰ “An investor on a losing

²³³ *Id.* at 2.

²³⁴ *Id.*

²³⁵ *Id.* at 65–66.

²³⁶ See, e.g., RICHARD H. THALER, *QUASI RATIONAL ECONOMICS* 239–350 (1991) (exploring “quasi-rational” behavior in the financial markets).

²³⁷ Donald C. Langevoort, *Selling Hope, Selling Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers*, 84 CAL. L. REV. 627, 628–29 (1996).

²³⁸ *Id.* at 628.

²³⁹ *Id.* at 631.

²⁴⁰ *Id.* at 637–38.

streak, for instance, may well decide that greater risk is necessary” to eliminate her losses.²⁴¹ Likewise, “an investor with a long-term goal of even moderate financial security might view current investment choices in terms of a need not to fall short of that expectation—not to lose ground.”²⁴² Fear of the “erosive effects of inflation or diminishing returns” may induce “risk taking as necessary to perceive the status quo.”²⁴³ Even the “perception that significant others have recently generated more wealth in their investments, or are being offered and are likely to seize some tempting opportunity, can readily translate into fear of loss of status.”²⁴⁴ Indeed, as we have seen recently, “a person who has foregone investing in the early stages of what turns out to be a bull market for stocks, or who misses a salient run-up in the price of a stock is likely to feel substantial pressure to make up the difference.”²⁴⁵

Brokers, as salespeople, are likely to be skilled at manipulating investors’ risk-seeking tendencies in the face of loss.²⁴⁶ Moreover, brokers are likely to take opportunistic risks when they face loss as well. Consistent with prospect theory, Langevoort observes that “opportunistic risk-taking behavior will be restrained” as long as “the broker is even or ahead in his or her sales quota,” but “if the broker perceives a potential for loss or fears a failure to meet expectations, his or her willingness to take risks will increase.”²⁴⁷ Junior brokers are likely to perceive themselves to be in prospective loss situations because they are “subject to termination for failing to meet quotas.”²⁴⁸ While senior brokers have more job security, they “are likely to have much invested in their own sense of status.”²⁴⁹ In either event, Langevoort observes, brokers, like investors, are likely to take on too much risk when they face prospective losses.

Langevoort proposes that this “insight should inform the way in which law and regulation approach the sale of risky securities.”²⁵⁰ He observes that courts currently fall into two camps. “Protectionist” courts, which tend to assume that brokers are greedy and rationally self-interested, impose fiduciary or fiduciary-like duties upon brokers, often resulting in broker liability.²⁵¹ “Gamesman” courts, on the other hand, give the brokers more leeway in their dealings with investors because they expect that both brokers

²⁴¹ *Id.* at 638.

²⁴² *Id.*

²⁴³ *Id.*

²⁴⁴ *Id.*

²⁴⁵ *Id.* at 638–39. Langevoort observes that investment managers acting as agents for individual and institutional investors are also subject to what he calls “loss framing.” *Id.* at 643–44.

²⁴⁶ *Id.* at 656.

²⁴⁷ *Id.* at 662.

²⁴⁸ *Id.*

²⁴⁹ *Id.*

²⁵⁰ *Id.* at 669. For an application of his “more complicated story of joint responsibility” to some high-profile disputes, see *id.* at 667–68.

²⁵¹ *Id.* at 669.

and investors are savvy business people who know how to look out for themselves.²⁵² Langevoort proposes a middle ground approach based on his more nuanced understanding of the respective parties. According to Langevoort, brokers should be held to an “implied representation of fair dealing” standard akin to the “good faith and fair dealing” standard in contract law.²⁵³ Consistent with his proposed standard, Langevoort argues that brokers should be required to “disclose all significant risk factors going to the suitability and soundness of the recommended investment in a way that captures the attention of the competent investor.”²⁵⁴ This disclosure obligation, in turn, should protect investors from brokers inclined to take ill-considered risks.

I. Antitrust and Predatory Pricing

Economic analysis has long been applied to antitrust law,²⁵⁵ but “psychology, as the science of human behavior, has relevance to any aspect of antitrust analysis that involves assumptions with respect to human behavior, whether the assumptions relate to the behavior of humans as consumers or as managers of business enterprises.”²⁵⁶ Consider, for example, predatory pricing behavior, a topic that has long attracted the attention of antitrust scholars.

When a firm cuts its prices in an attempt to take market share away from competing firms, consumers benefit from the resulting lower prices on goods. “Price cutting is a classic, and a socially desirable, form of competition. Lower prices typically make more goods available to more people and thus result in greater overall benefits to society.”²⁵⁷ When a firm cuts its prices in an attempt to eliminate its competitors, however, consumers suffer because the price of goods will ultimately rise when competition is eliminated:

[P]rice cutting can be used by a dominant firm with superior staying power to drive its competitors out of business with the intention thereafter of using its market power to restrict output, raise prices, and recoup the losses sustained in the competitive battle and then to enjoy the fruits of monopoly profits in the future.²⁵⁸

The antitrust laws are designed to promote price cutting that facilitates

²⁵² *Id.*

²⁵³ *Id.* at 680.

²⁵⁴ *Id.* at 693; see also Robert B. Thompson, *Securities Regulation in an Electronic Age: The Impact of Cognitive Psychology*, 75 WASH. U. L.Q. 779, 782 (1997) (“What would securities regulation look like if framing and other heuristics were more clearly understood? I suppose it would be to require something like the Surgeon General’s warnings on cigarette ads: ‘Securities are often marketed to put you in a loss frame, emphasizing fear of missed opportunity, thereby increasing your tolerance for risk.’”).

²⁵⁵ See, e.g., ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (1978).

²⁵⁶ Harry S. Gerla, *The Psychology of Predatory Pricing: Why Predatory Pricing Pays*, 39 SW. L.J. 755, 779 (1985).

²⁵⁷ *Ortho Diagnostic Sys., Inc. v. Abbott Labs, Inc.*, 920 F. Supp. 455, 465 (S.D.N.Y. 1996).

²⁵⁸ *Id.* at 465–66.

competition, but to prevent price cutting that threatens competition.²⁵⁹ This latter form of price cutting is called “predatory pricing” or “predation.” Proponents of rational choice models of behavior have long argued that predatory pricing is rare because the risk-seeking behavior it requires is economically irrational.²⁶⁰ The rational choice account has been quite influential, shaping the legal doctrine in this area.²⁶¹ In *Matsushita Electric Industrial Co. v. Zenith Radio Corp.*, for example, the Supreme Court relied on this account when it observed that “there is a consensus among commentators that predatory pricing schemes are rarely tried, and even more rarely successful.”²⁶² In *Brooke Group v. Brown & Williamson Tobacco Corp.*, its most recent and “most important” predatory pricing decision, the Court reiterated this view and affirmed a lower court dismissal of plaintiff’s predatory pricing claims.²⁶³ Since the *Brooke Group* decision, “plaintiffs have not prevailed in a single [predatory pricing] case in the federal courts,”²⁶⁴ and researchers have found that defendants have won ninety percent of the cases on dismissals, summary judgments, and judgments notwithstanding the verdict.²⁶⁵

Because of their implicit, if not explicit, reliance on the rational choice theory account, courts seldom find firms liable for predatory pricing. None-

²⁵⁹ The Supreme Court reiterated in its most recent predatory pricing case that “the mechanism by which a firm engages in predatory pricing—lowering prices—is the same mechanism by which a firm stimulates competition; because ‘cutting prices in order to increase business often is the very essence of competition . . . [.] mistaken inferences . . . are especially costly, because they chill the very conduct the antitrust laws are designed to protect.’” *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 226 (1993) (citing *Cargill, Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104 (1986) (citing *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 594 (1986))). Antitrust provisions that prohibit predatory pricing include Section 2 of the Sherman Act, 15 U.S.C. § 2 (2000), and Section 2(a) of the Robinson-Patman Act, *Id.* § 13(a).

²⁶⁰ See BORK, *supra* note 255, at 155 (arguing “predatory price cutting is most unlikely to exist and that attempts to outlaw it are likely to harm consumers more than would abandoning the effort”); Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 699 (1975) (arguing that “[t]he prospects of an adequate future payoff . . . will seldom be sufficient to motivate predation. Indeed proven cases of predatory pricing have been extremely rare”); Frank Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 264 (1981) (arguing that predatory pricing is “unlikely to be profitable given the risks faced by the predator and the responses available to rivals”); Roland H. Koller II, *The Myth of Predatory Pricing: An Empirical Study*, 4 ANTITRUST L. & ECON. REV. 105, 105 (1971) (noting that “the standard theoretical analysis” treats predatory pricing “as a form of non-maximizing (irrational) behavior and thus as an unlikely occurrence in the real world”); John S. McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 J.L. & ECON. 137, 143 (1958) (“Whereas it is conceivable that someone might embark on a predatory program, I cannot see that it would pay him to do so . . .”).

²⁶¹ See, e.g., Patrick Bolton et al., *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L.J. 2239, 2241 (2000) (noting that the courts have continued to rely on the early rational choice theory models of predation in their decisions).

²⁶² 475 U.S. 574, 589 (1986).

²⁶³ 509 U.S. 209, 940 (1993).

²⁶⁴ Bolton et al., *supra* note 261, at 2258–59.

²⁶⁵ *Id.* at 2259.

theless, scholars have produced ample evidence demonstrating that predation occurs more commonly than rational choice theory and the courts suggest. Several scholars, for example, have conducted case studies documenting conduct consistent with predatory pricing.²⁶⁶ Two scholars in particular, Richard Zerbe and Donald Cooper, analyzed forty litigated cases from 1940 to 1982 and found evidence of predatory pricing in more than two-thirds of such cases.²⁶⁷ Still other scholars have argued that previous efforts to measure predatory pricing, like Zerbe and Cooper's, underestimate its occurrence because they focus solely on litigated cases, ignoring "extrajudicial outcomes" like settlement.²⁶⁸ If predatory pricing is economically irrational, why does it appear to occur with some frequency? Scholars have responded to this question in two ways. Some rational choice scholars have challenged the very premise of this question. Relying on "game theory" or "modern strategic theory,"²⁶⁹ these scholars have argued that predatory pricing is economically rational after all:

The new analysis explains predatory pricing in a dynamic world of imperfect and asymmetric information in which strategic conduct can be profitable. Under this analysis, the predator seeks to influence the expectations of an existing rival, a potential rival, or perhaps most striking of all, the prey's creditors, to convince the rival that continued competition or future entry into the market will be unprofitable.²⁷⁰

Other scholars have used prospect theory to explain predatory pricing behavior.²⁷¹ A prospect theory approach assumes that firms attempt to behave in an economically rational fashion but may fail to do so because of the way they frame the predatory pricing decision. Specifically, prospect theory predicts that a firm is more likely to engage in predatory pricing behavior when it believes it can avoid losses in market share than when it believes only that it can gain additional market share. Harry Gerla develops this argument in his 1985 article on the "psychology of predatory pricing."²⁷² Gerla argues that a firm's decision to adopt a predatory pricing strategy will depend upon whether it is: (1) a dominant firm facing eroding market share, (2) a dominant firm facing already-eroded market share, or (3) a rival firm seeking to capture market share.

²⁶⁶ See *id.* at 2246–47 (citing studies).

²⁶⁷ See Richard O. Zerbe, Jr. & Donald S. Cooper, *An Empirical and Theoretical Comparison of Alternative Predation Rules*, 61 TEX. L. REV. 655, 699–708 (1982); see also Richard O. Zerbe & Michael T. Mumford, *Does Predatory Pricing Exist? Economic Theory and the Courts After Brooke Group*, 41 ANTITRUST BULL. 949, 958 (1996).

²⁶⁸ Bolton et al., *supra* note 261, at 2246.

²⁶⁹ See generally *id.*

²⁷⁰ *Id.* at 2247.

²⁷¹ Gerla, *supra* note 256; see also Walter Adams & James W. Brock, *Predation, "Rationality," and Judicial Somnambulance*, 64 U. CIN. L. REV. 811, 866–67 (1996).

²⁷² Gerla, *supra* note 256.

In Gerla's first category, a dominant firm faces a deteriorating situation in which a rival firm is taking away its market share.²⁷³ Confronted with this situation, a dominant firm must "either continue to absorb the almost certain losses inflicted by the newcomer, or utilize the dominant firm's superior resources by engaging in a strategy of predatory pricing."²⁷⁴ Gerla contends that the dominant firm in this situation is likely to engage in predatory pricing to avoid the certain losses the rival will inflict upon it:

The only reasonable surmise is that managers of the dominant firm are apt to view the situation as a choice between a small but certain continuing loss and a risky option, predatory pricing, that provides the hope of avoiding loss altogether. In short, the managers are likely to view their situation as one involving potential losses rather than potential gains. In perceived loss situations people tend to be risk averse. The managers of the dominant firm, therefore, are likely to be psychologically predisposed toward taking the riskier option, which in this case offers the chance of avoiding loss completely. Thus, the managers may engage in predatory pricing even if such a course would not rationally maximize the firm's revenues.²⁷⁵

In Gerla's second category, a dominant firm has lost market share to a rival firm, but those losses have stabilized.²⁷⁶ In this situation, the dominant firm is likely to have adapted to its new status quo. As a consequence, predatory pricing, if successful, will appear to the dominant firm to promise gains in market share rather than losses. Thus, the dominant firm is unlikely to adopt a predatory pricing strategy:

[T]he managers of a dominant firm whose market share has stabilized will likely view predatory pricing as an opportunity for gain by wresting the newcomer's market share away from it, rather than an opportunity for avoiding loss. If the managers take this view, the psychological evidence suggests that they will tend to be risk averse to taking the risks incident to predatory pricing.²⁷⁷

Finally, in Gerla's third category, the rival firm contemplates predatory pricing to cut into the dominant firm's market share.²⁷⁸ In this instance, the rival firm is likely to be risk averse because it will perceive itself to be facing potential gains rather than potential losses:

When the managers of a firm seek initial domination of a market, they in all likelihood perceive their goal as a potential gain. Given that managers view market domination as a gain rather than an avoidance of a loss, the managers are apt to be risk averse in pursuit of market domination. Scholars who question the existence of predatory pricing are certainly correct with respect to one point: predatory pricing is a high-risk strategy. High-risk strategies are pre-

²⁷³ *Id.* at 761.

²⁷⁴ *Id.*

²⁷⁵ *Id.* at 762.

²⁷⁶ *Id.* at 763.

²⁷⁷ *Id.*

²⁷⁸ *Id.* at 765.

cisely the type of strategy to which people seeking gains are averse. Thus, the managers of a firm seeking new market domination are likely to avoid predatory pricing as a high-risk strategy in a potential gain situation.²⁷⁹

J. Summary

Prospect theory is a valuable tool for understanding law and legal behavior. As the foregoing analysis suggests, prospect theory sheds light on several doctrinal areas, from common law subjects like contracts and torts, to statutory and regulatory subjects like tax and securities regulation. Additionally, prospect theory can illuminate environmental law,²⁸⁰ voting behavior,²⁸¹ the legislative process,²⁸² international relations,²⁸³ the behavior of auditors,²⁸⁴ interpretations of jury instructions,²⁸⁵ lawyer-client relations,²⁸⁶ and, more generally, the evolution of law and legal rules.²⁸⁷ In any area where individuals must make decisions under uncertain conditions, prospect theory is likely to aid our understanding of their behavior and the legal regimes that should govern that behavior.

²⁷⁹ *Id.*

²⁸⁰ See Donald T. Hornstein, *Reclaiming Environmental Law: A Normative Critique of Comparative Risk Analysis*, 92 COLUM. L. REV. 562, 604–16 (1992) (applying prospect theory and other work from cognitive psychology to analyze the use of comparative risk analysis in environmental protection).

²⁸¹ See George A. Quattrone & Amos Tversky, *Contrasting Rational and Psychological Analyses of Political Choice*, 82 AM. POL. SCI. REV. 719, 724 (1988) (using prospect theory to describe voter behavior when deciding between an incumbent and a challenger).

²⁸² See Elizabeth Garrett, *Harnessing Politics: The Dynamics of Offset Requirements in the Tax Legislative Process*, 65 U. CHI. L. REV. 501, 524 (1998) (“[P]rospect theory suggests that groups will work harder to avoid a loss than to gain a benefit. Leaders of interest groups confirm this, reporting that they can more easily mobilize members to ward off an attack than to mount one.” (citing R. DOUGLAS ARNOLD, *THE LOGIC OF CONGRESSIONAL ACTION* 32 (1990))).

²⁸³ See, e.g., Jack Levy, *Prospect Theory, Rational Choice, and International Relations*, 41 INT’L. STUD. Q. 87 (1997) (a critical review of scholarly efforts to apply prospect theory to international relations).

²⁸⁴ See Robert A. Prentice, *The Case of the Irrational Auditor: A Behavioral Insight into Securities Fraud Litigation*, 95 NW. U. L. REV. 133, 156–57, 175 (2000).

²⁸⁵ Darryl K. Brown, *Regulating Decision Effects of Legally Sufficient Jury Instructions*, 73 S. CAL. L. REV. 1105, 1113 (2000).

²⁸⁶ See John M. A. Dipippa, *How Prospect Theory Can Improve Legal Counseling*, 24 U. ARK. LITTLE ROCK L. REV. 81, 114 (2001) (outlining “the basic findings of prospect theory and its implications for legal counseling,” which “suggest that lawyers should take a less ideological, more pragmatic approach to studying and teaching legal counseling”).

²⁸⁷ See, e.g., Anthony D’Amato, *Legal Uncertainty*, 71 CAL. L. REV. 1, 34–35 (1983) (“The mathematical theory of gambler’s risk, recently elaborated into ‘prospect theory,’ suggests that a person disadvantaged by the application of a legal rule has a greater incentive to avoid the rule than the person advantaged by it has to affirm its application. Whether at the planning stage, pre-trial, during litigation, or after trial, Jack [a hypothetical defendant] has a net incentive compared to Irma [a hypothetical plaintiff] that will translate into his spending more money than Irma with regard to the rule. As a result, over time, we can expect that any given initial probability of application of any rule will be downgraded by the greater investment in legal creativity to render that rule or its application more uncertain.”).

III. LIMITATIONS

Despite prospect theory's descriptive and prescriptive value, scholars have raised several important concerns about its use in legal analysis. Among other concerns, scholars have questioned the external validity or generalizability of the theory, the source(s) of reference points used in decisionmaking, the possibility of differences in individual decisionmaking, and the potential differences between individual and group decisionmakers.

A. *External Validity*

In contrast to rational choice theory, which presents an idealized account of decisionmaking, prospect theory is an empirical theory that purports to describe actual, not idealized, behavior. Nonetheless, critics question whether the empiricism on which it is based is "externally valid" or generalizable²⁸⁸ to the world outside the lab.²⁸⁹ Can prospect theory tell us anything about the way "real people" behave in the legal system? Critics typically worry about three external validity factors that may undermine the usefulness of prospect theory: the subjects who participate in the experiments, the lack of incentives they face, and the simplicity of experimental designs (versus the complexity of decisionmaking in the real world).²⁹⁰

1. *Experimental Subjects.*—Critics often contend that experimental work lacks external validity because the participants in studies are typically undergraduates (often enrolled in introductory Psychology classes). While undergraduates differ from other members of the population in terms of age, education level, and life experience, psychologists have found that they are often a fairly good proxy for "real people."²⁹¹ Indeed, expert decisionmakers often exhibit the same decisionmaking patterns as undergraduates.²⁹²

²⁸⁸ "External validity is a measure of how certain we are that a relationship observed in a controlled experiment will also be valid outside of the conditions of that experiment." ROBERT THOMAS MALESKE, FOUNDATIONS OF GATHERING AND INTERPRETING BEHAVIORAL DATA: AN INTRODUCTION TO STATISTICS 150 (1995).

²⁸⁹ See, e.g., Gerd Gigerenzer, *How To Make Cognitive Illusions Disappear: Beyond "Heuristics and Biases"*, 2 EUR. REV. SOC. PSYCHOL. 83 (1991).

²⁹⁰ For a broader critique of the legal literature's use of prospect theory and other cognitive phenomena to illuminate law and legal analysis, see Mitchell, *supra* note 6.

²⁹¹ PLOUS, *supra* note 15, at 258 (reporting that "several studies have found that experts display either roughly the same biases as college students or the same biases at somewhat reduced levels" (internal citations omitted)).

²⁹² See, e.g., Hal R. Arkes et al., *Eliminating the Hindsight Bias*, 73 J. APPLIED PSYCHOL. 305, 306-07 (1988) (demonstrating that psychologists commit the "hindsight bias"); Babcock et al., *supra* note 52, at 296-97 (finding that framing effects had similar effects on lawyers and nonlawyers); Craig R. Fox et al., *Options Traders Exhibit Subadditive Decision Weights*, 13 J. RISK & UNCERTAINTY 5, 16 (1996) (reporting that option traders use cognitive heuristics in their probabilistic reasoning); Guthrie et al., *supra* note 76 (demonstrating that judges fall prey to cognitive illusions of judgment); Gregory B. Northcraft & Margaret A. Neale, *Experts, Amateurs, and Real Estate: An Anchoring-and-Adjustment Perspective on Property Pricing Decisions*, 39 ORGANIZATIONAL BEHAV. & HUM. DECISION

Moreover, many of the participants in the prospect theory studies identified in this Article were not undergraduates, but rather individuals with expertise relevant to the domain being studied. For example, law students, lawyers, and federal magistrate judges participated in some of the litigation studies;²⁹³ licensed physicians participated in the medical treatment study;²⁹⁴ executive MBA students participated in some of the tax studies;²⁹⁵ and corporate managers participated in some of the managerial decision-making studies.²⁹⁶ This should allay some of the concerns critics have raised about the subjects participating in prospect theory studies.

2. *Incentives.*—When making decisions in the real world, individuals generally have incentives to “get it right.” Some critics suggest that real-world decisionmakers are thus more likely to behave “rationally” than participants in experimental studies. In fact, the evidence on the effects of incentives in experiments is decidedly mixed; “extrinsic incentives sometimes increase, sometimes decrease, and sometimes have no effect on decision quality.”²⁹⁷

Studies involving the use of incentives in prospect theory-based analyses suggest that incentives do not induce subjects to behave rationally when confronted with risky decisions. Based on a recent review of seventy-four studies comparing the behavior of subjects who received no incentives, “low” incentives, or “high” incentives, Colin Camerer and Robin Hogarth found that “[i]n the kinds of tasks economists are most interested in, like trading in markets, bargaining in games and *choosing among risky gambles*, the overwhelming finding is that increased incentives do not change average behavior substantively (although the variance of responses often decreases).”²⁹⁸

PROCESSES 84, 95–96 (1987) (reporting that real estate agents fall prey to “anchoring” when estimating real estate prices). *But see* Korobkin & Guthrie, *A New Look*, *supra* note 52 (finding that lawyers were less susceptible to cognitive biases than undergraduates playing the role of litigants); Michael J. Roszkowski & Glenn E. Snelbecker, *Effects of ‘Framing’ on Measures of Risk Tolerance: Financial Planners Are Not Immune*, 19 J. BEHAV. ECON. 237 (1990) (finding that financial services professionals are prone to framing effects, though perhaps less so when making decisions on behalf of others).

²⁹³ See *supra* Part II.A.

²⁹⁴ See *supra* Part II.B.3.

²⁹⁵ See *supra* Part II.F.

²⁹⁶ See *supra* Part II.G.

²⁹⁷ Dan N. Stone & David A. Ziebart, *A Model of Financial Incentive Effects in Decision Making*, 61 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 250, 250 (1995); *see also* Colin F. Camerer & Robin M. Hogarth, *The Effects of Financial Incentives in Experiments: A Review and Capital-Labor-Production Framework*, 19 J. RISK & UNCERTAINTY 7, 34 (1999) (finding, based on a review of selected studies, that “[t]he data show that incentives sometimes improve performance, but often don’t”).

²⁹⁸ Camerer & Hogarth, *supra* note 297, at 8 (emphasis added). Of those studies that do find a difference, most find that higher incentives induce greater risk aversion. *Id.* at 23. In many of these studies, however, “there is no normative standard for optimal behavior so one cannot pass judgment on whether incentives ‘improved’ performance *per se.*” *Id.*

3. *Experimental Environment.*—Critics also contend that it is inappropriate to draw inferences about the complicated world we inhabit based on responses to simple hypothetical problems presented in controlled settings. Indeed, experimental work in cognitive psychology is generally designed to isolate the effects of one particular phenomenon, like the framing of options, on one aspect of human behavior, like decisionmaking. The fact that psychologists (and others who do similar work) construct problems that are often quite simple does not mean, however, that these problems do not illuminate behavior in the real world.²⁹⁹

People are expected to consider multiple factors when making decisions in the real world, but framing effects are not necessarily trumped by these other factors. In fact, people may be more likely to rely on framing and other cognitive shortcuts when they are confronted with complicated rather than straightforward decisions.³⁰⁰ This possibility suggests that framing and other phenomena of this sort might have a greater impact on real-world decision making than on simplified laboratory decisionmaking. If so, the experimental work reported above might understate rather than overstate the actual impact framing has on decisionmaking.³⁰¹

Lending credence to the external validity of this experimental work is the fact that many of the prospect theory-based observations reported here have been confirmed by researchers studying real-world empirical evidence. For example, Rachlinski found evidence of framing in litigated cases;³⁰² analyses of tax-returns are consistent with the prospect-theory account of taxpayer compliance;³⁰³ several corporate law studies of real-world decisions corroborate the prospect-theory account of managerial decisionmaking;³⁰⁴ and studies of settlement rates after the adoption of comparative fault in Arkansas support the prospect-theory

²⁹⁹ See, e.g., David B. Wiseman & Irwin P. Levin, *Comparing Risky Decision Making Under Conditions of Real and Hypothetical Consequences*, 66 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 241, 243 (1996) (observing that “past research has largely supported the position that the decision a person makes under hypothetical circumstances is a reasonably valid predictor of the decision that person would make in the same context with real consequences”); see also *id.* at 248–49 (finding in their own studies that “subjects did not differ in their indicated preference . . . as a function of whether the consequence of their choice would or would not be incurred”).

³⁰⁰ JOHN W. PAYNE ET AL., *THE ADAPTIVE DECISION MAKER* 2 (1993) (observing that people often make more normative choices when making simple decisions, but “[w]hen faced with more complex choice problems involving many alternatives, people often adopt simplifying (heuristic) strategies that are much more selective in the use of information”). *But see* Mitchell, *supra* note 6, at 1963 (noting that in one study “simply adding pertinent social context information to standard framing-effect questions can greatly reduce or even eliminate framing effects”).

³⁰¹ *But see* Mitchell, *supra* note 6 (offering quite a different view).

³⁰² See *supra* Part II.A.1.a.

³⁰³ See *supra* Part II.F.

³⁰⁴ See *supra* Part II.G.

view of the relative advantages of comparative fault over contributory negligence.³⁰⁵

The aforementioned concerns about the external validity of prospect-theory analyses are certainly legitimate. Prospect-theory analyses typically rely on experimental work conducted in the lab with college students; extrapolating from such experimental results should be done with some care. Nonetheless, the available evidence suggests that external validity concerns about subjects, the incentives they face, and the laboratory context can be overstated.

B. Which Reference Point(s)?

Prospect theory posits that people evaluate decision options relative to a reference point and exhibit predictable risk preferences based on whether the options appear to them to be gains or losses. Thus, the reference point, whether it is the target return at which a corporation is aiming or the pre-lawsuit state of affairs for litigants, is critical to understanding decisionmaking. Indeed, as Kahneman and Tversky have observed, reference points are important not only in decisionmaking, but also in the processes of forming impressions and making judgments:

The dependence of impressions, judgments and responses on a point of reference is a ubiquitous psychological phenomenon. The same tub of tepid water may be felt as hot to one hand and cold to the other if the hands have been exposed to water of different temperatures. A given income may be considered lavish or inadequate depending on whether one's earnings have recently increased or decreased.³⁰⁶

Reference points are often suggested by the context, but some contexts are more suggestive than others. When one places a hand into a bucket of tepid water, for instance, one's assessment of its temperature will almost invariably be affected by the temperature of one's hand. This situation provides an obvious (and difficult to ignore) reference point. When assessing whether one's salary is "lavish or inadequate," however, one might compare it not only to one's prior salary, but also to one's expected salary, the salary that a coworker at a comparable level makes, the median income in the United States, or any of a number of other benchmarks.

With respect to legal decisionmaking, consider an ordinary civil case. Litigants appear inclined to assess the settlement versus trial decision relative to the current state of affairs, but there is nothing that prevents both litigants from assessing options relative to other reference points, such as

³⁰⁵ See *supra* Part II.B.2. For a more general treatment of the application of prospect theory to real-world decisionmaking, see Colin F. Camerer, *Prospect Theory in the Wild: Evidence from the Field*, in CHOICES, VALUES, AND FRAMES, *supra* note 11, at 288.

³⁰⁶ Kahneman & Tversky, *Preferences*, *supra* note 14, at 168.

their best-case scenarios at trial (e.g., for plaintiff, a big verdict; for defendant, a \$0 verdict) or their worst-case scenarios at trial (e.g., for plaintiff, a \$0 verdict; for defendant, a big plaintiff verdict). When the parties compare a settlement offer and the expected value of trial to their respective best-case scenarios at trial, the options appear to constitute prospective losses, suggesting that both parties might make the risk-seeking decision to continue litigation. In contrast, when comparing these options to their respective worst-case scenarios, both parties will perceive the options to represent prospective gains, suggesting that both parties might make the risk-averse choice to settle.

The bottom line is that reference points may appear fixed and immutable, but often they are not. Because some situations strongly suggest a reference point—for example, a corporation’s publicly announced “target return”—it is reasonable for legal analyses to assume these reference points will serve as a basis for decisionmaking. In other circumstances, however, people may assess decision options relative to multiple reference points. In those circumstances, legal analyses should either explain why one benchmark is more likely than another to serve as the relevant reference point or incorporate multiple reference points into their analyses.³⁰⁷

C. Individual Differences

Prospect theory purports to describe how individuals in general make risky decisions. Some evidence suggests, however, that there may be meaningful differences across different individuals.³⁰⁸ For example, some researchers have found measurable differences in risk preferences based on sex,³⁰⁹ cultural

³⁰⁷ As noted above, the status quo appears to be the natural reference point in many situations.

³⁰⁸ See generally Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not Be Traded for Behavioral Law and Economics' Equal Incompetence*, 91 GEO. L.J. (forthcoming 2003).

³⁰⁹ See, e.g., Vickie L. Bajtelsmit & Alexandra Bernasek, *Why Do Women Invest Differently Than Men?*, 7 FIN. COUNSELING & PLAN. 1, 4–5 (1996) (surveying the literature and finding “strong evidence that women allocate their portfolios differently than men and may differ in their attitudes toward risk taking,” but expressing uncertainty about whether this is a product of true individual differences, discrimination, or both); Philip Bromiley & Shawn P. Curley, *Individual Differences in Risk Taking*, in RISK-TAKING BEHAVIOR 87, 121 (J.F. Yates ed., 1992) (reporting that “[m]ost typically, though not universally, studies find males take greater risks [than females]”); James P. Byrnes et al., *Gender Differences in Risk Taking: A Meta-Analysis*, 125 PSYCHOL. BULL. 367, 377 (1999) (finding, based on a meta-analysis of risk-taking studies, that “[a]t a general level . . . male participants are more likely to take risks than female participants,” but that “a more qualified interpretation of our results is to say that gender differences varied according to context and age level”); N.S. Fagley & Paul M. Miller, *Framing Effects and Arenas of Choice: Your Money or Your Life?*, 71 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 355, 363–66 (1997) (finding a framing effect among women but not among men); Michael Siegrist et al., *Risk Preference Predictions and Gender Stereotypes*, 87 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 91, 99 (2002) (failing to find a statistically significant difference between the two genders, but concluding that “[m]en were more risk seeking than women” based in part on other studies).

background,³¹⁰ age,³¹¹ personality traits,³¹² and cognitive capacity.³¹³ When legal analyses focus on discrete populations—such as a study of the impact that a change in the social security law might have on the investing decisions of the elderly or the influence a modification in immigration law might have on the decisions of a particular immigrant group—they should take into account not only the general lessons of rational choice theory (i.e., desire to maximize gains) and prospect theory (i.e., risk aversion for gains and risk seeking for losses), but also the available empirical evidence on the decisionmaking propensities of the relevant population.

D. Individuals Versus Groups

Most of the empirical work upon which prospect theory is based stems from studies of individual decisionmaking,³¹⁴ yet individuals often combine with one another to make important decisions. In legal decisionmaking, for example, groups, rather than individuals, might be responsible for product

³¹⁰ See, e.g., Christopher K. Hsee & Elke U. Weber, *Cross-National Differences in Risk Preference and Lay Predictions*, 12 J. BEHAV. DECISION MAKING 165 (1999) (finding that Chinese subjects were statistically significantly more likely than American subjects to exhibit risk-seeking preferences in financial decisions but not in medical and academic decisions); Elke U. Weber & Christopher K. Hsee, *Cross-Cultural Differences in Risk Perception, But Cross-Cultural Similarities in Attitudes Toward Perceived Risk*, 44 MGMT. SCI. 1205 (1998) (finding that Chinese subjects were statistically significantly less risk averse than American subjects); Elke U. Weber et al., *What Folklore Tells Us About Risk and Risk Taking: Cross-Cultural Comparisons of American, German, and Chinese Proverbs*, 75 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 170 (1998) (reviewing proverbs from three countries and finding that Chinese and German proverbs provided more risk-seeking advice than American proverbs).

³¹¹ See, e.g., J. Frank Yates & Andrea L. Potalano, *Decision Making and Aging*, in PROCESSING OF MEDICAL INFORMATION IN AGING PATIENTS 31, 50 (1999) (“The literature on the possible connection between age and risk taking is perhaps surprisingly inconsistent. Some studies find the expected increase in risk aversion with age whereas others do not, with perhaps the consensus being consistent with the expectation [of greater risk aversion].”).

³¹² See, e.g., Irwin P. Levin et al., *A New Look at Framing Effects: Distribution of Effect Sizes, Individual Differences, and Independence of Types of Effects*, 88 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 411, 420–25 (2002) (finding a “large and statistically significant” framing effect in a risky choice problem and finding that certain “personal traits [as measured by the Big Five Personality Inventory and the Rational-Experiential Inventory] were predictive of the magnitude of the framing effects”).

³¹³ See generally Keith E. Stanovich & Richard F. West, *Individual Differences in Framing and Conjunction Effects*, 4 THINKING & REASONING 289, 295–99 (1998) (finding some evidence that subjects with higher SAT scores were less likely to be influenced by framing effects); Keith E. Stanovich & Richard F. West, *Individual Differences in Rational Thought*, 127 J. EXPERIMENTAL PSYCHOL.: GENERAL 161, 181 (1998) (examining subject performance on various decision tasks and finding that “many participants displayed the characteristic biases that have been observed in the literature,” but also finding “enormous individual variation on each of the tasks . . . and there were almost always a few participants whose performance was almost perfectly optimal from a normative point of view”).

³¹⁴ This is also true of most rational choice-based analyses of law. See, e.g., Stephen M. Bainbridge, *Why a Board? Group Decisionmaking in Corporate Governance*, 55 VAND. L. REV. 1, 2 (2002) (“Economic analysis tends to focus on the decisions of individuals. This emphasis likely stems from the underlying model of rational choice, which posits an autonomous individual who makes rational choices that maximize his satisfactions.”).

manufacturing and consumption decisions, investment decisions, decisions regarding corporate risk-taking, and civil litigation decisions (especially on the defense side). Given that prospect theory describes individual decisionmaking, is it appropriate for legal analyses purporting to describe and predict group decisionmaking to rely on the theory? In other words, do groups make decisions the same way individuals do?

Unfortunately, the experimental work on this question is muddled. Some of the work indicates that group risk preferences are akin to the preferences of the individuals in the group,³¹⁵ other work suggests that groups dampen individual risk preferences,³¹⁶ still other work suggests that groups magnify individual risk preferences.³¹⁷ Until psychologists generate sufficient experimental evidence to reach some conclusions about group decisionmaking, legal scholars should be wary of assuming that prospect theory captures the way groups behave in legal settings.³¹⁸ On the other hand, legal scholars should also be wary of assuming that groups make decisions *as groups*. Many groups, such as corporations, are hierarchical, and individual group members are often assigned responsibility for certain decisions. In circumstances where the relevant decisionmaker is likely to be an individual rather than the group, scholars can more comfortably rely on prospect theory's predictions about the "group" decision.

³¹⁵ See, e.g., John Bone et al., *Are Groups More (or Less) Consistent Than Individuals?*, 8 J. RISK & UNCERTAINTY 63 (1999) (finding that pairs make risky decisions much like individuals); R. Scott Tindale, Susan Sheffey & Leslie A. Scott, *Framing and Group Decision-Making: Do Cognitive Changes Parallel Preference Changes?*, 55 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 470 (1993) (finding that individuals become more risk-oriented if a majority of the group frames decision options as losses); Glen Whyte & Ariel S. Levi, *The Origins and Function of the Reference Point in Risky Group Decision Making: The Case of the Cuban Missile Crisis*, 7 J. BEHAV. DECISION MAKING 243 (1994) (concluding that American policymakers framed options in the Cuban Missile Crisis as losses and behaved consistent with prospect theory's predictions regarding risk-taking in the face of losses).

³¹⁶ See, e.g., Steven R. Elliot & Michael McKee, *Collective Risk Decisions in the Presence of Many Risks*, 48 KYKLOS 541 (1995) (providing evidence that larger groups made more economically rational decisions than individuals when the members had an opportunity to communicate with one another and a collective decision was required); Tatsuya Kameda & James H. Davis, *The Function of the Reference Point in Individual and Group Risk Decision Making*, 46 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 55 (1990) (finding that the majority in a group can influence risk preference of individual members).

³¹⁷ See, e.g., Timothy W. McGuire et al., *Group and Computer-Mediated Discussion Effects in Risk Decision Making*, 52 J. PERSONALITY & SOC. PSYCHOL. 917, 926 (1987) ("Although they did not do so as individuals, groups that met face-to-face made multiattribute investment choices that were risk averse for gains and risk seeking for losses [O]ur data suggest that tendencies predicted by prospect theory may be exacerbated in groups."); Paul W. Paese et al., *Framing Effects and Choice Shifts in Group Decision Making*, 56 ORGANIZATIONAL BEHAV. & HUMAN DECISION PROCESSES 149 (1993) (finding evidence in two of the four studies that individual framing effects become more pronounced in groups).

³¹⁸ See Mitchell, *supra* note 6, at 2005 ("[T]he question of whether group judgments and decisions tend to be more or less biased than individual judgments and decisions is enormously complex and defies a simple answer. Accordingly, legal decision theorists should refrain from simple conclusions about the similarity of group and individual decisionmaking processes and outcomes.").

CONCLUSION

Prospect theory's central insight is powerful: when making uncertain decisions, people are more likely to take risks to avoid losses than to accumulate gains. Legal scholars have used this insight to describe litigant, lawyer, and judge behavior; to question the limits of the "reasonable person" standard in tort law and the "bargain principle" in contract law; and to identify the conditions under which firms are more likely to adopt risky strategies and individuals are more likely to make risky investment decisions. Prospect theory's central insight, not unlike the central insight of rational choice theory, is a rather blunt tool of analysis. As such, it cannot explain the way all actors make decisions in all contexts.³¹⁹ Nonetheless, it represents a valuable refinement to the maximization assumption and should inform law teaching, legal scholarship, and policymaking.

³¹⁹ Anton Kuhberger conducted a meta-analysis of 136 studies of framing effects. Anton Kuhberger, *The Influence of Framing on Risky Decisions: A Meta-Analysis*, 75 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 23 (1998). Based on this review, Kuhberger "corroborated the framing effect," *id.* at 47, but found that the size of the effect across the studies was "small to moderate," *id.* at 42. In a separate meta-analysis of framing studies that mirrors Tversky and Kahneman's famous "Asian-disease problem," see Tversky & Kahneman, *Framing*, *supra* note 14, Kuhberger and his colleagues found "significant bidirectional framing effects" across the studies. Anton Kuhberger et al., *The Effects of Framing, Reflection, Probability, and Payoff on Risk Preference in Choice Tasks*, 78 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 204, 219 (1999) ("Presenting problems as gains leads participants to choose predominantly in a risk-averse manner (about 60% of all participants chose the sure gain and only 40% chose the risky gain). With losses, risk seeking predominates (about 40% of the participants chose the sure loss, while 60% chose the risky loss).").

