

6-1-2010

Punitive Damages in Securities Arbitration: An Empirical Study

Stephen Choi

New York University Law School

Theodore Eisenberg

Cornell Law School, ted-eisenberg@lawschool.cornell.edu

Follow this and additional works at: <http://scholarship.law.cornell.edu/facpub>

 Part of the [Dispute Resolution and Arbitration Commons](#), [Remedies Commons](#), and the [Securities Law Commons](#)

Recommended Citation

Choi, Stephen and Eisenberg, Theodore, "Punitive Damages in Securities Arbitration: An Empirical Study" (2010). *Cornell Law Faculty Publications*. Paper 391.

<http://scholarship.law.cornell.edu/facpub/391>

This Article is brought to you for free and open access by the Faculty Scholarship at Scholarship@Cornell Law: A Digital Repository. It has been accepted for inclusion in Cornell Law Faculty Publications by an authorized administrator of Scholarship@Cornell Law: A Digital Repository. For more information, please contact jmp8@cornell.edu.

Punitive Damages in Securities Arbitration: An Empirical Study

Stephen J. Choi and Theodore Eisenberg

This article provides the first empirical analysis of punitive damages in securities arbitrations. Using a data set of over 6,800 securities arbitration awards, we find that claimants prevailed in 48.9 percent of arbitrations and that 9.1 percent of those claimant victories included a punitive damages award. The existence of a punitive damages award was associated with claims that suggested egregious misbehavior and with claims that provided higher compensatory awards. The pattern of punitive awards is more consistent with a traditional view of punitive damages that incorporates a retributive component than with a law and economics emphasis on efficient deterrence. We also report evidence that the relation between punitive and compensatory awards did not differ substantially between the securities arbitrators' data and data on juries available from periodic Civil Justice Surveys by the Bureau of Justice Statistics.

1. INTRODUCTION

Supreme Court decisions in the 1980s upheld mandatory arbitration clauses for securities law claims contained in brokerage contracts (*Rodriguez de Quijas v. Shearson/American Express, Inc.*, 490 U.S. 477 [1989]; *Shearson/American Express v. McMahon*, 482 U.S. 220 [1987]). Mandatory arbitration of customers' securities claims is ubiquitous in the securities industry (Choi, Fisch, and Pritchard 2010) but has been

STEPHEN J. CHOI is the Murray and Kathleen Bring Professor of Law at New York University School of Law. THEODORE EISENBERG is the Henry Allen Mark Professor of Law and Adjunct Professor of Statistical Sciences at Cornell University. We thank Un Kyung Park; the participants at the Research Conference on Access to Civil Justice: Empirical Perspectives, sponsored by the Dwight D. Opperman Institute of Judicial Administration (New York University School of Law, November 2008); the participants at the Law and Society Association 2009 annual meeting panel and Herbert Kritzer, the panel commentator; and an anonymous referee for comments.

[*Journal of Legal Studies*, vol. 39 (June 2010)]

© 2010 by The University of Chicago. All rights reserved. 0047-2530/2010/3902-0015\$10.00

the subject of legislation to curtail or improve it.¹ The availability of punitive damages is a hotly contested issue in the securities arbitration debate. More than a decade ago, a blue-ribbon task force observed that no subject “has generated more controversy or so polarized opinion” between the securities industry and investors as punitive damages’ availability in arbitration (Arbitration Policy Task Force 1996, p. 10). This debate has occurred without empirical analysis of the frequency, amount, or pattern of punitive damages awards in securities arbitrations.

Understanding how arbitrators have actually performed will promote sound policy making with respect to the issue of punitive damages in arbitration awards. Findings that arbitrators rarely award punitive damages would contribute to securities arbitration’s perceived anti-investor bias, a matter of increasing discussion (Brunet and Johnson 2008; Choi, Fisch, and Pritchard 2010; Little 2008; Schultz 2008). If arbitrators in fact award punitive damages in a nontrivial fraction of cases, some of the most extreme fears about arbitrators’ anti-investor bias may be diminished. Describing how arbitrators perform also helps assess whether they apply punitive damages doctrine in a manner consistent with the doctrine’s traditional dichotomous purpose of punishment and deterrence or more in accord with law and economics theorists’ emphasis on pure deterrence. Studying punitive damages in an arbitration context can also promote understanding of the more general questions of the performance of arbitration compared to litigation and of the behavior of legal professionals compared to that of lay decision makers such as juries. These questions are especially important in light of the Supreme Court’s use in *Exxon Shipping Co. v. Baker* (128 S. Ct. 2605 [2008]) of the perceived variability of punitive awards by juries to support limits on punitive damages in litigation.

This article provides the first systematic, empirical analysis of punitive damages awards in arbitration. Using a data set of 6,803 securities arbitration awards, we find that claimants prevailed in 48.9 percent of arbitrations and that 304 (9.1 percent) of those claimant victories included a punitive damages award. The likelihood of punitive awards was associated with investor claims that suggested egregious broker misbehavior and with claims that provided high compensatory awards, more consistent with the traditional purpose of punitive damages than with

1. Pending bills in recent years include *Arbitration Fairness Act of 2007*, 110th Cong., 1st Sess. (July 12, 2007), and *Drive America Forward Act of 2009*, 110th Cong., 1st Sess. (April 17, 2007).

the law and economics approach. The Supreme Court's 1995 ruling in *Mastrobuono v. Shearson Lehman Hutton, Inc.* (514 U.S. 52 [1995]), which allowed securities arbitrators to award punitive damages notwithstanding New York's ban on punitive awards by arbitrators, was associated with an increase in the rate of punitive awards, but punitive award rates have declined in recent years. Punitive award amounts in our data set averaged \$447,000, with a median of \$110,000, and the amount of punitive damages was strongly associated with the size of the compensatory award. The pattern of punitive awards across types of claims is consistent with a substantial retributive component for punitive damages and less consistent with punitive damages as a vehicle to promote efficient deterrence. The relation between punitive and compensatory awards did not differ substantially between securities arbitrators in this study and juries in Bureau of Justice Statistics (BJS) data. The rate of punitive awards by arbitrators was higher than the overall rates of juries or judges and somewhat lower than the rates of punitive awards by juries in cases without bodily injury.

Section 2 of this article describes the expected pattern of punitive damages awards in light of leading conceptual frameworks related to their use, with separate consideration of the decision to award punitive damages and the level of punitive damages given a punitive damages award. It also reviews the relevant prior literature on punitive damages and securities arbitration. Section 3 reports the empirical results, and Section 4 discusses them, with special attention to the relation between punitive awards in arbitration and those in litigation. Section 5 concludes.

2. THE EXPECTED PATTERN OF PUNITIVE DAMAGE AWARDS

This section first sets forth relevant conceptual frameworks to motivate and interpret our results and then reviews the prior empirical literature on punitive damages and securities arbitrations. It then discusses several factors we expect to be associated with whether an arbitrator awarded punitive damages: the type of claim and the level of compensatory award, locale, and changes in governing law over time. The section then addresses these factors' relation to punitive awards.

2.1. Conceptual Frameworks Relevant to Punitive Damages

No single conceptual framework is the uniformly accepted basis for punitive damages. Sebok (2007, p. 960) traces the mixed bases for pu-

nitive damages to the fact that “the historical record in most complex common-law doctrines is underdeterminative since lines of cases contain conflicting patterns of decision.” Nevertheless, two conceptions of punitive damages relevant to this study can be articulated. One view, which we refer to as the traditional view, draws heavily on the existing state of punitive damages doctrine and regards punitive damages as appropriate both to punish and to deter wrongful behavior. For example, in the decades-long litigation growing out of the 1989 Exxon Valdez oil spill, the U.S. Supreme Court observed that the trial court had “instructed the jurors on the purposes of punitive damages, emphasizing that they were designed not to provide compensatory relief but to punish and deter the defendants” (128 S. Ct. 2614). This dual function of punitive damages dominates state law, is the black-letter-law justification for punitive damages’ existence, and, as in *Exxon*, is a common basis for explanations of punitive damages to juries.²

In the traditional view, punitive damages both serve the core deterrent function of tort law and incorporate a retributive component related to criminal law. The retributive aspect of punitive damages suggests that (1) more egregious misbehavior should be associated with a higher probability of a punitive award, and (2) greater harm should be associated with increased awards of punitive damages, independent of the egregiousness of misbehavior.

The first expected result under the traditional view is almost a tautology and does not seem open to serious question. The second result may be less self-evident. Criminal law almost uniformly punishes failed attempts less harshly (if at all) than it does completed attempts (Eisenberg et al. 1997, p. 628). Attempted murderers may be no less morally culpable than successful murderers, and in need of as much deterrence. Yet we punish attempted murders less harshly than successful murders, even to the extreme of allowing capital punishment in the latter case but not the former. Retribution is at work in the traditional view of punitive damages as well as in criminal law—justifying greater punitive damages where the compensatory level of harm is higher. Experimental evidence suggests that, controlling for the moral culpability of behavior, greater punitive damages are awarded when harm results than when it does not (Darley et al. 2010). Whether increased punishment for greater harm,

2. A typical jury instruction on punitive damages asks the jury to “award an amount which will serve to punish the defendant and to deter the defendant and others from similar conduct” (Illinois Supreme Court Committee on Jury Instructions in Civil Cases 2006, sec. 35.01, p. 175).

holding behavior constant, is normatively correct may be debated (Hart 1965, pp. 52–53; Schulhofer 1974, pp. 1601–3), but it is descriptively accurate as a component of what adjudicators, according to the traditional view, may do in assessing punitive damages. Retribution is part of the conceptual framework implemented by both punitive criminal law and punitive damages in civil law.

One test of whether a legal system implements the retributive aspect of punitive damages is whether a proxy for the egregiousness of misbehavior, the type of claim, is associated with the presence of a punitive award. Claim types, such as theft, reasonably believed to be more associated, on average, with more egregious misbehavior, ought to trigger punishment at a higher rate than claim types associated with less egregious misbehavior. A second test is whether adjudicators punish behavior more by awarding increasing punitive damages as the level of harm increases.

Another framework advocated for the function of punitive damages, prominent in the law and economics literature, limits the role of punitive damages to deterrence. For example, according to Polinsky and Shavell (1998), punitive damages outcomes should be related to the probability of detection of the wrongful act, as when defendants believe *ex ante* that wrongful conduct would not be detected. They argue that the “total damages imposed on an injurer should equal the harm multiplied by the reciprocal of the probability that the injurer will be found liable when he ought to be” (p. 889). This approach downplays the importance of the moral reprehensibility of the defendant’s conduct to determining the existence or amount of punitive damages.³ The probability-of-detection framework suggests that the total damages award should be inversely associated with the probability of detection. For any given level of harm, less need exists to deter behavior that has a high likelihood of detection. In the extreme, even highly egregious acts support no punitive damages if they are highly likely to be detected and are not done for the purpose of causing harm (Polinsky and Shavell 1998, p. 958). Under this view, for example, Polinsky and Shavell argue that the high probability of detection of the oil spill in the *Exxon* case warranted no punitive dam-

3. Polinsky and Shavell (1998, pp. 905–6) state, “Should reprehensibility *per se* affect the imposition of punitive damages given the goal of deterrence? In this section, we explain that it generally should not.”

ages at all, in contrast to the \$5 billion award by the jury and the \$500 million approved by the Supreme Court.⁴

Using observational data to distinguish between the traditional view and the law and economics view has limitations in part because the two views generate potentially overlapping hypotheses. The traditional view implies that punitive awards should increase with the egregiousness of the behavior and the size of the harm. But so possibly does the law and economics view. Holding the probability of detection constant, the law and economics view implies that the size of the total award should be positively correlated with the harm. If the amount of compensatory award is insufficient given the size of the harm, decision makers may use the punitive award to increase the total award consistent with the law and economics view. Although greater harm could correlate with an increased probability of detection, which implies a negative relation between the harm and the punitive award, it also is plausible that the primary effect—greater harm is associated with a larger punitive award—dominates under the law and economics view. With respect to egregiousness, it is plausible that more egregious harms or behavior generate relatively larger external costs. If so, then the law and economics view implies that the punitive award should be increasing with egregiousness as under the traditional view. While acknowledging the potentially overlapping aspects of the two views, we attempt below to distinguish between the views using our arbitration punitive award data set. Moreover, one should expect the traditional view to dominate observational data since guidelines for judges and juries tend to embody that view.⁵

2.2. Prior Empirical Literature on Punitive Damages and Securities Arbitrations

Virtually all empirical studies of punitive damages in court-based litigation find them to be infrequently awarded (Eaton, Mustard, and Talarico 2005; Eaton, Talarico, and Dunn 2000, p. 1094; Eisenberg et al.

4. Polinsky and Shavell (1998, p. 904) state, "It seems clear that in the circumstances of the Exxon Valdez accident, there was essentially no chance that the defendant company, Exxon Corporation, could escape liability. An accident of this magnitude obviously would have been noticed. Moreover, because the tanker was stuck on a reef, the identity of the injurer was plain. And given the substantial compensatory damages involved, in the hundreds of millions of dollars, a lawsuit certainly could be expected. Thus, according to our analysis, no punitive damages are needed, or appropriate, in the circumstances of this case because the injurer could not have escaped liability for compensatory damages."

5. Polinsky and Shavell recognize this reality because, notwithstanding their theoretical objections to a punishment rationale, they incorporate a punishment rationale for punitive damages in their model jury instructions (Polinsky and Shavell 1998, pp. 957–62).

1997, 2002; Vidmar and Rose 2001), with a rate of about 3–5 percent of plaintiff trial wins (see, for example, Eisenberg et al. 2006, p. 268), and to be more likely to be awarded in cases of intentional misbehavior (Eisenberg et al. 1997; Moller 1996). Evidence also suggests that judges and juries award punitive damages at about the same rate (Eisenberg et al. 2006) and that punitive awards are more frequent in cases of financial injury than in cases of personal injury (Moller, Pace, and Carroll 1999).⁶ Geographical variation in award patterns has been observed (Eisenberg et al. 1997).

With respect to punitive award amounts, it was once thought, even in liberal circles, that jurors pulled the amounts comprising punitive damages awards “out of the air” (*Washington Post* 1996, p. A16). Academics accepted this conventional wisdom (Cooter 1989, pp. 1145–46; Ellis 1982, pp. 55–60; 1989, pp. 975–76, 987–88; Huber 1989, p. 1037; Jeffries 1986; Wheeler 1989, pp. 940–41), and an Exxon-funded research program on punitive damages reinforced the view that punitive damages awards were too unpredictable (Hastie and Viscusi 1998, p. 916; Schkade, Sunstein, and Kahneman 2000, p. 1173; Sunstein, Kahneman, and Schkade 1998, p. 2078; Sunstein et al. 2002).⁷ Beginning in the 1990s, however, virtually every empirical study of court-based punitive damages has revealed a strong, statistically significant correlation between punitive and compensatory damages (Eisenberg et al. 1997, 2002, 2006; Eisenberg and Wells 1998, 1999; Karpoff and Lott 1999, p. 543; Moller, Pace, and Carroll 1999, p. 300; Schlanger 2003, p. 1605; Sharkey 2006). Even the largest punitive damages awards, those that were \$100 million or greater, showed a statistically significant association with the compensatory award (Eisenberg and Wells 2006). To the extent that the size of the compensatory award correlates with the degree of harm and egregiousness of the underlying wrongdoing, this correlation indicates that court-based punitive damages are not random but instead also correlate with harm and egregiousness (the traditional view).

Although studies of punitive awards in securities arbitration have not been conducted, two studies report findings suggesting that a 1998 reform of securities arbitration by the National Association of Securities Dealers (NASD, now known as the Financial Industry Regulatory Au-

6. Evidence also exists that juries award punitive damages more frequently than do judges in cases not involving bodily injury and that judges award punitive damages more frequently than do juries in cases involving bodily injury (Eisenberg et al. 2006).

7. But the Exxon-funded researchers did not attempt to reconcile experimental findings with real-world data about punitive damages (Eisenberg, Rachlinski, and Wells 2002).

thority, or FINRA) led to arbitration outcomes decreasingly favorable to contestants. Since November 1998, arbitrators have been chosen through a list selection system administered by the NASD director of dispute resolution, termed the neutral list selection system (NLSS).⁸ The 1998 reforms allowed both claimants and respondents in securities arbitration a degree of choice in selecting the arbitrators. Choi, Fisch, and Pritchard (2010) report that the 1998 reform's implementation of greater party involvement in the selection process is associated with reduced investor arbitration awards. They conclude that the reduction is inconsistent with the view that this reform assisted investor-claimants (and consistent with the view that increased choice favored repeat-player, brokerage firm respondents). Kondo (2009) found that the 1998 reforms resulted in more pro-brokerage-firm arbitrators, suggesting that party control over panel composition favored repeat players over one-shot claimants. Neither study focused on punitive damages, although their findings suggest the importance of sensitivity of results to changes over time in the regulatory framework governing securities arbitration.

Observers have also noted a trend toward claimants prevailing at a lower rate over time in securities arbitration proceedings. While claimants prevailed in 53–61 percent of awards from 1997 to 2002, they prevailed in only 43 percent of awards in 2005, 42 percent in 2006, and 37 percent in 2007 (Schultz 2008, p. 365). This decline is consistent with findings concerning selection of pro-brokerage-firm arbitrators (Choi, Fisch, and Pritchard 2010; Kondo 2009). Industry explanations for the decline have not been fully satisfactory (Schultz 2008, pp. 358–59). This raises the possibility that we might expect to observe a decline in punitive award rates or amounts in recent years.

Both the empirical securities arbitration literature and the punitive damages litigation literature tend to focus more on the traditional conceptual framework for punitive damages than on the law and economics probability-of-detection framework. We suspect this is because of difficulties in acquiring systematic data about the probability of detection. We discuss the possible implications of our findings for the law and economics approach.

8. The neutral list selection system (NLSS) went into effect on November 17, 1998. The NLSS was proposed by the National Association of Securities Dealers (NASD) Arbitration Policy Task Force as part of its 1996 report *Securities Arbitration Reform* and modeled after the list selection system used by the American Arbitration Association. The report also made controversial recommendations concerning the availability of punitive damages in arbitration awards (Arbitration Policy Task Force 1996).

2.3. The Decision to Award Punitive Damages

We focus on the claim type and the level of the compensatory award as factors to consider in exploring punitive damages in securities arbitrations. Since we have no case-level measures of the probability of detection, we use the claim type as a rough measure of the probability of detection when reporting our core results. Locale and changes in the legal environment regulating securities arbitrations are additional factors expected to be associated with patterns of punitive awards.

2.3.1. Claim Type and Compensatory Award Size. Arbitrators generally apply the punitive damages doctrine of the governing law specified in a contract (for example, *Thomson McKinnon Securities, Inc. v. Cucchiella*, 594 N.E.2d 870 [1992]).⁹ Punitive damages doctrine across the states, with reasonable consistency, requires egregious behavior to support an award, behavior beyond that present in most malfeasance (for example, Rustad 2008, p. 491). Independent of the state law governing a specific arbitration, investor claims associated with more egregious behavior should be more likely to be associated with a punitive award.

We conjecture that alleged malfeasance leading to client recovery in the context of securities disputes often will be run-of-the-mill overaggressive salesmanship or failure to comply with rules governing relations between customers and brokers, such as New York Stock Exchange (NYSE) and FINRA rules. For example, NYSE Rule 405(1) requires brokers to “[u]se due diligence to learn the essential facts relative to every customer” in order to know their customers financially to avoid recommending inappropriate investments; FINRA Rule 2310(a) states

9. As discussed below, that law is sometimes interpreted in light of the Federal Arbitration Act (FAA) to allow punitive damages under some circumstances not authorized by state law. See, for example, *Mastrobuono v. Shearson Lehman Hutton, Inc.* (514 U.S. 52, 59 [1995]), a New York case prohibiting punitive damages by arbitrators that did not preclude punitive damages in securities arbitrations subject to the FAA; *Bonar v. Dean Witter Reynolds, Inc.* (835 F.2d 1378 [11th Cir. 1988]), in which a choice-of-law provision in a securities contract governed by the FAA did not deprive arbitrators of the authority to award punitive damages; *Kelley v. Michaels* (830 F. Supp. 577 [N.D. Okla. 1993]), which held that punitive damages were available notwithstanding the New York choice of law; *Pyle v. Securities U.S.A., Inc.* (758 F. Supp. 638 [D. Colo. 1991]), which held that a Colorado arbitration law restricting an arbitrator’s power to award punitive damages was inapplicable to action governed by the FAA absent agreement between the parties that state law would govern; *Willoughby Roofing & Supply Co., Inc. v. Kajima Intern., Inc.* (598 F. Supp. 353, 359 [D. Ala. 1984]), which held that punitive damages were allowed under authority of the FAA under an agreement where Alabama law governed; and *Willis v. Shearson/American Express, Inc.* (569 F. Supp. 821 [M.D.N.C. 1983]).

that brokers' recommendations shall be based on "reasonable grounds for believing that the recommendation is suitable for such customer."

Most wrong-doing brokers are likely insufficiently competent, too eager to generate commissions by trading but lacking venal motives, or insufficiently attentive to diligence rules such as NYSE Rule 405 or FINRA Rule 2310. In contrast, the kind of egregious or intentional misbehavior warranting a punitive award under the traditional view should be fairly rare, even in cases in which clients recover. In this respect, we expect that the frequency of arbitration punitive awards will resemble that of tort litigation punitive awards. As noted elsewhere, the traditional view of the nature and purpose of punitive damages suggests they will be rarely awarded in most arbitration case categories but more frequently awarded in cases of intentional misbehavior (Eisenberg et al. 1997, p. 626).

Not all cases of broker misbehavior that could support a punitive award will necessarily lead to an award. The compensatory award given in arbitration already vindicates the claimant and adversely labels the wrongdoer. It is not necessary or required to find the enhanced misbehavior that would be needed to support a punitive award. Given adequate compensation, the further step of a punitive award should be reserved only for egregious cases because an arbitrator's punitive award, like punitive damages from a judge or jury, punishes without criminal procedural safeguards. We therefore expect arbitrators, like jurors (Eisenberg et al. 1997, p. 626), to err on the side of false negatives rather than false positives. We expect that an arbitrator who has already ruled against a broker should be more willing to err on the side of not imposing punitive damages when they might be warranted than on the side of imposing punitive damages when they are not warranted. Legislatures or courts that supply legal standards for litigation and arbitration often require greater certainty by demanding "clear and convincing" evidence to support a punitive award (Dobbs 1989, p. 837).

Under the traditional view of punitive damages, against a background of general reluctance to award punitive damages, the nature of an investor's claim against a broker should correlate with whether the alleged behavior might support a punitive damages award. For example, brokers who have stolen funds from clients should be more likely to suffer punitive awards than brokers who merely negligently failed to execute client orders, failed to timely rebalance a portfolio, or committed a technical rule violation. A finding adverse to the broker in the case of theft suggests the presence of the kind of willful behavior that would

support a punitive award. While failures to execute transactions can become so egregious as to warrant punitive awards, the failure to execute a transaction, standing alone, normally would not support an inference of egregious or willful misbehavior. The nature of an investor's claim is thus one proxy for the degree of misbehavior.

The claim type can also serve as a proxy for the probability of detection of a wrongful act. As discussed above, varying the probability of detection has implications for the law and economics framework for evaluating punitive damages. And some of the implications differ from the implications of claim type for the traditional view. For example, we assume the probability of detection of theft to be higher than the probability of detection of less objective wrongs. Misbehavior limited to failure to follow regulatory rules, for example, is likely more subtle and less readily detectable than theft. In contrast with the traditional view, and holding other factors constant, the law and economics approach would lead to a higher probability of punitive damages for a failure to follow regulatory rules (which has a low probability of detection) than for theft (which has a higher probability of detection), for the same level of harm.

The amount of harm (as measured by the compensatory damages), under the traditional view, should also be positively associated with the likelihood of a punitive award. Both the traditional view of punitive damages and many prior empirical studies of court-based punitive damages in litigation lead us to hypothesize that the likelihood of arbitrators' punitive damages awards will be associated with the size of the compensatory award (Eisenberg et al. 2010).¹⁰ Under the traditional view, awards of punitive damages ought to reflect the "harm caused, the egregiousness of the misbehavior, and the amount needed to accomplish the goals of punishment or deterrence" (Eisenberg et al. 1997, p. 628).

Holding the egregiousness of behavior constant, the law tends to punish more harmful acts more harshly than less harmful acts. For example, if the same Exxon Valdez that ran aground and caused billions

10. The causal relationship between the compensatory award and the punitive award is potentially complicated. Unobservable factors that indicate egregious, intentional conduct could lead directly to both higher compensatory awards and punitive damages. Alternatively, egregious conduct may lead to a larger compensatory award. The larger compensatory award, in turn, may give arbitrators greater leeway to award punitive damages (for example, who would question a punitive award against someone who was already judged a wrongdoer and made to pay a large compensatory award?). In each of these possible causal chains, more egregious conduct nonetheless will correlate with both greater compensatory awards and an increased likelihood of punitive awards.

of dollars of damage had been piloted by the same drunk captain but instead had run aground and spilled 1 quart of oil, causing mere hundreds of dollars of damage, the punitive award would not have been \$5 billion (eventually reduced to \$500 million).¹¹ Even intentional acts generally receive less punishment if they cause less harm. Criminal law punishes attempts less harshly than completed wrongful acts.¹²

The expected observed relation between punitive and compensatory awards under the law and economics approach is less clear. Direct evidence of a key characteristic under the law and economics approach—the probability of detection—is usually unavailable. The size of the harm, as measured by the compensatory award, may be associated with an increased probability of detection. It seems plausible that greater harm is more likely to be detected than less harm. A broker who steals \$1 per month from a client is less likely to be caught than a broker who steals \$1,000 per month from a similar client. This suggests that we might expect, within a claim type, an inverse association between the probability of a punitive award and the size of the compensatory award. But, as noted above, greater harm and increased egregiousness may also be associated with a larger punitive award under the law and economics view. So the association of increased harm with reduced punitive awards through a reduced probability of detection may be offset by its positive association with punitive awards through its direct effect on the size of the appropriate total award.

2.3.2. Geographical Variation. We hypothesize that the state in which the arbitration occurred is associated with the existence or size of punitive damages in arbitrations for three reasons. First, broker-customer contracts can specify a reasonable choice of law,¹³ which provides the rules at least partly governing punitive damages. Second, states may serve as a proxy for uncoded practices that shape legal outcomes. Third,

11. The award was reduced en route to the Supreme Court by lower courts and by the Supreme Court to \$500 million in *Exxon Shipping Co. v. Baker*, 128 S. Ct. 2605 (2008).

12. Using the level of harm to assess punitive damages can be distinguished from using the harm to determine compensatory damages. Compensatory damages are the measure of harm. Punitive damages can use this measure to assess the degree of punishment or deterrence needed. See Eisenberg et al. (1997, p. 628).

13. For examples of contracts specifying that New York law shall govern in disputes resolved in other states, see *Kelley v. Michaels* (830 F. Supp. 577 [N.D. Okla. 1993]), and *Thomson McKimmon Securities, Inc. v. Cucchiella* (594 N.E.2d 870 [1992]), a securities arbitration with New York choice of law in which punitive damages were not allowed.

states' distinctive socioeconomic characteristics may be associated with the granting of punitive awards and their amounts.

As noted above, prior studies of court-based punitive awards also suggest geographical variation (for example, Eisenberg et al. 1997, pp. 630–32). Such variation is of course not unique to punitive damages. Geographical variation in legal case outcomes, whether or not involving punitive damages, is the norm (Eisenberg et al. 1997, pp. 630–32). Even within a single legal subject area, such as this study's focus solely on securities issues, geographical variation emerges. For example, the outcomes of federal securities cases and federal civil rights trials, the rate at which bankruptcies are filed, the mode of bankruptcy filing, and the outcome of bankruptcy cases show strong geographical effects despite their shared substantive areas and presumably shared governing federal legal rules (see, for example, Eisenberg et al. 1997; Eisenberg 1989; Pritchard and Sale 2005; Sullivan, Warren, and Westbrook 1989, 1994). Geographical variation in adjudicated outcomes is not limited to the United States. Countries with more homogeneous populations, with unified legal systems, such as Japan, Sweden, and Finland, exhibit geographical variation in the patterns of legal case outcomes (Eisenberg 1995; Eisenberg and Tagashira 1994; Sundgren 1998).

2.3.3. Time and Law Reforms. The data analyzed here span 15 years. Aside from general legal developments over time, the date of an arbitration award might be expected to be associated with several developments. Since New York often is the choice of law in finance contracts and in broker-customer agreements,¹⁴ developments in New York law are directly relevant to the expected rate of arbitration punitive awards.

In 1976, in *Garrity v. Lyle Stuart, Inc.* (40 N.Y.2d 354, 356 [1976]), the New York Court of Appeals held that, as a matter of public policy, judges may award punitive damages but arbitrators may not. Although subsequent decisions partly eroded *Garrity*,¹⁵ it was still exercising important influence at the time of the earliest awards in this study. The United States Court of Appeals for the Second Circuit held in 1991, just before the earliest awards in our data, that the public policy expressed

14. See, for example, *Kelley v. Michaels* (830 F. Supp. 577 [N.D. Okla. 1993]), which held that punitive damages were available in an Oklahoma case notwithstanding New York choice of law, and *Thomson McKinnon Securities, Inc. v. Cucchiella* (594 N.E.2d 870 [1992]), a securities arbitration with New York choice of law in which punitive damages were not allowed.

15. See note 20.

in *Garrity* against punitive damages in arbitration was not preempted by the FAA (*Fabnestock & Co., Inc. v. Waltman*, 935 F.2d 512, 518 [2d Cir. 1991]). Securities industry defendants relied on *Garrity* to challenge punitive damages awards, and one such case reached the Supreme Court. On March 7, 1995, the Supreme Court held, in *Mastrobuono*, that New York's prohibition on punitive damages by arbitrators did not preclude punitive damages in securities arbitrations subject to the FAA. The contract in *Mastrobuono* contained an arbitration clause in which the parties agreed to mandatory arbitration of all disputes under NASD rules that had been held to permit arbitrators to award punitive damages (514 U.S. 58–61). The Court held that “if contracting parties agree to include claims for punitive damages within the issues to be arbitrated, the FAA ensures that their agreement will be enforced according to its terms even if a rule of state law would otherwise exclude such claims from arbitration” (514 U.S. 58).

Although *Mastrobuono* might have permitted changes to the NASD rules to preclude punitive damages, the securities industry did not follow that route. In January 1996, less than a year after *Mastrobuono*, the NASD's Arbitration Policy Task Force (1996, p. 2) noted the controversy over punitive damages and recommended that they remain available subject to a cap in the state of the investor's domicile to the same extent they would be available in court for the same claims. The NASD rules did not prohibit punitive damages, and the proposed caps have not been approved by the Securities and Exchange Commission. The Securities Industry Conference on Arbitration (2007, p. 31) continues to indicate that punitive damages may be awarded in arbitration.

Mastrobuono's undermining of *Garrity* suggests that the rate of punitive awards may have increased after *Mastrobuono*, with some question about whether arbitrators would have applied it to contracts entered into prior to the decision. At least one New York federal court found *Mastrobuono* to apply retroactively (*Kidder, Peabody & Co., Inc. v. Marriner*, 961 F. Supp. 50, 55 n.6 [S.D.N.Y. 1997]), although whether it was universally construed by arbitrators to apply to contracts entered into prior to March 7, 1995, is not known. Even after *Mastrobuono*, a New York court continued to prohibit punitive awards in securities arbitration under some circumstances (*Dean Witter Reynolds, Inc. v. Trimble*, 631 N.Y.S.2d 215, 217–18 [N.Y. Sup. Ct. June 13, 1995]).¹⁶ Despite

16. *Dean Witter Reynolds, Inc.*, distinguished *Mastrobuono* on the ground that it had a written contract. But see *Matter of Prudential Securities Inc. (Pesce)*, 642 N.Y.S.2d 466, 468 (N.Y. Sup. Ct. 1996) (distinguishing *Dean Witter Reynolds, Inc.*).

possible delays and inconsistency in *Mastrobuono*'s implementation, the decision likely increased the rate of punitive damages awards in securities arbitrations, a topic we explore in Section 3.

Since many brokerage contracts outside of New York select New York law, fully isolating the effect of *Mastrobuono* is not possible because we lack the choice-of-law provisions applicable to each of the arbitrations in our sample. We can, however, use arbitrations whose hearings took place in New York as a proxy for the presence of a New York choice-of-law provision. We can then assess whether the rate of punitive awards changed in New York disputes relative to other disputes around the time of *Mastrobuono*.

In addition to *Mastrobuono*'s direct effect on the availability of punitive awards, two reforms of the FINRA arbitration system, not specific to punitive damages, might be expected to generate changes over time in punitive damages award rates. Reforms adopted in 1998 and 2004 by the NASD were intended to promote fairness in the face of criticism of the arbitration process. As discussed above, the 1998 reforms shifted the selection of arbitrators from the NASD to the parties. The 2004 reforms narrowed the definition of a public arbitrator by excluding those with a broader range of personal and professional ties to the securities industry. One might therefore expect increased punitive award activity after those reforms. *Mastrobuono* and the FINRA reforms establish the importance of accounting for effects over time in assessing the pattern of punitive awards in securities arbitration.

3. EMPIRICAL ANALYSIS

3.1. Data Description

Virtually all brokerage customer agreements contain a clause requiring disputes between the customer and the broker to be submitted to arbitration. The vast majority of these arbitrations take place in a forum administered by FINRA. During the period studied here, FINRA or its predecessor, NASD, handled approximately 90 percent of customer claims against brokers (the remaining 10 percent were handled by the NYSE). The number of claims filed per year fluctuates, averaging 5,000 to 6,000 cases and peaking at almost 9,000 in 2003. Since 1996, NASD/FINRA has handled approximately 70,000 claims. The FINRA arbitrations involving requested awards of \$50,000 or more are decided by panels of three arbitrators: one industry arbitrator and two public ar-

Table 1. Arbitration Awards, 1992–2006

	Mean	Median	N
Punitive award	446,725	109,844	304
Compensatory award	156,077	43,653	3,329
Compensatory award in cases with punitive award	410,707	113,130	304

Note. The data consist of 6,803 Financial Industry Regulatory Authority/National Association of Securities Dealers awards decided by 418 arbitrators. Mean and median values are in inflation-adjusted 2007 dollars.

arbitrators. These are chosen from a pool of almost 7,000 available arbitrators of whom approximately 58 percent are public arbitrators and 42 percent are industry arbitrators.

The arbitration awards studied here come from the FINRA awards Web site¹⁷ and from the LexisNexis database. For a research project concerning the influence of arbitrators on awards, Choi, Fisch, and Pritchard (2010) generated a random sample of 422 arbitrators who adjudicated disputes that resulted in awards from 1998 to 2000. For each of the 422 arbitrators, information was coded for awards involving an investor-claimant from November 1, 1992, to December 31, 2006. Choi, Fisch, and Pritchard identified the chair in each arbitration award and focused on chairs to select those arbitrators who were more likely to have influence over arbitrations. All of the selected arbitrators retained in the sample were public arbitrators and not the industry representatives on the panels. We also eliminated disputes in which data about either the compensatory or the punitive award were missing. This sample yielded 6,803 awards suitable for analysis in this study. In the sample, 82.2 percent of the public arbitrators were attorneys.

Of the 6,803 awards, 3,329 resulted in a compensatory award to the investor-claimant, a claimant victory rate of 48.9 percent. These 3,329 awards included 304 disputes (9.1 percent) with a punitive award. The arbitrators averaged about 16 awards each. The state in which awards were made was missing for 1,041 of the 6,803 cases (15.3 percent). For an arbitrator for whom available data showed arbitrations in only one state, that state was imputed to be the state of arbitration for other awards by that arbitrator. This reduced the number of observations with missing state data to 456 (6.7 percent). Table 1 provides summary sta-

17. See FINRA Arbitration Awards Online (<http://finraawardsonline.finra.org>).

tistics. Note that compensatory awards in cases with punitive awards were substantially higher than those in the mass of claimant victories.

3.2. Methodology

Our methodology in analyzing the data is largely straightforward given our primarily quantitative interests, but discussion of the regression techniques used after we report the more descriptive statistics may be helpful. The empirical literature and case law on punitive damages have been dominated by two questions: (1) What is the likelihood of a punitive award? and (2) Conditional on the existence of a compensatory award and a punitive award, what is the relation between the two awards? The former question has been the subject of policy interest, with a special emphasis on the difference, if any, in punitive damages award rates between juries and judges (see, for example, Hersch and Viscusi 2004). The latter question has repeatedly risen to the level of federal constitutional concern (for example, *BMW v. Gore*, 517 U.S. 559 [1996]). To promote comparability of our arbitration results with prior litigation results, we use regression techniques that focus on these two questions: logistic regression to model the decision to award punitive damages and ordinary least squares (OLS) regression and robust regression to model the level of punitive damages given a compensatory award. We support the possible causal inference for the logistic model using a separate propensity score analysis and the robustness of the results using a Tobit model.

If the research question of primary concern were the expected amount of punitive awards, not conditioned on a claimant having received a compensatory award, selection models (Heckman 1979) or, more likely, two-part models (for example, Dow and Norton 2003; Eisenberg, Wells, and Zhang 2009) might be appropriate, but the choice of appropriate models in the presence of many zero values is not always clear (Buntin and Zaslavsky 2004). Selection models have severe limitations given the available data.¹⁸ Since our interest, in light of the literature and doctrine

18. In this context, selection models that would first model the decision to award punitive damages and then, for arbitration awards with positive punitive awards, model the level of the award are also possibly relevant. Successful use of these models depends in part on having available different covariates for the selection equation than those used in the level equation. Otherwise, the regressors in the selection equation and the inverse Mills ratio used in selection models (as a function of the regressors in the level equation) can generate severe multicollinearity problems (Leung and Yu 1996). The availability of different covariate structures is unlikely here since the covariates that likely explain whether a punitive award is obtained, such as claim type and amount of harm, also may explain the level of

on punitive damages reviewed above, is not the unconditional expected amount of punitive awards, we do not address the methodological issues raised by estimating that amount.

3.3. Results: The Decision to Award Punitive Damages

We first focus on the likelihood of a punitive damages award. Table 2 reports the rate at which punitive damages were awarded in arbitrations in which the claimant received a compensatory award. Since disputes can involve more than one claim, overlap exists across the types of claims made. The percentages of arbitration claim victories are based on the subset of 3,329 cases in which the claimant received a compensatory award. Thus, for example, the first row shows that claimants won 48.9 percent of disputes that included a claim of suitability and the like, that punitive damages were awarded in 9.9 percent of these successful claims, and that this rate of punitive awards differed from the rate of punitive awards in cases not involving a suitability claim at a significance level of $p = .15$.

Table 2 shows substantial variation in punitive award rates by type of claim. Punitive damages were awarded at the highest rate, about 18 percent, in the small subset of cases that alleged theft and the like. Punitive damages were awarded at the lowest rate in cases involving failures to execute or monitor the account. Both of these rates statistically significantly differ from the rate at which punitive damages were awarded in disputes that did not include these claims.

The rate of punitive awards largely conforms to the traditional view's expected pattern of more wrongful behavior being associated with a higher rate of punitive awards. The claim types with the highest rate of punitive damage awards, theft and unauthorized trades, involve affirmative acts of misbehavior. The claim type with the lowest rate of punitive awards involves failures to act or to monitor errors—no intentional misbehavior need be established to prevail on these claims. The claim type with the second lowest rate of punitive awards (suitability, know your customer, NYSE Rule 405, or NASD Rule 2310) likely involves a higher rate of mere negligent behavior than the two claim types with higher rates of punitive awards. The other two claim types likely

positive punitive awards. Selection models' utility in the present context is also limited because they assume an unobserved latent outcome for observations that lack a positive selection equation outcome. The arbitration data have some nonlatent zero awards of punitive damages; the punitive award is not necessarily unobserved because of selection. It is sometimes observed and is equal to zero.

Table 2. Rate of Arbitrators' Punitive Damage Awards by Claim Type, 1992-2006

Claim Type	Punitive Awards		Arbitration Claims	
	Claimant Victories (%)	Difference from Other Claim Types (P)	Claimant Victories (%)	Successful Claims (N)
Suitability, know your customer, NYSE Rule 405, or NASD Rule 2310	9.9	.15	48.9	1,652
Churning, excessive trading, or excessive commission	11.0	.06	56.8	663
Unauthorized trades or transactions	11.9	< .001	58.3	974
Failure to execute transaction, failure to monitor account, improperly executed transaction, errors in the account	4.9	< .001	49.8	617
Misrepresentation, fraud to customer, Rule 10b-5 federal securities law violation, failure to disclose, common-law fraud, or deceptive sales tactics	11.2	< .001	50.5	2,330
Theft, conversion, unauthorized withdrawals, or self-dealing	17.7	< .001	58.0	170
Total	9.1		48.9	

Note. The data consist of 6,803 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations decided by 418 arbitrators, which resulted in 3,329 awards of compensatory damages and 304 awards of punitive damages to claimants. Significance levels are computed using chi-squared tests of the hypothesis that claimant victories with the presence of a claim type have the same rate of punitive awards as victories without the presence of that claim type. NYSE = New York Stock Exchange; NASD = National Association of Securities Dealers.

include behavior where there is disagreement about what happened or why it happened and present less clear instances of cases suitable or unsuitable for punitive awards.

We cannot exclude the possibility that the pattern of punitive awards by claim type is also consistent with the law and economics view that the decision to award punitive damages should be inversely associated with the probability of detection. Nonetheless, the law and economics framework draws only mixed support from the claim-type data. Claims involving theft seem highly likely to be detected, which suggests that punitive awards are less necessary to deter such behavior and should be awarded at relatively low rates. Yet Table 2 shows a relatively high rate of punitive awards for theft claims. On the other hand, failure to execute a trade would seem to involve a high probability of detection, and, consistent with the law and economics view, there is a low rate of punitive awards for such claims. Churning claims, which might be expected to be more difficult to detect than theft or failure-to-execute claims, provide no clear direction, as their rate of punitive damages is not materially different from that of claims as a whole.

Table 3 reports the pattern of awards by state. For ease of presentation, we aggregate states with fewer than 100 awards into a residual category, "other." Together, New York and California account for more than one-third, almost 2,500, of the awards. Only one other state, Florida, accounts for more than 10 percent of the sample. With the exception of Michigan, all states have a claimant victory rate (via a positive award) ranging from 45.1 percent to 53.1 percent. Excluding Michigan, the difference in claimant victory rates across all states combined is not statistically significant ($\chi^2[15] = 19.27$; $p = .202$); including Michigan yields $\chi^2(16) = 33.79$ ($p = .006$).

The variation in punitive award rates shown in the last column of Table 3, for cases with a positive compensatory award, is statistically significant ($\chi^2 [16] = 58.91$; $p < .001$), with a range from 22.5 percent in Georgia to 2.8 percent in Michigan. The low rate of punitive awards in Michigan may be due to limitations on punitive award availability in that state to merely punish,¹⁹ to Michigan arbitrators' hostility to claim-

19. Michigan case law indicates that damages may not be awarded to punish the defendant. See, for example, *Association Research and Dev. Corp. v. CNA Fin. Corp.* (333 N.W.2d 206, 210 [Mich. Ct. App. 1983]). But Michigan allows "exemplary" damages to compensate plaintiffs for their humiliation, outrage, and indignity resulting from defendants' willful, malicious, or wanton conduct. See, for example, *Kewin v. Massachusetts Mut. Life Ins. Co.*, 295 N.W.2d 50, 54 (Mich. 1980); *Hall v. Claya*, 2008 WL 2779882 (Mich. Ct. App. July 17, 2008); *Association Research*, 333 N.W.2d 206, 211 (1983).

Table 3. Arbitration Awards by Location, 1992–2006

	Arbitration Awards (N)	With Positive Award		
		N	%	With Punitive Damages (%)
Arizona	140	65	46.4	7.7
California	1,373	666	48.5	10.8
Colorado	267	141	52.8	5.7
District of Columbia	102	55	53.9	7.3
Florida	696	314	45.1	8.3
Georgia	153	80	52.3	22.5
Illinois	140	69	49.3	10.1
Michigan	360	141	39.2	2.8
Minnesota	141	75	53.2	12.0
Missouri	126	60	47.6	18.3
North Carolina	144	77	53.5	7.8
New York	1,114	574	51.5	6.1
Ohio	175	88	50.3	11.4
Other	865	453	52.4	12.1
Pennsylvania	206	93	45.1	2.2
Texas	345	168	48.7	11.9
Missing	456	210	46.1	5.2
Total	6,803	3,329	48.9	9.1

Note. The data consist of 6,803 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations decided by 418 arbitrators, which resulted in 3,329 awards of compensatory damages and 304 awards of punitive damages to claimants.

ants, as suggested by the rate at which claimants prevail in Michigan, to a tendency of Michigan claimants to bring weak claims (or to settle stronger claims), or to a combination of these factors. The highly statistically significant interstate difference persists even if Michigan is excluded.

Table 4 shows the pattern of awards over time. Before discussing its punitive damages award rates, we note a limitation and a strength of the sample design. The number of awards should not be interpreted as evidence of declining numbers of disputes because our sample is not equally representative of the full sample of awards over time. Recall that the sample design was based on arbitrators who had made awards from 1998 to 2000 and tracked their awards back to 1992 and forward to 2006. If those arbitrators were not active in a year, the sample would not include their cases. Given entry and exit of arbitrators, one expects a declining percentage of the universe of arbitrations to be in our sample as the years are increasingly distant from the selection years of 1998 to

Table 4. Arbitration Awards over Time

Year	Arbitration Awards (N)	With Positive Award		
		N	%	With Punitive Damages (%)
1992	332	176	53.0	7.4
1993	315	164	52.1	3.0
1994	324	172	53.1	4.1
1995	430	210	48.8	3.3
1996	619	318	51.4	3.1
1997	630	346	54.9	7.2
1998	863	492	57.0	14.0
1999	547	327	59.8	17.1
2000	434	229	52.8	16.2
2001	303	161	53.1	11.2
2002	298	140	47.0	14.3
2003	410	182	44.4	8.8
2004	566	197	34.8	3.6
2005	504	142	28.2	4.9
2006	228	73	32.0	8.2
Total	6,803	3,329	48.9	9.1

Note. The data consist of 6,803 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations decided by 418 arbitrators, which resulted in 3,329 awards of compensatory damages and 304 awards of punitive damages to claimants.

2000. For example, the FINRA Web site shows 1,919 NASD awards in 1998 and 2,023 in 2006. The lower proportion of 2006 awards in Table 4 is likely due to the exit from the system of arbitrators selected on the basis of their 1998–2000 activity.

A strength of the sample design is that it yields a consistent pool of arbitrators over time. Changes in positive award rates and punitive award rates over time therefore are not artifacts of a shifting pool of arbitrators. Changes over time can be more precisely attributed to changes in law, such as *Mastrobuono*, or other developments. Moreover, while we cannot directly compare the number of arbitration awards or the number of positive awards over time, we can still compare the percentages with a positive award and the percentages of the positive awards with punitive damages for different years.

As a descriptive matter, Table 4 shows notable variation over time. Punitive damages were awarded in as few as 3.0 percent of claimant victories in 1993 and in as many as 17.1 percent of claimant victories in 1999. The increased rate of punitive awards is concentrated in consecutive years. After 1996, the rate more than doubled in 1997 and

almost doubled again in 1998, with 1998 having more than four times the rate of 1996. Punitive award rates increased noticeably over 1996 levels through 2002 or 2003, declined in 2004 and 2005, and increased again in 2006.

The strongest candidates we have identified that might explain changes over time are the Supreme Court's *Mastrobuono* decision and the FINRA/NASD reforms in 1998 and 2004. The decline in stock prices from 2000 to about the middle of 2002 may help explain some of the pattern, since it likely affected the characteristics of claims in which awards were sought. But it is not clear that behavior warranting punitive damages as a percentage of claims should increase during periods of market decline. And note that the punitive award rate increased or stayed high from 1997 through 2000, a period of generally increasing stock prices.

Since *Mastrobuono* most directly affected New York law, we assess the punitive award rates in New York and non-New York cases over time. As noted above, the difference between awards adjudicated in New York and elsewhere may be muted by New York being the choice of law for some arbitrations conducted in other states. Nevertheless, if *Mastrobuono* had an effect, it likely was stronger in New York than in other states because arbitrations in New York are probably more likely to have New York law govern than are arbitrations in other states.

Table 5 compares punitive award rates in New York with those in other states before 1996 and in 1996 or later. Punitive damages for awards adjudicated in New York were virtually nonexistent before 1996, with only one punitive award out of 145 complainant victories. This is consistent with *Garrity's* prohibition of punitive awards by arbitrators. In the 1996 or later period, the New York punitive damages award rate increased to 7.9 percent from less than 1 percent.

But the story is not simply a New York tale. The punitive award rate also increased in arbitrations in other states after 1995, although the increases were smaller than in New York arbitrations. This smaller increase is consistent with (1) New York law being applied in some arbitrations adjudicated outside New York state and (2) *Mastrobuono* affecting New York more because of New York arbitrations' stronger association with New York as a choice of law.²⁰

20. When *Mastrobuono* was decided, the securities industry claimed that the decision would have little effect. "One reason that brokerage officials see little impact from the ruling is that arbitrators are already free to ignore a contract's provision and award punitive damages; yet they rarely do so" (Greenhouse 1995, p. D5). The same article reported that the rate of punitive damages awards in securities arbitration since 1987 had been about 1

Table 5. Punitive Damages Rates in New York and Non-New York Securities Arbitrations, 1992-2006

	New York Awards		Non-New York Awards		P-Values	
	Positive (N)	Punitive (%)	Positive (N)	Punitive (%)	New York – Non-New York	Before 1996 versus 1996 and Later
Before 1996	145	.7	577	5.4	.01	.01
1996 or Later	429	7.9	2,178	10.9	.07	

Note. The data consist of 6,803 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations decided by 418 arbitrators, which resulted in 3,329 awards of compensatory damages and 304 awards of punitive damages to claimants. Significance levels are based on Fisher's exact test. Breslow-Day test of homogeneity of results for the two periods yields $p = .06$.

Explaining the pattern may be further complicated by New York's not being the only state with case law that relates to arbitrators and punitive damages. At least Illinois and Indiana also had relevant doctrinal developments. But the pattern of punitive damages awards in these states suggests that the main effect is in fact a New York one.

In 1992, an Illinois appeals court held that an arbitrator may award punitive damages if the arbitration agreement expressly so provides (*Edwards Electric Co. v. Automation, Inc.*, 593 N.E.2d 833, 842–43 [Ill. App. 1992]). Subsequent Illinois case law indicated that arbitration pursuant to NASD rules does authorize punitive damages (*Cerajewski v. Kunkle*, 674 N.E.2d 57, 60 [Ill. App. 1996]). It appears that the 1992 ruling did not depress punitive award rates in Illinois. Table 3 shows that arbitrations in Illinois resulted in punitive awards in 10.1 percent of proceedings with awards to claimants. This rate exceeds the overall 9.1 percent rate of punitive awards. A 1981 Indiana case found that arbitrators lacked authority to award punitive damages (*School City of East Chicago, Indiana v. East Chicago Federation of Teachers*, 422 N.E.2d 656, 663 [Ind. App. 1981]). Yet of nine Indiana awards favoring claimants in our data (not shown separately in Table 3 because Indiana was below the 100-award threshold for separate reporting in that table), three included punitive damages, a 33.3 percent rate, which is above the 9.1 percent average.

In addition to *Mastrobuono*–New York effects, the FINRA/NASD 1998 and 2004 reforms, intended to reduce industry influence on the arbitration selection process, might be expected to lead to increased claimant recoveries. But they sought to promote fairness by adjusting the selection of arbitrators and did not effect a change in substantive law such as that in *Mastrobuono*. Since our award sample is based on cases associated with individual arbitrators over time, the sample design likely mutes the effect of changes on the arbitrator selection process. Table 4 suggests that the 2004 reforms do not appear to be associated with increased compensatory award rates or punitive award rates. Compensatory award rates declined after 2004 and did not recover to their

percent (Greenhouse 1995). There was evidence of erosion or limiting of *Garrity* before *Mastrobuono*. See, for example, *Todd Shipyards Corp. v. Cunard Line, Ltd.* (943 F.2d 1056, 1064 [9th Cir. 1991]), which held that an arbitrator did not act in manifest disregard of New York law in awarding punitive damages, *Willis v. Shearson/American Express, Inc.* (569 F. Supp. 821 [M.D.N.C. 1983]), *Baravati v. Josephthal Lyon & Ross Inc.* (834 F. Supp. 1023 [N.D. Ill. 1993], judgment aff'd., 28 F.3d 704 [7th Cir. 1994], opinion corrected, 867 F. Supp. 648 [N.D. Ill. 1994]), which held that federal substantive law applies in awarding punitive damages, and the cases cited in note 9.

2004 levels by 2006. This decline is not an artifact of our sample, as FINRA's own data show declining claimant victory rates in recent years (Schultz 2008, p. 356). The 1998 reform may have helped sustain the high level of punitive awards reached in the preceding 2 years, but its effects are difficult to separate from those of *Mastrobuono*.

The multiple factors explored above suggest using regression models to account for more than one factor at a time. Since the dependent variable in a model of the decision to award punitive damages is dichotomous, we employ logistic regression models. In addition, the award data have a multilevel structure with cases being nested within arbitrators and arbitrators being nested within states. Table 6 reports simple logistic regression models and a multilevel logistic model of whether an award with compensatory damages also provided for punitive damages.²¹ The simple models include dummy variables for states and cluster the standard errors by arbitrator to reflect the nonindependence of awards decided by the same arbitrator. The multilevel model allows for random coefficients for arbitrators and states and thus allows for variation within arbitrators and states. In addition to the factors discussed above, the second logistic regression model and the multilevel model include a dummy variable for whether the respondent appeared at the arbitration. The respondent did not appear in 20.4 percent of 3,274 awards for which that variable was coded. A respondent's failure to appear may be associated with the degree of misbehavior.

As one would expect on the basis of the traditional view of punitive damages, Table 6 shows that both the degree and the nature of the harm are associated with arbitrators' decisions to award punitive damages. In all three models, the coefficient on the compensatory award variable is large and significant. Claims of misrepresentation, unauthorized trades, and, to a lesser degree, theft are associated with the presence of a punitive award. Their relative strength is consistent across the models. The order of their strength varies from Table 2, where theft had the strongest association with the presence of punitive awards. Part of this shift is due to arbitrations that include theft claims having a significantly higher mean (\$306,000) and median (\$112,000) compensatory award than other claims. The compensatory award variable in the models therefore tends to mute the effect of theft claims. In addition, as Table 2 shows, theft claims are the smallest category of claim type, and therefore there is reduced power to detect a significant effect for them.

21. For discussion of multilevel models, see Gelman and Hill (2007).

Table 6. Decision to Award Punitive Damages

	Logistic Regressions		Multilevel Model
	Model 1	Model 2	
Compensatory award (log 10)	.769** (5.94)	.707** (4.97)	.719** (6.23)
Respondent did not appear		1.089*** (7.74)	1.140** (7.44)
Claim type:			
Suitability or NYSE or NASD rules	.086 (.63)	.152 (1.07)	.175 (1.18)
Churning	-.163 (.91)	-.140 (.76)	-.124 (.69)
Unauthorized trades	.668** (4.13)	.609** (3.69)	.631** (4.08)
Failure to execute or monitor	-.366 (1.53)	-.358 (1.43)	-.319 (1.36)
Misrepresentation or Rule 10b-5	.881** (4.65)	.822** (4.29)	.883** (4.39)
Theft or self-dealing	.432 ⁺ (1.83)	.381 (1.55)	.424 ⁺ (1.66)
Constant	-7.000** (8.43)	-6.884** (7.91)	-7.259** (10.88)
Observations	3,300	3,246	3,246

Note. The data consist of 6,803 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations decided by 418 arbitrators from 1992 to 2006, which resulted in 3,329 awards of compensatory damages and 304 awards of punitive damages to claimants. The dependent variable is punitive damages awarded. Amounts are in 2007 dollars. All models include year fixed effects. The number of observations is less than 3,329 because of missing values for one or more covariates. Since disputes can involve more than one claim, overlap exists across the types of claims made. Therefore, each claim type is a dummy variable equal to one if the type of claim is present and zero otherwise. Numbers in parentheses are *z*-statistics. NYSE = New York Stock Exchange; NASD = National Association of Securities Dealers.

⁺*p* < .10.

***p* < .01.

The year dummy variables, included in Table 6 but not reported, show significant changes over time that correspond to the time effects shown in the punitive damages award rates in Table 4. The coefficients are jointly significant at *p* < .0001 but show substantial changes over time. For example, in model 2, the coefficients for the years 1993–97 are negative (relative to the reference category of 1992, with its 7.4 percent punitive damages rate), the coefficients for the years 1998–2003 are positive, and the coefficients for the years 2004–6 shift back to a negative sign. The pattern of the coefficients does not materially differ from the pattern of the raw rates. Depending on when one believes that

Mastrobuono's effect should begin to appear, the time trends seem consistent with *Mastrobuono* contributing to an increase in punitive award rates and those rates receding, along with the claimant win rate, after 2003.

The regression models in Table 6 provide less support for the law and economics framework to the extent that it is influenced by the probability of detection. The positive coefficient on the dummy variable for theft indicates that this claim type is prone to awards of punitive damages. Yet, as suggested by the discussion of the nonregression results in Table 2, theft likely has a relatively high probability of detection and, under the law and economics approach, might be expected to have a lower rate of punitive awards. A concern about this interpretation is the association between theft and award levels. The law and economics view suggests that total damages should increase with harm and egregiousness (to the extent that there are greater third-party effects), perhaps suggesting increased need for a punitive award in theft cases, which are egregious and are associated with increased harm. But the models in Table 6, unlike the data in Table 2, account for the amount of harm as measured by the compensatory award. So the models at least partly account for the possibility that increased harm is likely associated with increased punitive damages under the law and economics view. Even while controlling for the level of harm, we find that theft cases, with a presumably high probability of detection, are associated with the existence of a punitive award—contrary to the law and economics view.

Similarly, churning claims might be expected to be more difficult to detect than other claims, which the probability-of-detection framework suggests should lead to a higher rate of punitive awards. In Table 6, even while controlling for the level of harm, we find that churning cases, with a presumably relatively low probability of detection, are not associated with the existence of a punitive award. The coefficient for churning claims is negative, albeit statistically insignificant.

The positive, significant coefficient for the compensatory award level does not necessarily suggest that the behavior of arbitrators is inconsistent with the law and economics view. Increased compensatory damages likely are associated with increased likelihood of detection—it is easier to detect large harms than small ones. This suggests, holding other factors constant, an inverse association between the compensatory award level and the existence of a punitive damages award under the law and economics view. But greater harm and increased egregiousness can be associated with an increased likelihood of a punitive award under the

law and economics view because total damages should be positively associated with the harm caused. If for some reason compensatory damages do not fully cover the harm, the law and economics view allows for a positive association between harm and the existence of a punitive award.

A concern in using observational data is whether the regression models are evidence of causative relations or merely evidence of associations. Propensity score matching can be used to try to add a case control structure to observational data and therefore to enhance causal inference based on a treatment (Rosenbaum and Rubin 1983). For each of the three claim types (unauthorized trades, misrepresentation, and theft) that Table 6 suggests are significantly associated with the presence of a punitive award, we used propensity score matching to further explore the association. In separate propensity score analyses for each claim type, the three claim types were designated the treatments and the outcome was the existence of a punitive damages award. Subject to the limits of propensity score methodology,²² using propensity scores based on the compensatory award level, whether a respondent appeared at the arbitration, year, and state confirmed the associations between claim type and the existence of a punitive award.

3.4. Results: The Relation between Punitive and Compensatory Awards

We next focus on the amount of the punitive damages award. Inspection of the distributions of the punitive and compensatory awards shows that they suffer from extreme skewness. A logarithmic transformation substantially improves the distributions for purposes of statistical analysis. Figures 1 and 2 show the punitive and compensatory award distributions in disputes with both kinds of awards. The transformation produces reasonably distributed awards, with some concern about outlying low awards in both distributions. These awards are addressed in the regression analysis below.

Figure 3 uses the transformed awards to show the relation between the amount of punitive and compensatory awards. Four arbitrations had low (less than or equal to \$100) compensatory awards and nontrivial

22. Propensity score techniques use dichotomous regression to achieve a balanced matched sample on the designated covariates between the treatment group and a control group. They then assess whether the designated treatment is associated with the outcome of interest. The results are limited by the methodology used to achieve balance and the quality of the covariates.

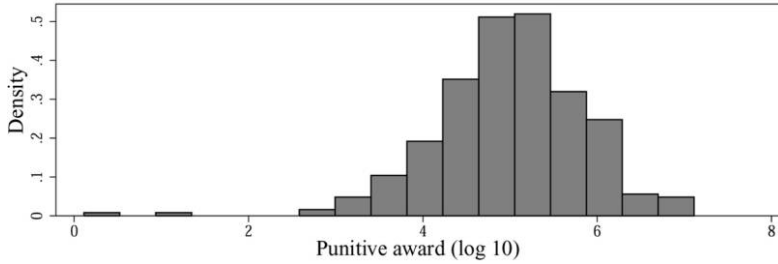


Figure 1. Distribution of punitive awards

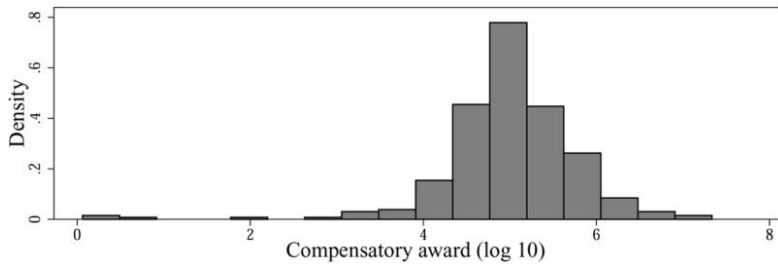


Figure 2. Distribution of compensatory awards

punitive awards, and two arbitrations had low (less than or equal to \$100) punitive awards and nontrivial compensatory awards. Except for these six cases, the overwhelming pattern suggested by Figure 3 is a linear relation between punitive and compensatory awards.

The obvious linear relation between the punitive award and the key covariate, the compensatory award, suggests employing linear regression models to assess the relation between them while accounting for other factors. We employ two approaches to deal with the outlying data points suggested by Figure 3. First, we use robust regression models, which reduce the importance of outliers by assigning them reduced weight in the model (Rousseeuw and Leroy 2003). Second, we report OLS regression models that exclude the few cases with punitive or compensatory awards of less than or equal to \$100.

As Table 7 shows, additional variables available in the model include the claim type described in Table 2. Preliminary models, not reported

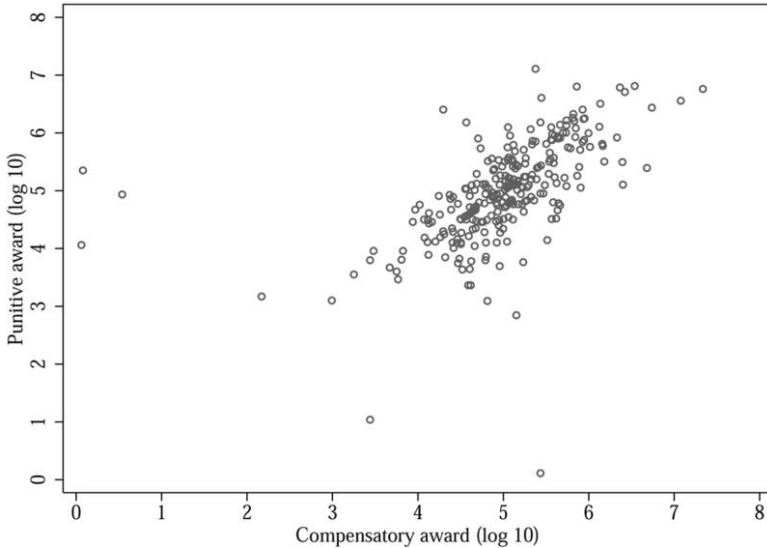


Figure 3. Relation between punitive and compensatory securities arbitration awards, 1992–2006 ($N = 303$).

here, suggested that state effects were not significant, and therefore they are not included in the models in Table 7. A multilevel model, with random intercepts for arbitrators and states, yielded insignificant random intercept parameters.

Table 7 shows a strong linear association between compensatory and punitive damages, conditional on a punitive award having been made. The compensatory award explanatory variable is consistently highly statistically significant and of similar magnitude across the models. Adding claim-type dummy variables in models 3 and 6 does not materially increase the models' explanatory power, but model 6 modestly suggests that punitive awards are higher in cases with the most egregious claim type, theft. The modest effect of the claim-type covariates suggests that once behavior is egregious enough to warrant punitive damages, the claim type ceases to be important. The consistent significance of the variable indicating that the respondent did not appear suggests that some of the most egregious wrongdoers chose not to appear rather than to present a case to the arbitration panel. Alternatively, arbitrators chose to punish those respondents with punitive damages. The respondent did

Table 7. Models of Punitive Damages

	Robust Regressions			Ordinary Least Squares Regressions		
	(1)	(2)	(3)	(4)	(5)	(6)
Compensatory award (log 10)	.850** (22.34)	.838** (24.00)	.820** (20.72)	.834** (18.79)	.844** (17.03)	.821** (15.39)
Respondent did not appear		.098+ (1.70)	.100+ (1.66)		.139* (1.98)	.146* (2.04)
Suitability or NYSE or NASD rules			.011 (.18)			-.018 (.27)
Churning			.031 (.44)			.092 (1.28)
Unauthorized trades			.013 (.21)			-.021 (.31)
Failure to execute or monitor			.045 (.46)			.082 (.83)
Misrepresentation or Rule 10b-5			.085 (.96)			.114 (1.36)

Theft or self-dealing				.113		.148 ⁺
Constant			(1.17)			(1.66)
	.741**	.974**	.916**	.806**	.861**	.826**
	(3.84)	(4.50)	(3.78)	(3.58)	(2.71)	(2.61)
Year fixed effects	No	Yes	Yes	No	Yes	Yes
Observations	302	300	293	298	295	289
Adjusted R ²				.50	.54	.54

Note. The data consist of 303 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations from 1992 to 2006 that contained a punitive and a compensatory award. The number of observations is less than 303 because of missing values for one or more covariates. Five observations are missing claim-type data and are not included in the claim-type models. An additional observation is missing data on whether the respondent did not appear. Robust regressions do not include arbitrator effects; the ordinary least squares regressions include clustered arbitrator effects. Models 4–6 exclude observations with punitive or compensatory awards of less than or equal to \$100. Since disputes can involve more than one claim, overlap exists across the types of claims made. Therefore, each claim type is a dummy variable equal to one if the type of claim is present and zero otherwise. The dependent variable is the punitive award (log 10). Amounts are in 2007 dollars. Numbers in parentheses are absolute values of *t*-statistics. NYSE = New York Stock Exchange; NASD = National Association of Securities Dealers.

⁺*p* < .10.
**p* < .05.
***p* < .01.

not appear in 46.3 percent of the 300 awards for which the variable was coded. Analysis of residuals in the OLS models suggests that basic regression assumptions are reasonably well satisfied.

The relation between punitive and compensatory awards is consistent with the traditional framework for state law punitive damages doctrine; increased punishment is associated with increased harm. But it is also plausible that one might observe a positive relationship between the punitive damages and compensatory awards under the law and economics approach. Higher levels of harm (as measured by the compensatory award) may lead to a greater punitive damages award under a pure deterrence approach even where the probability of detection increases with harm.²³

Further analysis suggests that the absence of claim-type effects in Table 7 has some implications for one aspect of the law and economics theory of punitive damages. Exploring more deeply the relation between punitive and compensatory damages within case types provides little support for the probability that detection plays a role in the arbitrators' behavior with respect to the relation between punitive and compensatory awards. Figure 4 shows the relation for each claim type, with a best-fitting OLS regression line. The graphs show a significant linear relation between punitive and compensatory awards for each claim type. Robust regression models, which downplay the importance of outliers, run separately for each of the claim types, yield a statistically significant compensatory damages coefficient (log) for every claim type, with significance levels always less than .001. And the 95 percent confidence intervals of the compensatory damages coefficient for each of the six claim types overlap.

This consistency of the relation across claim types provides little evidence that arbitrators behave in a way that is substantially influenced by the probability of detection. If they did and this was a strong enough

23. As noted in Section 2.1, the law and economics approach posits that total damages should equal the harm divided by the probability that the wrongdoer will be found liable (Polinsky and Shavell 1998). As the level of harm increases, the probability of detection (a necessary step for liability) likely increases as well. However, it is possible that the rate at which the harm increases will exceed the rate at which the probability of detection increases, leading to an overall increase in the optimal punitive damages award amount. For example, suppose the probability of detection (and liability) is equal to .1 when the harm is \$100. Suppose also that the probability of detection rises to .2 when the harm is \$1,000. Even with the rise in the probability of detection, the optimal total damages will increase from \$1,000 to \$5,000 as harm increases from \$100 to \$1,000 (and thus lead to an increase in the punitive damages amount as well).

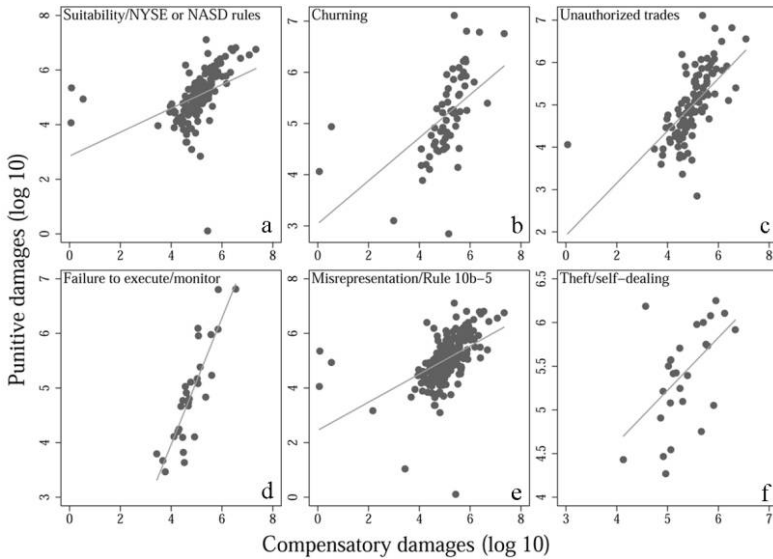


Figure 4. Relation between punitive and compensatory awards by securities arbitration claim type

effect, one might observe more variation in the relation across case types. For example, as noted above, thefts seem relatively more likely to be detected, which suggests that lower punitive awards per unit of compensatory awards might be appropriate in such cases. Yet Figure 4f shows that theft claims have no distinctive slope compared to other claim types. Similarly, failure to execute a trade would seem to involve a high probability of detection, yet the slope in Figure 4d shows, if anything, a steeper slope for failure-to-execute claims than for other claim types. Churning, which might be expected to be more difficult to detect than theft or failure to execute, does not exhibit the steeper slope that the probability-of-detection theory might forecast. But absent more precise evidence about the probability of detection, evidence that is likely difficult to gather, one cannot rule out the influence of the probability model on arbitrators' behavior.

Although our primary interest in the level of punitive awards, tracking the Supreme Court's constitutional punitive damages doctrine, is the relation between punitive and compensatory awards, given a compensatory award, we note that Tobit models have been used to account for the presence of many punitive awards of zero in some analyses (for

example, Hersch and Viscusi 2004, p. 24). As a further check on our results, we therefore employed Tobit models that included all 3,246 cases with a compensatory award and necessary data for the explanatory variables, with censoring designated to occur at punitive awards of zero. The explanatory variables were the compensatory award (log), claim-type indicator variables, state indicator variables, year indicator variables, and an indicator variable for whether the respondent appeared. The significance of the results for the claim-type coefficients did not materially differ from the results in Table 6, and the compensatory award variable was highly statistically significant.²⁴

4. DISCUSSION

In addition to their implications for the traditional and law and economics approaches to punitive damages, the securities arbitration results yield insights relating to three major topics. First are the implications for evaluating arbitrators' performance in the securities industry. Second is what the results reveal when comparing securities arbitration and other arbitration systems. Third are the results' implications for the comparative performance of arbitrators, juries, and judges.

Our results focus necessarily, because of data constraints, on only observable arbitration awards and settlements. Most securities arbitrations, however, settle. To the extent that factors that cause parties to settle securities arbitrations are related to the expectation of possible punitive awards, our findings may not accurately reflect the true underlying propensity for securities arbitrators to grant punitive awards. For example, if respondents seek to settle all cases in which they expect a punitive award, then our observed data will report few punitive awards

24. Whatever their value as a check on other modeling results, Tobit models often are used in the presence of many actual (not censored) zero values for the dependent variable. But that use is questionable. Tobit models presume censoring of values, often at zero, but not the presence of many, uncensored, actual values of zero. Maddala (1992, p. 341) warns about the misuse of Tobit models in the presence of actual, not censored, zero values. The questionable results to which Tobit models can lead in modeling adjudicative outcomes are illustrated in Eisenberg, Wells, and Zhang (2009). Tobit models also require some adjustment when the nonzero observations are lognormally distributed, as here, because a simple log transformation renders the many zero values undefined. We used two Tobit models. One assigned the value of \$1 to the zero-award cases before the log transformation, thereby preserving those observations for analysis after the log transformation. A second model left the punitive award untransformed. The models yielded results that were not materially different.

(because of settlement). A low rate of punitive awards may not mean that arbitrators are reluctant to grant such awards; instead, a low rate may simply mean that the most egregious cases have settled. The settlement problem, nonetheless, is one that is endemic to court-based studies of punitive awards as well. Defendants may also settle cases before a judge or jury where the defendants expect a possible punitive damages award. The evidence from a study in which the seeking of punitive damages was tracked suggested no association between seeking punitive damages and settlement (Eaton, Mustard, and Talarico 2005). Moreover, both Kondo (2009) and Choi, Fisch, and Pritchard (2010) estimate models on the decision to settle a securities arbitration (using the limited available data on settled cases). While they do not directly focus on punitive awards, they find that the decision to settle is not correlated with various other factors important to the outcome of arbitration (including factors relating to the background of the arbitrators).

4.1. Performance of Securities Arbitrators

With respect to the functioning of securities arbitrations, the results for punitive damages do not support the most extreme fears about arbitrator bias. The fact that arbitrators award any punitive damages in a nontrivial fraction of cases is itself notable. We suspect, and some of our colleagues' informal reactions suggest, that many observers were unaware that arbitrators ever awarded punitive damages and certainly unaware that such awards were a regular feature of securities arbitrations. An earlier informal estimate that punitive awards occur in only about 1 percent of arbitrations (Greenhouse 1995, p. D5) turns out to be substantially too conservative. A similar phenomenon existed with respect to judges. Until the Civil Justice Survey by the BJS (1996),²⁵ the topic of punitive damages awards by judges was largely unexplored (Eisenberg et al. 2006, p. 289). The existence of hundreds of punitive damages awards in one area of arbitration suggests that punitive damages need to be considered from a broader perspective than one focused solely on court-based litigation.

In some years, the arbitrators awarded punitive damages in over 15 percent of the investor wins, and those were years in which investors prevailed in over 50 percent of the disputes. Since the arbitrators studied here are traced as a cohort over time, it seems unlikely that declines in the punitive award rate to less than 5 percent, as in the years 2004 and

25. Subsequent Civil Justice Surveys are reported in BJS (2004, 2008). The 1992 Civil Justice Survey (BJS 1995) did not include data on judge trials.

2005, should be attributed to arbitrators unwilling to make punitive awards. The low-rate years are likely more a function of whatever forces have been driving down over time the rate at which claimants prevail in arbitration (as shown in Table 4), of possible changes in the rate or patterns of settlements that we cannot systematically observe, and of possible shifts in the merits of claims brought by investors over time.

The amount of securities arbitrators' punitive damages awards is also revealing. Model 4 in Table 7 shows that half the variance in the punitive award can be explained by the compensatory award. Although variance measures such as R^2 -values can be spuriously high, inspection of Figure 3 indicates that the variance measure in this sample is not misleading. Given that we lack a precise direct measure of the egregiousness of respondents' misbehavior at the individual award level, the ability to explain so much of the punitive award is impressive. Even the summary statistics on amounts in Table 1 are revealing. In awards with a punitive component, the median of both the punitive and the compensatory amount is about \$100,000, and the mean of each is between \$400,000 and \$450,000. This summary one-to-one relation is not far from the coefficient of about .83 for the compensatory award in the regression models. A 1 percent increase in the compensatory award thus corresponds to about a .83 percent increase in the punitive award. There truly is a sense in which the arbitrators appear to be using the relation of the awards to try to make the punishment fit the crime.

4.2. Comparison with Employment Awards

Considering information from areas other than securities arbitration can help place the securities arbitration results in perspective. Since the securities arbitration award data, like most data about adjudication, lack information to allow us to control for case strength, it is difficult to know what to make of the absolute rates and amounts of awards. The overall win rate of investor claimants in our data set was 48.9 percent. This compares to win rates of 64.9 percent observed in American Arbitration Association (AAA) employment arbitration claims by highly paid employees and 39.6 percent in AAA employment arbitration claims by lower paid employees, in a sample of 297 AAA arbitrations initiated in 1999 and 2000 (Eisenberg and Hill 2003–4, p. 48). Table 1 shows that the mean compensatory recovery in the 3,329 awards won by claimants was \$156,000 and the median recovery was \$44,000. In AAA arbitrations for highly paid employees, the mean award was about \$212,000 and the median award was about \$95,000 (Eisenberg and Hill

2003–4, pp. 49–50). For lower paid employees, the mean award was about \$31,000 and the median award was about \$13,000 (Eisenberg and Hill 2003–4, pp. 49–50). We do not have systematic information about punitive damage awards in the AAA data.

The ordinal ranking of the claimant win rates is the same as that of the median awards: highly paid employees win most often, securities claimants rank next, and lower paid employees rank third. This pattern may suggest that increased resources are associated with claimant arbitration success. Perhaps the highest paid employees have the greatest resources and/or the most skilled counsel, which enables them to achieve the most favorable outcomes.²⁶ The lower paid employees likely have access to fewer resources than the other two claimant groups. These conclusions must be tentative until we have better information about arbitration settlement patterns in securities arbitrations.²⁷

4.3. Comparison with the Relation between Punitive and Compensatory Awards in Litigation

Arbitration's monopoly over disputes between securities customers and brokerage firms (or -brokers) precludes meaningful comparison with litigation win rates in similar cases because no substantial, competing court-based dispute resolution mechanism exists for such disputes (Choi, Fisch, and Pritchard 2010). The securities arbitration data do, however, offer an unusual opportunity for comparison with other types of litigation with respect to punitive award amounts. In general, comparisons of dispute resolution processes such as arbitration and litigation are limited by the routing of cases. Because parties route different cases to arbitration and litigation, plaintiff win rates in litigation may not be readily comparable with plaintiff win rates in securities arbitration. In addition, when comparing cases involving different subject matter, substantive legal differences (as well as differing propensities to settle) may lead to different win rates. Similarly, punitive award patterns may significantly differ for reasons other than adjudicators' behavior.

These concerns recede (but do not vanish) when, instead of comparing win rates or absolute levels of punitive damages, we compare the relation of compensatory awards to punitive awards across arbitration and litigation. The question of interest is, for any given level of compensatory

26. But in models of whether claimants prevail in securities arbitrations, the coefficient on the amount claimed (log) was not close to statistically significant.

27. The settlement rate in American Arbitration Association employment disputes was in the 40–50 percent range (Eisenberg and Hill 2003–4, p. 52).

award (indicating a similar level of wrongdoing and egregious misbehavior), how much do punitive awards differ across adjudicators? The differential routing of cases is less important if one accepts that regardless of the decision maker—whether jury, judge, or arbitrator—the compensatory award reflects the level of wrongdoing and egregiousness in the case. The relevant question can be framed as the simple quantitative inquiry of how great the punishment was given the adjudicator's measure of harm and egregious misbehavior (as given by the level of compensatory award). In litigated cases, once behavior is found to be sufficiently egregious to support punitive damages, neither case category nor locale substantially aided in explaining the level of punitive awards (Eisenberg et al. 1997, p. 649). In addition, no significant difference was found between judges and juries in the relation between punitive and compensatory awards (Eisenberg et al. 2006). We therefore predict that regardless of forum (and indeed subject matter of case), the relation between the compensatory award and punitive damages should be similar.

To compare the arbitration results with litigation results requires data on punitive damages in litigation. We use the BJS data sets containing data gathered directly from state court clerks' offices on tort, contract, and property cases disposed of by trial in fiscal year 1991–92 (referred to here as 1992) and then calendar years 1996 and 2001. The data sets cover state courts of general jurisdiction in a random sample of 46 of the 75 most populous counties in the United States.²⁸ The 75 counties sampled include approximately 33 percent of the 1990 U.S. population; the actual 45 counties contributing data account for approximately 20 percent of the population. The initial data set, 1992, includes only jury trials. The 1996 and 2001 data sets include jury and bench trials. The three data sets include all completed trials in all three years in most of the counties. Sampling in the 1992 and 1996 data sets is described in earlier publications (BJS 1995, 1996, 2004). Together the three BJS data sets contain 438 jury trials with punitive and compensatory awards and 96 judge trials with punitive and compensatory awards. The relation between the awards in the BJS data is explored in detail elsewhere (Eisenberg et al. 2006).

28. The 2001 data included 46 counties; the 1991–92 and 1996 data included 45. One county included in the 1991–92 and 1996 study, Norfolk County, Mass., fell out of the nation's 75 most populous in the 2000 census and was replaced by Mecklenburg County, N.C., and El Paso County, Tex. Two Maryland counties declined to participate in the 1991–92 study and were replaced by Fairfax County, Va., for all three iterations of the Civil Justice Survey.

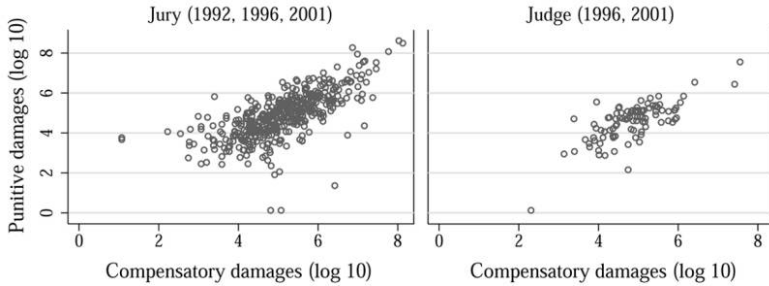


Figure 5. Relation between punitive and compensatory awards by adjudicator

Our focus here is on whether the relation between awards is similar across different adjudicators. The scatterplots in Figure 5 show the relation between punitive and compensatory awards for juries and judges in the BJS data. All amounts are in inflation-adjusted 2007 dollars. As in Figure 3, both groups of adjudicators shows a strong linear correlation between the punitive award and the compensatory award. Comparison of Figures 3 and 5 suggests that not only do the three sets of adjudicators each exhibit a linear relation, but the linear relations do not materially differ. The clusters of data points slope upward from lower left to upper right at approximately the same angle.

Table 8 combines the results from model 1 in Table 7 with the results of similar regressions in litigation using the BJS data, broken down by judge and jury trials. The models show the similarity of the relation between punitive and compensatory awards across adjudicators. The coefficients on the compensatory award are each highly statistically significant. Interestingly, the slope of the jury line is between those of the judge and arbitrator lines. These results are consistent with other studies of the relation between awards (Hyman et al. 2007, p. 25; Eisenberg et al. 1997, p. 651). The variance in the punitive-to-compensatory ratio across the three adjudicator groups is not consistently statistically significantly different.²⁹

29. Initially, a test of the hypothesis that the variance of the punitive-to-compensatory ratio is equal across the three adjudicator groups can be rejected at $p = .008$ (Levene's test). But this result is sensitive both to the inclusion of outcomes with low compensatory awards (which tend to have high variance in the punitive-to-compensatory ratio; Eisenberg, Heise, and Wells 2010) and to the measure of central tendency used. If one limits the sample to outcomes with compensatory awards of at least \$1,000, the significance level is

Table 8. Robust Regression Models of Punitive Damages Awards by Adjudicator Type

	Arbitrators	Juries	Judges
Compensatory award (log 10)	.850* (22.34)	.832* (24.55)	.811* (10.62)
Constant	.741* (3.84)	.664* (3.76)	.682* (1.82)
Observations	302	438	96

Note. The dependent variable is punitive award (log 10). The data for arbitrators consist of 303 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations from 1992 to 2006 that contained a punitive and a compensatory award. Jury and judge data are from the Bureau of Justice Statistics. Numbers in parentheses are absolute values of *t*-statistics.

* $p < .10$.

* $p < .01$.

In models that include dummy variables for juries and judges (with arbitrators as the reference category), and interaction terms between groups and the compensatory award, a test of the hypothesis that the jury-group dummy variable and interaction term jointly significantly differ from zero is significant at $p = .43$. A test of the hypothesis that the judge-group dummy variable and interaction term jointly significantly differ from zero is significant at $p = .003$.³⁰ Since both the slope and the intercept in the arbitrator model are higher than in the judge model, this is some evidence that arbitrators differ more from judges than they do from juries and tend to award higher punitive damages per unit of compensatory damages than do judges.

An important result evident from Figures 3 and 5 and Table 8 is that the relation between punitive and compensatory awards in the studied data sets does not materially differ between arbitrators and juries. This has implications for the Supreme Court's view of the relation. In *Exxon*

.448. If one tests for equality with respect to the median punitive-to-compensatory ratio rather than the mean, the significance level is .298 (Brown-Forsythe test) for all outcomes and .754 for outcomes with compensatory awards of at least \$1,000.

30. One concern is that the three sets of adjudicators deal with disputes with different levels of compensatory damages. The x-axis in Figure 3 shows that the bulk of arbitrator compensatory awards are in the range of \$10,000 to \$1 million (10^4 to 10^6 , on the log scale). In Figure 5, the data for judges are similarly centered, but the data for juries have many observations below and above this range. We therefore ran models that limit the data to disputes with compensatory awards in the \$10,000 to \$1 million range. A test of the hypothesis that the jury-group dummy variable and interaction term are jointly significantly different from zero is significant at $p = .24$. A test of the hypothesis that the judge-group dummy variable and interaction term are jointly significantly different from zero is significant at $p = .0001$.

Shipping Co. v. Baker (128 S. Ct. 2624–25), the Court found unacceptably high variability in the pattern of awards in the BJS data.³¹ The Court used high variability in the punitive-to-compensatory ratio in jury trials to justify imposing limits, as a matter of federal court regulation of maritime cases, on punitive awards.³² Our results suggest little material difference between the pattern of jury awards that concerned the Court and the pattern of awards by relatively more experienced securities arbitrators, over 80 percent of whom are attorneys.

The modest difference between arbitrators and juries is all the more striking because of likely stabilizing aspects of securities arbitration. Arbitrators tend to be repeat players much more than do juries. The over 6,800 arbitrations in our data were decided by only 418 arbitrators. So, on average, the securities arbitrators each observed about 16 disputes, many more than the average juror in a civil case conceivably observes. Since our data cover only the time period from 1992 to 2006, the average arbitrator probably observes more disputes than those considered in our data set. The average arbitrator not only observes many more disputes than the average juror but also observes disputes limited by subject area. Every case in our securities data set is of course about a dispute between a securities customer and a brokerage firm (or broker). In this sense, securities arbitrators encounter little case category variation. They tend to have a pool of cases, based on their personal experience, with which to compare each dispute. Each arbitrator can internally calibrate degrees of misbehavior to arrive at results that reflect the variability of behavior across cases. Vastly greater adjudicatory experience and more constant dispute subject matter should lead to less variability in punitive awards in arbitrations than in litigation, holding the compensatory award constant.

The similarity shown in Figures 3 and 5 suggests that either the experienced arbitration professionals are intolerably varying in their awards or the pattern of juries' awards that concerned the Court in

31. See also *Jurinko v. Medical Protective Co.* (2008 WL 5378011, *10 n.15 [3d Cir. 2008]), a case reducing a punitive award that noted the reduced award in *Exxon*.

32. The Court stated, “[E]vidence that the median ratio of punitive to compensatory awards falls within a reasonable zone . . . fails to tell us whether the spread between high and low individual awards is acceptable. The available data suggest it is not. A recent comprehensive study of punitive damages awarded by juries in state civil trials found a median ratio of punitive to compensatory awards of just .62:1, but a mean ratio of 2.90:1 and a standard deviation of 13.81” (128 S. Ct. 2625). For evidence that the Court erred in relying on the high variability in the punitive-to-compensatory ratio to conclude that the ratio was too erratic, see Eisenberg, Heise, and Wells (2010).

Table 9. Rate of Punitive Damages Awards by Adjudicator and Nature of Injury, 1992–2006

Adjudicator	Bodily Injury	Awards (N)	Disputes Won (N)	Award Rate (%)	Confidence Interval	
					Lower 95%	Upper 95%
Securities arbitrator	No	304	3,329	9.1	8.2	10.1
Jury	No	274	2,374	11.5	10.3	12.8
Judge	No	74	2,110	3.5	2.8	4.4
Jury (no MV)	Yes	114	2,697	4.2	3.5	5.0
Judge (no MV)	Yes	25	187	13.4	8.4	18.3
Jury (MV)	Yes	57	3,928	1.5	1.1	1.8
Judge (MV)	Yes	3	273	1.1	.0	2.3

Note. Securities arbitrator data consist of 3,329 Financial Industry Regulatory Authority/National Association of Securities Dealers arbitrations, 304 of which contained a punitive award. The BJS (1992) data do not include judge trials. MV = motor vehicles.

Exxon should be reconsidered in light of evidence about how legal professionals perform. If the punitive awards given by juries are no more variable than the awards by judges and relatively more experienced arbitrators, the variation in jury awards may in fact turn on factors (unobservable in our data set) that correspond to the egregiousness of the underlying conduct. At the very least, juries do not pose any greater risk of arbitrariness in punitive damage awards than do more expert judges and arbitrators.

As noted above, rates of awarding punitive damages are less comparable across adjudicators than is the relation between punitive and compensatory awards because of case routing (and differences in the underlying case subject matter). And a key variable to assess punitive award rates, whether the plaintiffs in a case sought punitive damages, is not available in the data sets analyzed here. Nevertheless, noting the rates of punitive awards can help place results for adjudicator groups in perspective. The 9.1 percent punitive damages award rate in securities arbitrations is notably higher than the overall rate of punitive awards where the plaintiff prevailed in either jury trials or judge trials. Of 11,610 trials won by plaintiffs in the BJS Civil Justice Surveys, 4.6 percent had punitive awards. The punitive award rate in 2,570 bench trials was 3.9 percent, and that in 9,040 jury trials was 4.9 percent (Eisenberg et al. 2006, p. 269).

The punitive award rates of judges and juries varies significantly by the type of injury in a case. Table 9 reports the rates for arbitrators,

judges, and juries. The judge and jury data are further broken down by cases with bodily injury and without it and by cases involving motor vehicles and not involving them. Securities arbitrations are presumed not to have bodily injury.

For the BJS surveys combined, in non-motor-vehicle cases involving bodily injury, juries awarded punitive damages in 114 of 2,697 trials won by plaintiffs (4.2 percent), and judges awarded punitive damages in 25 of 187 plaintiff wins (13.4 percent). For cases without bodily injury in these years, juries awarded punitive damages in 274 of 2,374 plaintiff trial wins (11.5 percent), and judges awarded punitive damages in 74 of 2,110 plaintiff wins (3.5 percent). Both differences are highly statistically significant ($p < .001$). For disputes without bodily injury, the arbitrators' punitive award rate fell between those of judges and juries. The arbitrators' rate was significantly lower than that of juries and significantly higher than that of judges. If one accounts for the depressed rate of arbitrator punitive awards prior to *Mastrobuono*, the arbitrators' punitive award rate increases and becomes quite close to that for juries. We suspect that the significant differences in the punitive award rates of judges and juries in subgroups of cases have much to do with case routing. For the purposes of assessing arbitrators' punitive award rates, the data for judges and juries suggest that arbitrator rates are in the same general range as juries' punitive award rates in cases without bodily injury.

5. CONCLUSION

The substantial rate of punitive awards by securities arbitrators does not support the most extreme views of arbitrators as systematically hostile to investors. Nor are arbitrators randomly granting punitive damages. The factors that influence the award of punitive damages and the strong association between punitive and compensatory awards are evidence of an underlying rationality to arbitrators' behavior. Nonetheless, without evidence of the strength of the merits of investor claims, we cannot evaluate the overall fairness of the FINRA process. The declining rate of investor success in recent years raises concerns beyond the scope of this study.

The similarity in punitive damages patterns of relatively more experienced repeat-player arbitrators and less experienced lay juries can inform discussion about the performance of juries. Over a decade ago, the BJS Civil

Justice Survey documented the existence of a nontrivial punitive damages award rate for judges. The FINRA data studied here establish the existence of a nontrivial award rate for arbitrators. The existence of nontrivial punitive damage award rates in two groups of legal professionals (judges and repeat-player arbitrators), and similarities to juries' punitive awards behavior, suggest that punitive damage awards in jury trials are not the random acts of arbitrary lay adjudicators. Professionals often are moved by egregious misbehavior to impose civil punishment. The similarities suggest that juries respond to similar factors.

The narrow focus on juries in punitive damages discussions is likely an artifact of most tort trials being jury trials, but that should not blind us to the similar performance of legal professionals. The jury-centered focus of the debate over punitive damages cannot be justified by extraordinary patterns of juror behavior in comparison to judges and securities arbitrators. The similarities in punitive rates and in the significant relation between punitive and compensatory damages also suggest re-examining the import of the variability in jury punitive awards that concerned the Supreme Court in *Exxon Shipping Co. v. Baker*.

Our results also have implications regarding which conceptual framework best describes the pattern of arbitrators' punitive awards. Since the traditional view of punitive damages dominates the state law doctrine that arbitrators are bound to enforce, it is not surprising that we find evidence that more egregious classes of misbehavior, such as theft, are associated with an increased likelihood of punitive awards. This view also suggests that greater harm, as represented by increased compensatory damages, should be associated with an increased likelihood and elevated levels of punitive awards. Firm conclusions about the law and economics view that punitive awards should be inversely associated with the probability of detection are difficult to reach because of the absence of detailed case-level evidence about the probability of detection. To the extent that claim types can be reasonable proxies for the probability of detection, we do not find evidence that the probability-of-detection component of the law and economics model substantially contributes as a positive matter to explaining the pattern of punitive awards. This absence of evidence, nonetheless, does not preclude the probability of detection from playing a role at the individual case level. Our conclusion on the lack of descriptive power of the law and economics view also does not reflect on the normative case for the view. Indeed, advocates of the law and economics view may wish to consider reforms in the way

punitive damages are determined to increase the relevance of deterrence in such awards.

REFERENCES

- Arbitration Policy Task Force. 1996. *Securities Arbitration Reform*. Report to the Board of Governors. Washington, D.C.: National Association of Securities Dealers.
- BJS (Bureau of Justice Statistics). 1995. *Bureau of Justice Statistics Bulletin: Civil Justice Survey of State Courts, 1992; Tort Cases in Large Counties*. Washington, D.C.: BJS.
- . 1996. *Bureau of Justice Statistics Bulletin: Civil Justice Survey of State Courts, 1996; Civil Trial Cases and Verdicts in Large Counties*. Washington, D.C.: BJS.
- . 2004. *Bureau of Justice Statistics Bulletin: Civil Justice Survey of State Courts, 2001; Civil Trial Cases and Verdicts in Large Counties, 2001*. Washington, D.C.: BJS.
- . 2008. *Special Report: Civil Bench and Jury Trials in State Courts, 2005*. Washington, D.C.: BJS.
- Brunet, Edward, and Jennifer J. Johnson. 2008. Substantive Fairness in Securities Regulation. *University of Cincinnati Law Review* 76:459–92.
- Buntin, Melinda Beeuwkes, and Alan M. Zaslavsky. 2004. Too Much Ado about Two-Part Models and Transformation? Comparing Methods of Modeling Medicaid Expenditures. *Journal of Health Economics* 23:525–42.
- Choi, Stephen J., Jill E. Fisch, and A. C. Pritchard. 2010. Attorneys as Arbitrators. *Journal of Legal Studies* 39:109–58.
- Cooter, Robert D. 1989. Punitive Damages for Deterrence: When and How Much? *Alabama Law Review* 40:1143–96.
- Darley, John M., Lawrence M. Solan, Matthew B. Kugler, and Joseph Sanders. 2010. Doing Wrong without Creating Harm. *Journal of Empirical Legal Studies* 7:30–63.
- Dobbs, Dan B. 1989. Ending Punishment in “Punitive” Damages: Deterrence-Measured Remedies. *Alabama Law Review* 40:831–918.
- Dow, William H., and Edward C. Norton. 2003. Choosing between and Interpreting the Heckit and Two-Part Models for Corner Solutions. *Health Services and Outcomes Research Methodology* 4:5–18.
- Eaton, Thomas A., David B. Mustard, and Susette M. Talarico. 2005. The Effects of Seeking Punitive Damages on the Processing of Tort Claims. *Journal of Legal Studies* 34:343–70.
- Eaton, Thomas A., Susette M. Talarico, and Richard E. Dunn. 2000. Another Brick in the Wall: An Empirical Look at Georgia Tort Litigation in the 1990s. *Georgia Law Review* 34:1049–1154.

- Eisenberg, Theodore. 1989. Litigation Models and Trial Outcomes in Civil Rights and Prisoner Cases. *Georgetown Law Journal* 77:1567–1602.
- . 1995. Konkurs eller Rekonstruktion (Creating an effective Swedish reconstruction law). SNS Occasional Paper No. 75. Studieförbundet Näringsliv och Samhälle, Stockholm.
- Eisenberg, Theodore, John Goerdt, Brian Ostrom, David Rottman, and Martin T. Wells. 1997. The Predictability of Punitive Damages. *Journal of Legal Studies* 26:623–62.
- Eisenberg, Theodore, Paula L. Hannaford-Agor, Michael Heise, Neil LaFountain, G. Thomas Munsterman, Brian Ostrom, and Martin T. Wells. 2006. Juries, Judges, and Punitive Damages: Empirical Analyses Using the Civil Justice Survey of State Courts 1992, 1996, and 2001 Data. *Journal of Empirical Legal Studies* 3:263–95.
- Eisenberg, Theodore, Michael Heise, Nicole L. Waters, and Martin T. Wells. 2010. The Decision to Award Punitive Damages: An Empirical Study. *Journal of Legal Analysis* 2:577–620.
- Eisenberg, Theodore, Michael Heise, and Martin T. Wells. 2010. Variability in Punitive Damages: Empirically Assessing *Exxon Shipping Co. v. Baker*. *Journal of Institutional and Theoretical Economics* 166:5–26.
- Eisenberg, Theodore, and Elizabeth Hill. 2003–4. Employment Arbitration and Litigation. *Dispute Resolution Journal* 58:44–53.
- Eisenberg, Theodore, Neil LaFountain, Brian Ostrom, David Rottman, and Martin T. Wells. 2002. Juries, Judges, and Punitive Damages: An Empirical Study. *Cornell Law Review* 87:743–82.
- Eisenberg, Theodore, Jeffrey J. Rachlinski, and Martin T. Wells. 2002. Reconciling Experimental Incoherence with Real-World Coherence in Punitive Damages. *Stanford Law Review* 54:1239–71.
- Eisenberg, Theodore, and Shoichi Tagashira. 1994. Should We Abolish Chapter 11? The Evidence from Japan. *Journal of Legal Studies* 23:111–57.
- Eisenberg, Theodore, and Martin T. Wells. 1998. Punitive Awards after *BMW*, a New Capping System, and the Reported Opinion Bias. *Wisconsin Law Review*, pp. 387–425.
- . 1999. The Predictability of Punitive Damages Awards in Published Opinions, the Impact of *BMW v. Gore* on Punitive Damages Awards, and Forecasting Which Punitive Awards Will Be Reduced. *Supreme Court Economic Review* 7:59–86.
- . 2006. The Significant Association between Punitive and Compensatory Damages in Blockbuster Cases: A Methodological Primer. *Journal of Empirical Legal Studies* 3:175–95.
- Eisenberg, Theodore, Martin T. Wells, and Min Zhang. 2009. Regression Models for Trial Outcome Data with a Large Proportion of Zeros. Paper presented at the International Conference on Empirical Legal Studies, Tel Aviv, March 26.
- Ellis, Dorsey D., Jr. 1982. Fairness and Efficiency in the Law of Punitive Damages. *Southern California Law Review* 56:1–78.

- . 1989. Punitive Damages, Due Process, and the Jury. *Alabama Law Review* 40:975–1008.
- Gelman, Andrew, and Jennifer Hill. 2007. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. New York: Cambridge University Press.
- Greenhouse, Linda. 1995. Court Backs Investors on Damage Awards. *New York Times*, March 7.
- Hart, H. L. A. 1965. *The Morality of the Criminal Law*. Jerusalem: Magnes Press; London: Oxford University Press.
- Hastie, Reid, and W. Kip Viscusi. 1998. What Juries Can't Do Well: The Jury's Performance as a Risk Manager. *Arizona Law Review* 40:901–22.
- Heckman, James J. 1979. Sample Selection Bias as a Specification Error. *Econometrica* 47:153–61.
- Hersch, Joni, and W. Kip Viscusi. 2004. Punitive Damages: How Judges and Juries Perform. *Journal of Legal Studies* 33:1–35.
- Huber, Peter. 1989. No-Fault Punishment. *Alabama Law Review* 40:1037–52.
- Hyman, David, Bernard Black, Kathryn Zeiler, Charles Silver, and William M. Sage. 2007. Do Defendants Pay What Juries Award? Post-verdict Haircuts in Texas Medical Malpractice Cases, 1988–2003. *Journal of Empirical Legal Studies* 4:3–68.
- Illinois Supreme Court Committee on Pattern Jury Instructions in Civil Cases. 2006. *Illinois Pattern Jury Instructions—Civil*. St. Paul, Minn.: West.
- Jeffries, John. 1986. A Comment on the Constitutionality of Punitive Damages. *Virginia Law Review* 72:139–60.
- Karpoff, Jonathan M., and John R. Lott, Jr. 1999. On the Determinants and Importance of Punitive Damage Awards. *Journal of Law and Economics* 42: 527–73.
- Kondo, Jiro E. 2009. The Self-Regulation of Enforcement: Evidence from Investor-Broker Disputes at the NASD. Working paper. Northwestern University, Kellogg School of Management, Evanston, Ill. http://www.kellogg.northwestern.edu/faculty/kondo/public/k1_paper_f09.pdf.
- Leung, S. F., and S. Yu. 1996. On the Choice between Sample Selection and Two-Part Models. *Journal of Econometrics* 72:197–229.
- Little, William B. L. 2008. Fairness Is in the Eyes of the Beholder. *Baylor Law Review* 60:73–154.
- Maddala, G. S. 1992. *Introduction to Econometrics*. 2d ed. New York: Macmillan.
- Moller, Erik. 1996. *Trends in Civil Jury Verdicts since 1985*. Santa Monica, Calif.: RAND.
- Moller, Erik K., Nicholas M. Pace, and Stephen J. Carroll. 1999. Punitive Damages in Financial Injury Jury Verdicts. *Journal of Legal Studies* 28:283–340.
- Polinsky, A. Mitchell, and Steven Shavell. 1998. Punitive Damages: An Economic Analysis. *Harvard Law Review* 111:870–962.
- Pritchard, A. C., and Hillary A. Sale. 2005. What Counts as Fraud? An Empirical Study of Motions to Dismiss under the Private Securities Litigation Reform Act. *Journal of Empirical Legal Studies* 2:125–49.

- Rosenbaum, P. R., and D. B. Rubin. 1983. The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika* 70:41–55.
- Rousseeuw, Peter J., and Annick M. Leroy. 2003. *Robust Regression and Outlier Detection*. Hoboken, N.J.: John Wiley & Sons.
- Rustad, Michael L. 2008. The Uncert-worthiness of the Court's Unmaking of Punitive Damages. *Charleston Law Review* 2:459–519.
- Schkade, David, Cass R. Sunstein, and Daniel Kahneman. 2000. Deliberating about Dollars: The Severity Shift. *Columbia Law Review* 100:1139–75.
- Schlanger, Margo. 2003. Inmate Litigation. *Harvard Law Review* 116:1555–1706.
- Schulhofer, Stephen J. 1974. Harm and Punishment: A Critique of Emphasis on the Results of Conduct in the Criminal Law. *University of Pennsylvania Law Review* 122:1497–1607.
- Schultz, Lawrence S. 2008. Storm Clouds in Arbitration. Pp. 351–93 in *Securities Arbitration 2008: Evolving and Improving*, edited by David E. Robbins. New York: Practising Law Institute.
- Sebok, Anthony J. 2007. Punitive Damages: From Myth to Theory. *Iowa Law Review* 92:957–1036.
- Securities Industry Conference on Arbitration. 2007. *The Arbitrator's Manual*. <http://www.finra.org/web/groups/ArbitrationMediation/@arbmed/@neutr/documents/ArbMed/P009668.pdf>.
- Sharkey, Catherine M. 2006. Dissecting Damages: An Empirical Exploration of Sexual Harassment Awards. *Journal of Empirical Legal Studies* 3:1–45.
- Sullivan, Teresa, Elizabeth Warren, and Jay Lawrence Westbrook. 1989. *As We Forgive Our Debtors: Bankruptcy and Consumer Credit in America*. New York: Oxford University Press.
- . 1994. Consumer Debtors Ten Years Later: A Financial Comparison of Consumer Bankrupts, 1981–1991. *American Bankruptcy Law Journal* 68:121–54.
- Sundgren, Stefan. 1998. Does a Reorganization Law Improve the Efficiency of the Insolvency Law? The Finnish Experience. *European Journal of Law and Economics* 6:177–98.
- Sunstein, Cass R., Daniel Kahneman, and David Schkade. 1998. Assessing Punitive Damages (with Notes on Cognition and Valuation in Law). *Yale Law Journal* 107:2071–2153.
- Sunstein, Cass R., Daniel Kahneman, David Schkade, and Ilana Ritov. 2002. Predictably Incoherent Judgments. *Stanford Law Review* 54:1153–1215.
- Vidmar, Neil, and Mary R. Rose. 2001. Punitive Damages by Juries in Florida: In Terrorem and in Reality. *Harvard Journal on Legislation* 38:487–513.
- Washington Post*. 1996. Trial Lawyers' Triumph. Editorial, March 19.
- Wheeler, Malcolm E. 1989. A Proposal for Further Common Law Development of the Use of Punitive Damages in Modern Product Liability Litigation. *Alabama Law Review* 40:919–74.