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John Lott

Jonathan M. Karpoff

CHICAGO

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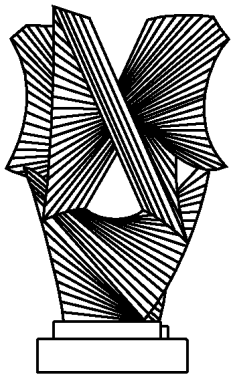

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Jonathan M. Karpoff and John R. Lott, Jr.

THE LAW SCHOOL
THE UNIVERSITY OF CHICAGO

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Jonathan M. Karpoff[*] *and John R. Lott, Jr.*[**]

I. Introduction

The sizes and variability of punitive damage awards are topics of substantial debate. They also appear to affect some firms' business decisions. The prospect of high adverse awards so concerned cigarette manufactures that they agreed to pay over $350 billion to limit much of their punitive exposure. Defenders of punitive awards point out that punitive award liability was, ". . . the lever that brought the tobacco industry to the table."[1] Opponents of large punitive awards, however, claim that these awards impose undue costs on prospective defendants: "To play the game, you have to bet the corporation."[2] Supporters and opponents may not agree on many things, but they both agree that punitive damages are important.

One reason punitive awards are potentially costly to firms is that they appear to be both highly variable and large relative to the losses suffered by the plaintiff. In *Browning-Ferris Industries v. Kelco Disposal, Inc.*, compensatory damages of $52,146 were combined with a $6 million punitive judgment. In *Pacific Mutual Life v. Haslip*, compensatory damages of $200,000 prompted additional punitive damages of $3.84 million. And in *TXO Production Corp. v. Alliance Resources Corp.*, compensatory damages of $19,000 were boosted with a $10 million punitive award (see Table 5 for a complete list).

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[*] School of Business, University of Washington.

[**] School of Law, University of Chicago.

1 Former Federal Trade Commission Chairman Michael Pertchuk, quoted by Peter Passell, "The Split Over Punitive Awards in Getting the Bad Guys," New York Times, Thursday, July 10, 1997, p. D2.

2 Michael Horowitz, director of the Hudson Institute's Project for Civil Justice, ibid.

All three of these punitive awards were upheld by the U.S. Supreme Court, but in recent decisions the Court has begun to reign in such awards. The Court ruled that the punitive damage award in *BMW v. Gore*, for example, was so excessive that it violated the Due Process Clause of the U.S. Constitution. The U.S. Congress also recently has considered legislation that would place limits on punitive damages. In 1995, for example, the House of Representatives passed two bills that would cap punitive awards and impose costs on parties who refused settlements and subsequently received judgments for smaller amounts.

These efforts are based on a view that large punitive awards are costly to defendant companies. Little is known, however, about the importance of punitive awards for firm value, and hence, the value of judicial or legislative limits on such awards. Anecdotes about a few exceptionally large awards do not necessarily imply that firms in general expect large losses when cases are filed against them. Nor do they indicate that punitive damages impose large losses on the market as a whole. One objective of this paper is to measure the valuation impacts of punitive awards, the lawsuits that bring them about, and judicial and legislative attempts to place limits on them.

We also examine the predictability of punitive damage awards. Sunstein et. al (1997) present a theory implying that potential punitive awards should be both unbounded and unpredictable. The evidence about the predictability of punitive awards, however, is mixed. Consistent with their prediction, Sunstein et. al. provide experimental evidence supporting the notion that dollar awards made by juries are inherently difficult to predict. Similar results using experimental markets are reported by Kahneman, et. al. (1997). Using data from actual practice, however, Eisenberg, et. al. (1997) conclude that punitive damages are at least as predictable as compensatory damages. They find that nearly 50 percent of the cross-sectional variation in punitive damages can be explained with a simple linear model using compensatory damages and broad descriptions of the type of case (e.g., medical malpractice or fraud). However, serious concern has been raised about the Eisenberg study, as it excludes cases that have been settled and explains only the variation in punitive damages cases where punitive damages have been awarded (Polinsky, 1997). We address this issue by examining

the predictability of punitive awards using data on both settlements and verdict decisions. We also attempt to explain the variation in punitive damages across all cases, rather than merely those in which punitive awards are levied.

An additional concern is not just with whether punitive damages are predictable, but whether they are predictable for the right reasons. Landes and Posner (1987, pp. 160-5) and Polinsky and Shavell (1997) argue that punitive damages should be used when the probability of detection is low, so that the total penalty imposed upon the defendant ensures that the firm internalizes the damage imposed upon others.

In this paper we seek to add to this theoretical debate as well. We argue that strictly relating punitive damages to the probability of punishment ignores the role of private contracting and reputation in assuring contractual performance. The probability-of-detection justification for punitive awards holds only when the costs imposed upon the plaintiff represent an externality, or alternatively, where a contractual relationship does not take place. One example of this may be environmental damage, such as that imposed by the Exxon Valdez oil spill.[3] Most activities over which punitive awards are brought, however—including fraud, product liability, business negligence, insurance claims, asbestos-related lawsuits, and employment claims—contain few obvious externality problems.

The recent Supreme Court case *BMW v. Gore* illustrates this point. As this case illustrates, the true underlying quality of a car's paint job is valuable to customers. Providing such high-quality paint jobs or handling procedures that cars never have to be retouched, however, is costly. As there are no externalities in this situation, customer demands will encourage firms to provide higher quality paint jobs up until the point where the cost of doing so equals the marginal benefit obtained by the customers. Thus, paint job quality

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[3] Note that the probability of punishment theory does not apply very well to this case, either. The probability of detection in the case of the Exxon Valdez oil spill had to be close to 1.0. The award of punitive damages therefore cannot be justified by the notion that they were necessary to get Exxon to internalize the expected cost of the spill, *ex ante*. Issues raised in trial to determine imposition of punitive damages, such as the plaintiff's recklessness, also do not correspond well with the probability of punishment theory of punitive awards.

is assured even in the absence of punitive awards—and is enforced by the firm's reputational guarantee—*up to the level and cost of quality assurance that customers demand*.

This paper is organized as follows. In section II we present our argument about the role of reputation in assuring contractual performance, and the effect of punitive awards on firms' reliance on reputational guarantees. Section III reports on the sample of punitive lawsuits we use to investigate punitive awards. In section IV we report tests that attempt to explain the sizes of punitive awards using data on a large number of punitive lawsuits from 1985 through June 1996. Sections V through VIII introduce several approaches to examine the importance of punitive awards. In section V, we measure the valuation impacts of U.S. Supreme Court decisions that affect the expected sizes of future punitive awards, both on the market as a whole and on firms defending recent or current punitive award lawsuits. Section VI reports on similar tests of the valuation impacts of Congressional attempts in 1995 and 1996 to limit the sizes of punitive awards. In section VII, we explore whether Supreme Court decisions and news about punitive award legislation affects company values differently, depending on firms' exposures to punitive award liability. Finally, section VIII examines the valuation effects on the companies directly affected by individual punitive-seeking lawsuits, the defendant firms. Section IX concludes.

II. The Theory of Punitive Damages

A. Guarantees Through Reputation or Privately Agreed to Penalties

Landes and Posner (1987) and Polinsky and Shavell (1997) argue that punitive awards help enforce contractual performance by forcing all parties in a trading relationship to internalize the costs of subpar performance. According to this argument, the prospect of punitive liability offsets the chance that a party will not be held liable for the any damages. The optimal punitive award therefore is decreasing in the probability that the underperforming party will be held liable.

Punitive awards surely increase the expected cost to subpar contractual performance. What this line of reasoning misses, however, is the fact that, in most contractual relationships, punitive

awards are unnecessary to encourage optimal contractual performance. Indeed, the prospect of punitive awards can encourage too much investment to assure contractual performance, thereby increasing costs and contractual assurance beyond the optimal levels.

To see this point, consider contractual performance in a situation without the prospect of punitive awards. Contrary to the implication of Polinsky and Shavell's argument, this generally would not lead to underinvestment in assuring contractual performance. Breaching contracts, denying insurance claims, providing defective products, committing fraud, and causing employees to work in unsafe environments all impose costs to one of the parties in a trading relationship. Parties have incentive to offer guarantees to others that they will perform as promised.

As an example, insurance companies can be sued for wrongly denying claims from customers. An insurance company could choose to avoid such lawsuits by never denying claims. But such a policy is costly because it would encourage false claims. To finance a no-potential-for-lawsuit policy, the insurance company would have to charge correspondingly high premiums to finance its high costs. Presumably, some customers are unwilling to pay such high costs. These customers prefer to buy insurance at lower rates from companies that reserve the right to deny payments. While this can prevent fraudulent or uncovered claims, it also increases the probability that the company will deny coverage to those with valid claims. Thus, customers and insurance companies can trade off the cost of insurance with the probability the company will deny valid claims. The optimal probability of denying claims—and the optimal price for insurance—is one that at the margin equates the benefits and costs.

Firms undoubtedly from time to time try to renege on promises of how they will make their decisions to deny coverage, but a similar problem exists here also. To the extent that insured individuals value increasing the probability that they will not be "held up" by the insurance company when coverage decisions are made, customers are willing to pay the additional costs associated with firms guaranteeing this outcome.

Consumers value reducing the probability that their implicit agreement with the firm will be breached, but reducing that

probability is costly. In the absence of the current punitive damage system, consumers can reduce the probability of denial by buying from insurance companies with large reputational investments or ones that have agreed to high privately negotiated penalty clauses. At some total penalty level, the cost to consumers of extra assurance exceeds the incremental expected cost of having their insurance claim denied. When the cost of denial is low or when insured individuals have lower alternative methods of insuring themselves, insurance companies will invest less in reputation and provide fewer guarantees. We observe this behavior in other areas of life, such as when people buy cars from fly-by-night dealers, or through newspaper advertisements. Most people choosing to buy used cars with little quality assurance probably are not making mistakes. They undoubtedly face a relatively high probability of being defrauded, but they also pay less for their cars.

The arguments are no different for breach of contract (Klein, 1996) or fraud (Darby and Karni, 1973; Karpoff and Lott, 1993; and Lott, 1996), or other types of actions that give rise to punitive lawsuits. To summarize the point, the wealth maximizing probability of breach of contract or fraud is not zero: at some point, the costs of reducing the probability further exceed the expected benefits.

A role for extra penalties, such as punitive damage awards, exists when the action imposes costs on third parties. The most obvious example of this involves environmental damages. As we have pointed out elsewhere (Karpoff and Lott, 1993), another example is innovations that decrease the cost of delivering subpar results in a contractual relationship. For example, true innovations in committing fraud alter the underlying probability of third parties being defrauded because potential defrauders also learn the innovation.[4]

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[4] Learning of an action in which one party to a transaction delivers subpar performance may alter the behavior of third parties. For example, learning of a breach of contract can increase others' due diligence upon entering contracts themselves. If they thus correct previously mistaken beliefs regarding the true underlying probability of these third parties being defrauded, this information represents an external benefit and not a cost.

B. Substitution of Punitive Damages for Private Quality Assurance

Since private mechanisms do not completely eliminate the occurrence of contractual breach or fraud, why not use punitive damages to deter all problems of contractual breach or fraud? One reason is that high penalties and low probabilities is a costly strategy. When to rely on reputation rather than legal sanctions depends in part on the substitutability of third party-imposed punitive damages (and for some cases also criminal penalties) and reputation in deterring contractual breach or fraud. If these third party-imposed penalties and reputation are perfect substitutes, an increase in expected penalties will have no effect on their incidence. Increases in government penalties will simply reduce customer reliance on reputation as a guarantor of promises.

There are several reasons to expect that third party-imposed penalties are not perfect substitutes for reputation, however. As a result, an increase in such penalties will cause a smaller decrease in reputational investments, causing an overall increase in firms' expected penalties from subpar contractual performance. This will cause firms to decrease the undesirable incidents. But if there are no externalities for the criminal penalties to internalize, the penalty will also increase costs, harming consumers and dissipating wealth.

In previous work, we (1993, pp. 762-65) pointed out two reasons that reputation and third party-imposed penalties are not perfect substitutes. First, court imposed penalties are limited to cases where evidence can be provided to a third party, while enforced reputational losses rely on enforcement by the consumers. Second, following Klein and Leffler (1981), reputation produces not only deterrence but also takes the form of sunk investments that produce additional services for customers. Thus, an increase in third party-imposed penalties will result in smaller than dollar-for-dollar reductions in reputational investments.

To the extent that punitive damages are large *and* variable, they impose an additional cost on firms. As DeAngelo (1981) argues, with well-functioning capital markets a publicly-held company can be thought of as risk neutral in its valuation of cash flows. However,

if "to play the game, you have to bet the corporation,"[5] that is, if punitive awards can be arbitrarily large, they have the potential to throw defendant companies into financial distress. To avoid such distress and the costs that it brings, firms may adjust their capital structures or investment policies. They might also consider not just the expected penalty of a fraudulent action, but also the variance of the penalty.

To the extent that court imposed penalties are not perfect substitutes for reputational penalties, imposing civil punitive or criminal penalties that are greater than what people would have chosen on their own will force too high a level of quality assurance to be purchased. A deadweight loss is created as more is spent on eliminating contractual breaches or fraud than consumers value the reduction in the probability that these undesirable outcomes will occur.

One argument in favor of legal suits is that allows others to learn about a firm's behavior. Yet, if customers value knowing about these incidents more than the cost of producing this information, it will pay for firms to convince their customers that the customers will learn about incidents when they occur. Even if fines are a more efficient mechanism to punish firms (and undoubtedly that is true in some circumstances), penalty clauses could be enforced as part of private arbitration agreements.

III. Description of the Punitive Lawsuit Sample and Award Amounts

To investigate the sizes, determinants, and valuation impacts of punitive awards, we collected information on lawsuits in which plaintiffs sought punitive awards from a search using the key word punitive of the Lexis/Nexis library, "All Verdicts." This library includes reports from such sources as LRP Publications' Jury Verdict Research, Jury Verdict Weekly, and the Association of Trial Lawyers of America. Information on additional cases from 1990 through June 1996 was collected from the Lexis/Nexis National Law Review

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5 Quote attributed to Michael Horowitz, director of the Hudson Institute's Project for Civil Justice in Peter Passell, "The Split Over Punitive Awards in Getting the Bad Guys," New York Times, Thursday, July 10, 1997, p. D2..

library. Each individual case was followed over time using these sources to try to determine whether any awards were eventually reduced on appeal. To be included in our later estimated impacts on market value, the defendant must be a publicly traded corporation with information available on the 1996 CRSP or 1996 COMPUSTAT databases. The names of many companies listed in the Lexis/Nexis information do not exactly match the names of companies listed in the CRSP and COMPUSTAT databases, or are subsidiaries of publicly traded corporations. To ensure an accurate match between the company names as listed in the Lexis/Nexis data and the CRSP and COMPUSTAT data, we used Dun and Bradstreet's Million Dollar Directory to identify company and subsidiary names.

This search yielded information on 1979 lawsuits in which the plaintiffs sought punitive awards from publicly traded companies from January 1985 through June 1996. Table 1 reports the distribution of the sample by the year in which data were reported and the central topic of the lawsuit. Product liability lawsuits are the most common type, with a total of 374 cases, and insurance-related claims are second, with 315 cases. Then follows business negligence claims with 291 cases, and employment-related claims (including job discrimination, harassment, and contested dismissals) with 222 cases. Less frequent topics include claims of fraud, breach of contract, and malpractice. The 318 cases classified as "miscellaneous" include claims of premises liability, civil rights violations, unfair competition, wrongful death, and toxic torts. The overall number of suits increases from 1985 to the early 1990's, and then declines in 1994 and 1995. Most of this growth from 1985 to 1990 appears to have been driven by product liability, insurance, and business negligence cases.

In classifying the cases, we used the classifications that were provided for most cases by the publications from which we obtained the cases. "Product Liability" suits occur when products are alleged to have malfunctioned or contained a design defect. For example, Chrysler paid $300,000 in compensatory damages and $3 million in punitive damages for "knowingly" producing a defective steering

wheel.[6] Other cases include such incidents as a women setting herself on fire with a malfunctioning cigarette lighter.[7]

"Fraud" involves cases where a firm cheats or is accused of cheating on implicit contracts with suppliers, employees, franchises, or customers. The following are examples: plaintiffs recovered $1.8 million in compensatory damages and interest plus $2.5 million in punitive damages because a defendant had failed to properly investigate a limited partnership that plaintiffs were investing in;[8] an independent Chevron dealer sued Chevron for fraudulently failing to account for fuel removed from the plaintiff's station and then allegedly punishing the dealer for complaining about this by terminating his dealership.[9]

"Insurance claims" entail insurance companies denying coverage for a wide range of problems, such as refusing to reimburse all the costs demanded by plaintiffs from a fire[10] or medical expenses.[11] "Employment" litigation encompasses wrongful termination, discrimination, and sexual or discriminatory harassment. "Malpractice" cases involve failure by pharmaceutical companies to warn of risk of medication.[12] "Breach of Contract" suits occur over failure of firms to deliver the promised products[13] or when a

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6 Dean v. Chrysler, Verdictum Juris Press, No. SF782213, June 30, 1986 to August 1, 1986.

7 Ramona Boroff & Paul Boroff (her husband) v. the BIC Corp and Munford, Inc, d/b/a Majik Market Stores, Florida Jury Verdict Reporter, No. 90:2-46, February 1990.

8 Leslie Alan Lin ET vs Bateman Eichler, Hill Richards, Inc. and Batehill, Inc., Jury Verdicts Weekly, Case no. 166389, May 14, 1990.

9 Richard Delong v. Chevron USA Inc and Lee Carlson, Jury Verdicts Weekly, Case no. 89447, April 24, 1986.

10 Dorothy F. Long et. al. vs Fireman's Fund Insurance Company, Jury Verdicts Weekly, case no. 329896, January 17, 1986.

11 Grossman vs. Aetna Life Insurance Co., Verdictum Juris Press, no. 886-91c, April 22, 1986.

12 Fanny Ilsa Staps et. al. vs Alcon Laboratories, Inc. Case no. 82-1867, September 19, 1986.

13 Trans Meridian, Inc. vs Amstar Corporation, Jury Verdicts Weekly, case no. C85-5389, October 1, 1986.

company took away a market from a distributor.[14] "Miscellaneous" is obviously a very broad category, but involves everything from chlorine gas leaks which harmed third parties[15] to plaintiffs who objected to Disney Land's request that police detain them for intoxicated behavior.[16]

Table 2 reports summary statistics on the sizes of the compensatory and punitive awards for each type of punitive lawsuit. We also partition the sample into cases that resulted in jury verdict findings for plaintiffs, defendant verdicts, and settlements. The most striking finding is that punitive and compensatory awards in settlements are so small relative to the penalties obtained in plaintiff verdicts. The mean punitive damages in settlements are never more than 17 percent the size of the mean punitive damages in plaintiff verdicts, and in seven categories punitive damages never occur. The median punitive award in settlements is zero for all the categories. Even assuming that settlements may not properly disaggregate punitive and compensatory awards, the mean total settlement is less than a third of the mean total award in plaintiff verdicts for nine of the ten categories of cases. Only for vehicular accidents is the mean total settlement larger, and in that case it is only 21 percent bigger. Comparisons between the settlements and overall sample yield similar lopsided differences, with the settlement awards being consistently smaller. Admittedly, the set of firms for which settlement information is available may differ from firms that have hidden any settlement. These values also do not control for other influences such as firm size. These initial results, however, make it difficult to argue that excluding settlements is likely to bias downward any estimates of the sizes of punitive damage awards.

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14 Richard Talbot vs AMF Corporation, Jury Verdicts Weekly, Case no. CV 84-3614, October 27, 1986.

15 Allen et. al. vs Suburban Water Systems, Confidential Report for Attorneys, case no. VC 006 498, December 21, 1993.

16 R. Doss and Michael Garrett vs Disney Land, Jury Verdicts Weekly, no. 40-93-83, February 25, 1986.

IV. Determinants of Punitive Award Amounts

Table 3 reports three attempts to model the predictability of punitive awards. In each regression, the dependent variable is the punitive award. The regressors include the following variables:

• The compensatory award. According to the probability-of-detection theory, punitive awards should be a positive multiple of the compensatory award. Furthermore, the multiple should be inversely correlated with the probability of detection and punishment. This implies that the coefficient on the compensatory award should be positive. Alternatively, juries may consider compensatory and punitive awards to be substitutes. If this is the case, the punitive award should be negatively related to the compensatory amount. It also is possible that juries consider the distinction between compensatory and punitive awards to be arbitrary, and assign total awards to plaintiffs without much regard to their classifications. In this case, the punitive and compensatory amounts should be unrelated.

• The square of the compensatory award. We include this term to allow for a nonlinear relation between the punitive and compensatory awards.

• The natural log of the market value of the defendant company's common stock, measured at the end of the year immediately preceding the year in which a settlement or verdict is reached. We conjecture that the award amount is positively related to firm size, for two reasons. First, we note cases in our sample in which award amounts are reduced for firms that are financially troubled. Second, we conjecture that award amounts are positively related to juries' perceptions of the defendants' abilities to pay. Hence, inclusion of firm size allows us to examine the notion that punitive award amounts are larger for firms with deep financial pockets.

• An index of the firm's industry-related exposure to punitive lawsuits. Some lines of business attract more and different types of punitive lawsuits than others. Automobile manufacturers, for

example, are defendants in many lawsuits following automobile accidents, in which plaintiffs allege some type of product failure. We conjecture that punitive awards may differ systematically across industries, and according to the frequencies with which firms in an industry are targets of punitive lawsuits.

To test this hypothesis, we created an index of each firm's industry-related exposure to punitive award liability. Using data from all 1,979 lawsuits in our sample, we partitioned the lawsuits by year and the two-digit SIC code of the defendant company. SIC codes are taken from the 1996 CRSP database, and when not available on CRSP, from the 1996 COMPUSTAT database. The number of lawsuits in each year-SIC classification then is divided by the number of CRSP-listed firms with the same two-digit SIC. This ratio provides a measure of the relative intensity of punitive lawsuits in each year for each SIC category. The index of industry-related punitive award liability is then the three-year moving average of this ratio, centered on the year of the lawsuit being considered. Therefore, all firms in the same SIC category with punitive lawsuits in the same year have the same index of punitive award liability. Firms with lawsuits in different years, or in different SIC codes, therefore generally have different index values.

- The number of defendants. Some of the defendants of lawsuits in our sample share potential liability with other parties. We include this variable to measure whether the punitive award is related to the number of parties that might share responsibility for an award.

Finally, we include dummy variables to control for the lawsuit type (using the categories reported in Table 1), the year, and the state in which the trial is heard (or in the case of settlements, the lawsuit is filed).[17] Results reported in Table 3 exclude the Exxon Valdez oil spill case because the $5 billion punitive award in this case

[17] Additional estimates were also made for smaller sample which included information on whether the incident had involved a death or an injury, but the coefficient on these variables were statistically insignificant and did not alter the overall explanatory power of our regressions.

is an extreme outlier. (The next largest punitive award in our sample is $250 million.)

Model 1 in Table 3 uses information from 1078 lawsuits for which we have sufficient data on all variables. Some of these lawsuits were resolved in defendants' favor and have zero compensatory and punitive awards. Others have positive compensatory awards, but zero punitive awards. To accommodate the large number of zero punitive awards, we use a Tobit regression model. Model 2 includes data on 807 cases in which the compensatory award is positive. Because many of the punitive awards in these cases are zero, we use a Tobit regression model here also. Model 3 includes only cases in which positive punitive amounts were awarded. It is estimated using ordinary least squares.

The specification in Model 3 is similar to that estimated by Eisenberg (1997). Similar to Eisenberg's findings, the adjusted-R^2 implies that the model explains about 51 percent of the variation in punitive damages. Models 1 and 2, in contrast, imply that less than 2 percent of the variation in punitive damages can be explained when we include observations for which punitive damages are not levied. As predicted by Polinsky (1997), the bottom line is that we can explain the level of punitive damages given that we know that they will be awarded, but we have an exceedingly difficult time explaining any of the overall variation in awards.

Despite the extremely low R^2 in our regressions explaining the overall variation in punitive damages, the true ability to predict these outcomes ex ante is likely to be even lower because it is only after the verdict that the exact amount of compensatory damages are known. While plaintiffs and defendants are likely to guess the level of compensatory damages, they are unlikely to be able to predict them perfectly. Indeed, the ability to predict compensatory damages also appears very limited (e.g., regressing compensatory damages on punitive awards and the other variables we employ still produces a pseudo R^2 of less than 3 percent). In any case, to the extent that knowing the actual ex post compensatory damages provides better information on the jury itself than could be guessed at before the end

of the trial, we are overestimating the amount of the variation in punitive damages that a firm is able to predict.[18]

In all three specifications the coefficients for compensatory awards imply that punitive awards rise less than proportionately with compensatory damages. This is consistent with the punitive damages rising with the probability of detection, and that the probability of detection is rising with the size of the loss. However, including the Exxon Valdez case reverses the signs on both the compensatory award and compensatory award squared variables. The new values are also quite statistically significant at least at the .01 percent level for a two-tailed t-test. If punitive damages are being linked to the compensatory awards by the probability of detection, including the Exxon case indicates that probability is falling more than proportionately to the increase in compensatory awards. Yet, it is difficult to put a lot of weight on estimates that vary so dramatically with the inclusion of a single observation.

Sunstein et al. (1997, p. 5, fn. 21) argue that their work on the unpredictability of punitive awards is consistent with Eisenberg et al.'s claim that the log of compensatory awards can explain this variation, but they explain that this is due to the fact that it is log compensatory awards and not simple compensatory awards that explain the variation in punitive damages.[19] However, at least for our sample, using either the log of compensatory damages, compensatory damages, or compensatory damages and those damages squared all produced very similar results. For example, reestimating the first specification in Table 3 with these changes shows that the coefficient for log damages is 2,005,938 (t-statistic=14.008) and the pseudo R^2=.021, while the coefficient for the simple linear impact of compensatory awards is .814 (t-statistic=12.284) with the pseudo R^2=.016. Contrary to their argument that it is the unbounded scale of monetary damages that produces the unpredictability, we find that

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[18] For example, one type of information might be if there is a positive correlation between a jury's desire to overestimate compensatory damages and its desire to provide a high level of compensatory damages.

[19] Sunstein et. al. (1997, p. 5, fn. 21) write that: "We find no inconsistency between their analyses of real jury awards and our experimental data. Indeed, we agree with their conclusion that log awards are fairly predictable. But defendants and plaintiffs live in a world of dollars, not of log dollars."

it the decision of whether to impose punitive damages that generates the great randomness.

The other variables also produced interesting results. The regressions supply some evidence that firms with deeper pockets (measured here by greater market value) are associated with higher punitive damages. Yet, even this finding is very sensitive to how the regression is specified. Rerunning these regressions with firm market value instead of the log of market value produces a positive but statistically insignificant relationship between firm size an the level of punitive damages. It is not obvious why we expect judges or juries to be setting penalties as a function of the log of firm size as opposed to simply firm size. Neither the index of the vulnerability of different industries to punitive damages nor the number of defendants seems related to the level of punitive damages. The states with the lowest probabilities of high punitive damages were California, Florida, Georgia, North Carolina, and South Dakota, while Alabama and Texas stood out as offering the highest judgments.

Specifications 1 and 3 in Table 4 use the first two specifications in Table 3 to predict the imposition of punitive damages. Because of the statistical insignificance of firm size in explaining whether punitive damages will be awarded and because using this variable greatly reduces our sample size, specifications 2 and 4 reestimate the other regressions with the firm size variable removed. Regressions using the logit procedure are reported, though probit estimates produced very similar results. These regressions imply that only between 18 and 22 percent in the variation of the probability that punitive damages will be awarded can be explained. Generally, the results show that the probability of a punitive damage award increases at a decreasing rate with the level of compensatory awards and that increasing the number of defendants reduces this probability.

V. Assessing the Impact of Recent Supreme Court Decisions on Market Value

Despite the initial work on the predictability of punitive damages, the importance of punitive damages has only been addressed indirectly. Fortunately, recent Supreme Court decisions and congressional attempts to cap liability payments provide ways to

test the importance of punitive awards. This section will concentrate on seven Supreme Court decisions between April 1986 and May 1996 which dealt with a variety of issues over whether punitive damages can ever be excessive (see Table 5). The first five cases refused to rule that punitive damages were excessive, though in the Browning-Ferris case the Court based its decision to allow the award on the defendant's failure to argue that punitive damages awarded violated the Due Process Clause. The Honda Motor case limited punitive damages, but the reasoning was based on peculiarities in Oregon law which were not applicable to other states. BMW of North America v. Gore, despite its reliance on federalist concerns and the vagueness of what constituted excessive punitive awards, was the first direct attempt by the Court to limit these damages.

To investigate the importance of punitive damages on firm value, we performed three types of event study analysis: the impact of these decisions on market-wide stock returns, on firms with active punitive awards cases, and a cross-sectional analysis of firms to see how much of the variation can be explained by such variables as the industry's exposure to punitive damage suits. For the Supreme Court cases we also have three different event dates: when *writ of certiorari* was granted, when arguments were heard, and when the Court's decision was rendered.

Table 6 presents the market-wide stock abnormal returns from these decisions using event windows for days -1 to 1 and -1 to 10 around these events. Only the stock returns around the BMW v. Gore decision date tell a story that consistently implies a negative impact on firms from punitive damages. The Pacific Mutual Life case produces many significant estimates, but it is difficult to tell a consistent story with these results. One could argue that the negative impacts from granting writ and when arguments were heard occurred because this was not the right case to bring before the Court and that when arguments were heard this confirmed the business communities' fears. The Court's 7-to-1 decision that despite the punitive damages being large relative to compensatory damages due process was not violated clearly did not alleviate fears of future punitive damage awards. Most disconcerting is the large positive effects associated with the decision. In fact, for the longer event window, this effect is so large that it more than completely

offsets the negative reactions shown for the two preceding dates. The positive effects implied by the Pacific verdict are also greater than the more explainable positive effect indicated for the BMW verdict. The effects of the Pacific verdict may simply be noise, but it is difficult to discern strong evidence that punitive damages have a negative impact on firm value from this table.

To test whether the Court's decisions primarily impacted firms with recent or pending cases, we included firms in our sample which had court decisions within several different periods of time before and after the three Supreme Court's dates for each case of the seven cases. Presumably, if these decisions matter for anyone, it should especially be so for firms facing legal action. While abnormal stock returns were examined for defendant companies that had verdicts within 3 months or 6 months of the Supreme Court action, only companies whose verdicts were rendered within 12 months of the action were reported as none of the other results were statistically significant. Given the short time allowed for Appeals to be filed of a month or so, shorter time periods before the Supreme Court are desirable, but they did not produce significant results.

Again, even with the long 12 month period, Table 7 makes it difficult to discern any real pattern. If punitive damages were important for these firms, the first five cases should be associated with reductions in market value, while the last two should be associated with increases. For the five cases which did not restrict punitive damages, Supreme Court actions are associated with significant abnormal returns in three cases and significant abnormal returns in two cases. Overall, seven results imply that these actions reduced the values of firms with active cases, but six results imply the reverse. The Honda Motor and BMW cases are also mixed with the only significant coefficient indicating a drop in market value from cert. being granted for Honda.

Finally, Table 8 attempts to explain the cross-sectional variation in firm market value. We examined how these changes depended upon whether firms faced the highest expected compensatory or punitive awards, the level of the firm's market value, or whether the firms were in industries that were particularly susceptible to suits. However, while many of the results are statistically significant, it is difficult to infer any consistent story supporting the notion that

punitive damages matter to firms. Presumably firms facing the highest expected punitive damages should have expected the largest benefits from either the BMW or the Honda decisions, yet the coefficients on punitive damages are always negative (and even significantly so in one case). While our simplest measure of an industry's exposure to punitive damages is positively and significantly related to abnormal market returns for the BMW case, the net effect of index is actually negative because the interaction of the index with a firm's market value has a consistently larger impact.[20] The regressions for the Honda case produce coefficient estimates which are difficult to reconcile with the estimates for the BMW case.

VI. Assessing the Impact of Recent Congressional Attempts to Limit Punitive Awards

With Republicans sweeping control of both the Senate and House of Representatives in November 1994, the 105th Congress promised to be a battle ground over liability reform. While the legislation was ultimately vetoed by President Clinton and Congress was unable to override, at least eight event dates are possible. On March 10, 1995, the House of Representatives passed sweeping legislation that would limit punitive damages to $250,000 or three times the compensatory damages, whichever was greater. Soon after this, a bi-partisan group of Senators on March 16th proposed their own greatly narrowed version of product liability reform primarily directed at very small firms. The press widely interpreted this as evidence that the Senate was going to greatly weaken the strong reforms passed by the House. Despite these early concerns, the Senate did eventually pass its own bill on May 10th which was fairly close to the original House bill. The reform legislation was then placed on hold for a while as Congress focused its attention on the budget. Indeed, it was not until March 18, 1996 that the House-Senate conference committee finally reported out legislation that conformed to the general limits passed by the House, and at this time the White House announced that it would likely veto the bill.

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[20] Rerunning the regressions in Table 8 with only the indexes of industry exposure without the market value interactions produces a negative but statistically insignificant effect.

The bill limited punitive damages for defective-product cases in state and federal courts to $ 250,000 or twice the amount of actual damages, whichever is higher. The House (March 21, 1996) and the Senate (March 29, 1996) passed this compromise, but neither vote was by the necessary two-thirds majority. On May 2nd Clinton vetoed the bill and the House failed to override it on May 9th.[21]

If punitive damages are bad for firms, we should expect March 10, 1995; May 10, 1995; and March 18, 1996 to be associated with increased stock values, while March 16, 1995; May 2, 1996; and May 9, 1996 should reduce stock values. The House and Senate votes on the conference bill are more ambiguous, but despite the overwhelming votes for the conference compromise they were short of veto-proof margins and thus probably signaled that the bill would ultimately fail. We thus expect that these votes would be associated with drops in market value.

Using these eight event dates, we reran a similar set of tests to those reported for the Supreme Court cases. The first column in Table 9 reports the market-wide stock returns for each of these eight dates. Despite the large political battles fought over this legislation, these events had even less of an effect on the overall market than the Supreme Court decisions. None of the eight dates are associated with statistically significant changes in stock market values. Even the point estimates, which are all positive, appear quite unrelated to the theory that punitive damages are important.

The second column is analogous to our results in Table 7, where we investigate the impact of the proposed legal changes for companies that are defendants in unresolved punitive award lawsuits. However, in this case because the law will not affect recently decided cases, we only look at the market value effect on firms whose cases are decided between the event date and the end of the sample period in June 1996. Because of this our sample of pending lawsuits declines over time, from 125 cases for the first date to 8 for the last

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21 After the 1994 election many states passed laws limiting punitive damages and this will weaken the overall impact of changes in federal law. The bias will be towards not find an impact from these legislative changes. The proposed federal law was also written to apply to only those cases which were filed after the law went into effect. This will not effect either the market wide estimated impact or the impact using the industry indexes.

date. The sample size is dramatically smaller for all the 1996 events, with the estimates for the adoption of the conference committee report examining only 17 firms. Despite this seven of the eight results are statistically significant at least at the 10 percent level for a two-tailed t-test, and seven of the eight signs are consistent with the hypothesis that the threat of large punitive damage awards adversely affect those firms facing suits. While the results imply that market values declined by less than half the drop observed in our earlier study of corporate fraud cases (Karpoff and Lott, 1993, p. 776), the t-statistics are surprisingly large and the changes in stock prices appear to fairly consistent across all the firms examined at each event date. The last event, where the House failed to override President Clinton's veto, implies not only the largest impact from these legal debates, but it is the one event which fails to conform to the hypothesis that potentially large punitive damages matter and it is also statistically significant. Why this last event date differs so dramatically from the previous dates is unclear, but overall these eight dates imply that for those firms facing suits attempts to cap punitive damages mattered.

Finally, Table 10 attempts to explain the cross-sectional variation in stock prices shown in the second column in Table 9. Because of the small sample size available for 1996, these estimates examine only the three events in 1995. As in Tables 3 and 8, we attempted to explain the punitive damages as a function of the compensatory award, firm size, an index of industry exposure. Two conclusions can be drawn from this table. First, this model explains little of the overall variation in firm market values, with the largest adjusted-R^2 equal to only .12. Second, while the average effects shown in Table 9 are consistent with the hypothesis that the threat of large punitive damages matter, it is difficult to infer such a consistent story from these results. For example, the results in Table 9 imply that the second event date has the opposite effect of the first and third event dates on market values, but the coefficients for all three regressions shown are the same. Firms in industries facing the greatest threat from suits appear to experience the greatest gains in market value whether or not the event is associated with good or bad news concerning caps on punitive damages, though the effect is not statistically significant for panel A. Similarly, it is not clear why the

higher prospects of a cap should lower market values for firms facing the largest compensatory awards, but that is what panels A and B imply.

The log of firm size appears related to higher punitive awards for the first and third event dates, but while the coefficient is insignificant for the second date, it implies that the threat of higher awards increases the value of the largest firms the most. The interaction between the industry exposure index and firm size implies that whatever the effects of firm size, they are the greatest for those firms in industries with the least exposure to suits.

While Tables 9 and 10 provide evidence that at least for those firms facing suits the prospects of capping punitive damages provides benefits, there is no marketwide effect and it is very difficult to explain the effect across those firms which are facing suits. Punitive damages may be important to those firms presently facing suits, but even the reason for this is difficult to discern.

VII. The Valuation Impacts of Legal Changes on Firms with Punitive Exposure

The tests reported in previous sections examine the impact of Supreme Court decisions and legislation affecting punitive damages on market-wide stock price changes, and on firms that are defendants in current or pending punitive award lawsuits. In this section we examine whether changes in the legal environment affect firms in systematically different ways. In particular, do changes in the legal environment impact firms differently, depending on the firms' exposure to punitive award lawsuits?

To examine this issue, we estimate cross-sectional regressions for each date representing an important Supreme Court decision or news about a key legislative development. The dependent variable in each regression is each firm's cumulative abnormal return for the three-day period centered on this date, which we refer to as date 0. Abnormal returns are calculated from a one-factor market model estimated over days -230 through -31 relative to date 0, using the CRSP equal weighted portfolio as the market index. All firms listed on the 1996 CRSP tapes, and with at least 60 days' data during the estimation period, are included in each cross-sectional regression.

The key independent variable in each regression is our first index of industry-related exposure to punitive award liability. Because of the well-known effect of firm size on cross-sectional differences in returns, we also include the natural log of the market value of common stock as a control variable.

Table 11 summarizes the results of these tests. Panel A contains the results for two important Supreme Court decisions, regarding *Honda Motor Co. V. Oberg and BMW of North America v. Gore.* Panel B contains results for each of the key legislation dates examined in Table 9. In none of the individual cross-sectional regressions is the coefficient for the industry-related index of punitive exposure statistically significant at the 5 percent level. In one case, regarding the March 18, 1996 press announcement regarding a product liability bill, the index coefficient is positive and significant at the 10 percent level. This isolated result is consistent with the hypothesis that stock price changes to news that some punitive awards might be limited were positively related to the firms' exposures to punitive award liability. Overall, however, there is little evidence to support the notion that firm value changes are sensitive to the firms' exposure to punitive liabilities.

To summarize our findings to this point, we examine the impacts on firm values of important Supreme Court decisions and recent legislation regarding punitive awards. Most evidence indicates that market-wide stock price changes, as well as the stock prices of firms that are defendants in current or pending punitive award cases, are not significantly impacted by these changes in the legal environment. Furthermore, most firms' stock price changes are not significantly related to the firms' exposure to punitive award liability.

We do find some limited evidence consistent with the hypothesis that changes in the legal environment affect firm values. In particular, the 1996 BMW Supreme Court decision corresponds to a statistically significant increase in all firms' values, particularly for firms with significant exposure to punitive award liability. Also, news reports of pending legislation aimed at limiting the sizes of punitive awards are associated with positive changes in the values of firms with pending punitive award cases. In the next section, we examine the valuation effects not of changes in the legal environment, but of actual punitive awards decisions.

VIII. The Valuation Impacts of Punitive Lawsuits on Defendant Companies

A. Average valuation impacts of press announcements about punitive lawsuits

In this section we examine the valuation effects on defendant companies when punitive award lawsuits or their outcomes are publicized. To do so, we searched the Lexis/Nexis "All News" database for newspaper stories of punitive award lawsuits. Of the 1,249 cases in our sample in which the defendant firm is listed on the 1996 CRSP daily returns tape, we found at least one news story each for 351 cases. The type and timeliness of news coverage of these cases varies widely. We group the initial press reports into three groups: pre-verdict announcements, verdict or settlement announcements, and post-verdict announcements. Verdict or settlement announcements, in turn, consist of settlements, defense verdicts, and plaintiff verdicts. Post-verdict announcements consist of information that is favorable, unfavorable, or neutral for the defendant firm.

Table 12 reports on the average two-day abnormal stock returns for the initial press announcements of punitive award lawsuits for all 351 cases and for each announcement type. The two-day event window consists of the day before plus the day of the initial press report. Abnormal returns are calculated as the difference between the actual two-day return minus a forecast return from a one-factor market model. We estimate the market model using trading days -230 through -31 relative to the initial press date, and measure market returns using the CRSP equal-weighted index with dividends.

For all 351 initial press announcements, the average two-day abnormal stock return is -0.45%. The t-statistic is -2.70, which is statistically significant at the one percent level. The binomial sign test statistic is -1.91, which is significant at the 10 percent level. These results indicate that, on average, the initial press report of a lawsuit seeking punitive damages is associated with a small but statistically significant decrease in the defendant company's stock value.

The valuation impact is not uniform across announcement types,

however. For initial announcements about an upcoming or currently pending lawsuit, the average abnormal return is -1.02% with a t-statistic of -2.86. For the 188 cases in which the initial announcement is of a plaintiff verdict, the average abnormal return is -0.62% with a t-statistic of -2.74. Thus, the initial announcement of an upcoming or plaintiff verdict is associated with a statistically significant decrease in share values, on average.

In contrast, the average reaction to post-verdict announcements that are favorable to the defendant firm is positive, 1.29%, and statistically significant at the 10 percent level. "Favorable" announcements include news that the firm has won the right to appeal an earlier verdict, or that the award amount had been reduced. Unfavorable post-verdict news, which includes announcements that the firm failed in an attempt to gain an appeal or have the award reduced, is associated with a small negative but statistically insignificant average stock price reaction. Also statistically insignificant are the average reactions to post-verdict news that we label neutral, and initial announcements of settlements. The average abnormal return to settlement announcements is a large -2.43%, but the t-statistic is only 1.35. Contrary to our earlier results in Section III, the point estimate is consistent with Polinsky's hypothesis that settlements involve the largest losses.

Many lawsuits received press attention after their initial news articles. The right-hand column in Table 12 reports on the valuation impacts of the first *subsequent* article that reported substantially new information about the lawsuit. Most types of subsequent announcement average abnormal returns are not significantly different from zero. Averaging across all subsequent announcements, for example, the mean abnormal return is -0.33% with a t-statistic of -1.15. The one exception is for plaintiff verdicts in cases that previously were the subjects of a press article, where the mean two-day abnormal stock return is -1.36%, with a t-statistic of -2.37. We interpret this as indicating that plaintiff verdicts are not fully anticipated, and are associated with declines in the share values of the defendant companies.

The results imply that publicity about lawsuits involving actual or potential punitive awards are associated, on average, with declines in the values of the defendant companies. This is true particularly for

any initial pre-verdict publicity about current or pending lawsuits, as well as for verdicts in favor of plaintiffs. Announcements of plaintiff verdicts are associated with stock value losses, on average, even for cases that previously received press attention.

B. Average changes in defendant firms' market value of equity

While punitive lawsuits are bad news for defendant companies, the average valuation impact is small in percentage terms. In Table 13 we report summary statistics on the dollar magnitude of the abnormal returns. For each firm, we compute the dollar change in the market value of equity by multiplying the firm's initial announcement two-day abnormal return by the market value of its common stock, computed ten calendar days before the initial press announcement. The distribution of company values is highly skewed, so the distribution of the change in the market value of equity is skewed and contains many extreme values. For the whole sample, the change in the market value of equity ranges from a low of -$2,019 million to a high of $1,802 million. To draw inferences about the average magnitudes of the changes in value, we therefore focus on the median changes. Table 13 also reports the changes in the 25th and 75th percentiles of the distribution of market value changes.

Over all firms, the median change in the market value of equity is negative, -$2.9 million. As a basis for comparison, Karpoff and Lott (1993) report a median market value loss to firms investigated or charged in criminal fraud to be $5.5 million, and Karpoff, Lee, and Vendrzyk (1997) find that the median value loss to contractors charged with defense procurement fraud is $5.0 million. Based on these medians, the average announcement period market value loss for defendant companies in punitive lawsuits is approximately half as large as that for firms involved with criminal or defense procurement fraud.

As might be expected, the median market value losses differ according to the nature of the initial press announcement. The median changes in market value are negative for pre-verdict announcements, defense verdicts, settlements, plaintiff verdicts, and post-verdict unfavorable information. Median changes in market value are positive for neutral and favorable post-verdict announcements.

C. The reputational effects of punitive award lawsuits

The market value losses for pre-verdict announcements, settlements, and plaintiff verdicts provide insight into the nature of the costs of punitive-seeking lawsuits on the defendant companies. For pre-verdict announcements, the median market value loss is $2.4 million. The median total award eventually reached for these cases is $1.7 million, or 71% of the initial market value loss. For settlements, the median total award is $0.8 million, which is 42% of the median announcement period market value loss for these firms. The median total amount awarded by juries in the 193 plaintiff announcements is $6.9 million, or 81% of the $8.5 million median market value loss upon the initial announcements of these cases.

These figures imply that pre-verdict news, settlements, and adverse jury verdicts have consequences that, on average, are more costly than the nominal amount of the awards. One possibility is that publicity about the lawsuit, or about an adverse punitive award, imposes reputational costs on the defendant firm. Such costs can arise from an increase in the firm's costs, or decrease in sales, that result from publicity about the case. As examples: product liability charges can decrease demand for the firm's product, breach of contract charges can increase contracting costs, and charges of discrimination or harassment by employees can raise the reservation wages of current or prospective employees.

Our estimates suggest that the reputational costs of punitive lawsuits can be substantial. Consider, for example, adverse jury verdicts. If the only cost is the amount of the award, the average valuation impact of the verdict would be no greater than $6.9 million. A lower-bound estimate of the median reputational cost therefore is the difference between the median market value loss and this amount, or $1.6 million. If investors were aware of the lawsuit, however, the implied reputational cost is much higher. Suppose that the ex ante likelihood of an adverse jury ruling is 50%, and suppose further that the firm's pre-verdict market value reflects this expectation. Then a drop in value of $8.5 million upon the announcement implies that the ex ante total expected cost to the firm is twice that, or $17.0 million. Thus, if the jury-awarded cost to the firm is only $6.9 million, the implied reputational cost is approximately $10.1 million (equal to $17.0 million - $6.9 million).

These figures imply that the reputational loss comprises a large share of the total cost to firms that have adverse jury verdicts in punitive award lawsuits. Since many jury awards are reduced through appeal or post-verdict settlements, the portion of the total $17.0 million loss that can be attributed to reputation may be even larger than the $10.1 million we estimate here.

It is possible to back out estimates of the implied reputational cost using data on pre-verdict and settlement announcement market value losses, compared to the median awards in those cases. As reported above, the median awards in these cases are even smaller relative to the median market value losses than for the plaintiff verdict subsample. The uncertainty surrounding the outcomes for these cases differs also. For settlements, for example, the uncertainty about the size of the award is reduced to zero. Using median values, we estimate that the reputational cost is approximately 58% of the median market value loss in these cases.

Table 14 presents summary information that permits us to investigate the sizes of the reputational costs of different lawsuit types. For each lawsuit type, we report summary measures of the loss in market value upon the initial press announcement, the size of the total award, the difference between the market value loss and the total award, and the ratio of the total award to the size of the market value loss. We include only cases for which the initial press announcement is of a pending lawsuit, a settlement, or a plaintiff verdict, and exclude defense verdicts and post-verdict announcements. In a small number of cases, the change in the market value of equity is very small compared to the total award, implying extreme positive and negative values for the ratio of the penalty to the loss in market value. Since, for most firms, this ratio is small, the inclusion of such extreme values swamps any measure of the sample mean. We therefore exclude 41 cases for which the absolute value of the ratio of the total award to the loss in the market value of equity is greater than 2.0. Of the excluded cases, 22 have positive values of this ratio, and 19 have negative values.[22]

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[22] Thus, the exclusion of these cases does not materially influence the median values reported in Table 14. Among the excluded extreme values, the largest in absolute value is -1097. (A negative value implies that the firm's market value of equity increased during the two-day announcement period.)

Over all lawsuit types in this reduced sample, the median loss in market value is $9.6 million. The median total award is $3.9 million. Again, this comparison of medians suggests that, on average, firms experience market value losses that are not completely explained by the size of the award. This point is implied also by the fact that the median ratio of the total award to the market value loss is only 0.01. (The mean is 0.16.)

Across lawsuit types, none of the median ratios of the total award to the change in market value of equity approach 1.0, suggesting that, the implied reputational penalties are substantial for all lawsuit types. In dollar terms, the largest implied median reputational costs are for business negligence ($22.1 million) and employment-related ($16.2 million) lawsuits. Substantial reputational costs are also implied for fraud ($8.1 million), vehicular accident ($5.8 million), and insurance claim ($3.3 million) lawsuits. These figures must be regarded as rough estimates only, however. As reported, the median reputational losses implied for breach of contract and products liability lawsuits are negative. For asbestos-related lawsuits, the median *ratio* of total award to the loss in market value is negative. Negative values arise when the announcement period abnormal return, and hence, the measured change in equity value, is positive. The fact that the median values sometimes are negative indicates that our estimates are highly sensitive to estimation and small sample size problems.

D. Determinants of the cross-section of abnormal returns to initial publicity about the lawsuits

Table 15 reports on several ordinary least squares regressions that are used to investigate the determinants of the cross-section of abnormal returns to initial publicity about the punitive award lawsuits. For these tests, we use data on all the 287 observations for which the initial press announcements are about a pending lawsuit, settlement, or verdict. (Post-verdict initial announcements are excluded.) The dependent variable is the two-day announcement period abnormal return divided by its standard error. Independent variables include characteristics of the lawsuit and the defendant firm.

In Model 1, the regressors include measures of firm size, an index of the firm's exposure to punitive award lawsuits, the sizes of the

compensatory and punitive awards, and dummy variables for the type of announcement. The abnormal return is positively and significantly related to the natural log of the value of the firm's common stock. Further investigation reveals that this result partly is attributable to several small firms for which the standardized announcement period abnormal return is negative and large in magnitude. Even excluding these cases, however, the coefficient on the log of the market value of equity is positive and statistically significant.

The positive relation does not imply that large firms have positive announcement period abnormal returns, however. Even among the top half of the firms partitioned by the market value of equity, the average standardized abnormal return is negative.[23]

Rather, the positive relationship indicates that the percentage decrease in firm value upon the initial press announcement of a punitive lawsuit is relatively small for large firms. We interpret this as indicating that the proportionate impact of a punitive lawsuit on firm value decreases with firm value.

The coefficient on the index of punitive liability exposure also is positive, and is significant at the 5 percent level. This result indicates that the surprise of news about a punitive lawsuit, and therefore the decrease in firm value, is relatively small for firms in industries that are subject to frequent punitive lawsuits. Thus, capital markets appear to take into account a firm's potential to be sued for punitive damages in the valuation of the firm's common stock.

Other than for the constant term, none of the other coefficients in Model 1 are significantly different from zero. The abnormal return is not significantly related to the sizes of the compensatory or punitive awards, nor to the specific content of the announcement. The coefficient for defense verdicts is positive, and for plaintiff verdicts is negative, but neither is significantly different from zero. Nor are the two coefficients significantly different from each other.

We conducted additional tests to examine the sensitivity of these results to alternate specifications, and also to examine the influence of several additional explanatory variables. In Model 2, we

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[23] The median change in the market value of equity also is more negative for large firms than for small firms, reflecting the larger base from which the changes are calculated.

introduce two dummy variables that account for the nature of any personal injury or death involved in the lawsuit. Neither of these dummy variables is significantly related to the abnormal return, indicating that the lawsuits in which a victim suffered injury or death are not, on average, associated with unusually large market value losses to the defendant firm. In Model 3, we combine the compensatory and punitive awards into a single regressor. The total award, however, is not significantly related to the standardized abnormal return. In Model 4 we examine the effect of our second index of a firm's exposure to punitive award liability. This variable also is not significantly related to the abnormal return.

In summary, we find that the announcement period abnormal return increases with firm size, and also somewhat with our first index of the firm's exposure to punitive-seeking lawsuits. (Still must test to see whether this relationship holds for other specifications of firm size.) None of our attempts to explain the cross-section of abnormal returns is very successful, however. The adjusted R^2 values, for example, are no higher than 0.051. We conclude that, like the punitive awards themselves, the changes in firms' values in response to initial publicity about the lawsuits are not easily explainable.

IX. Conclusion

As Polinsky (1997) suspected, punitive damages appear to be quite random, but most of our tests indicate that these awards are only of concern to firms currently facing lawsuits and even here the evidence is weak. Randomness appears to be relatively greater for when punitive awards will be imposed rather than for the level of punitive awards given that they are imposed. Whether one examines the actual awards for the entire set of punitive damages or the changes in market value, only a very small portion of the variation across firms can be explained. We do not find support for the notion that settlements represent bigger losses to firms than court verdicts.

We find little significant evidence that punitive awards have large detrimental impacts on the economy nor do we find that the attempts to restrict punitive awards are viewed as particularly important. Recent Supreme Court decisions limiting punitive damages appear to be particularly ineffective, though recent congressional actions provide evidence of impacts for firms facing

suits. Abnormal market return tests of punitive lawsuits indicates that initial press coverage corresponds to statistically significant decreases defendant companies' values, indicating that punitive lawsuits are important to defendants. Overall, no real significant evidence exists that settlements affect firms differently than verdicts and different approaches of measuring these impacts imply that these insignificant estimates vary in sign. Evidence on actual settlements and verdict awards indicates that settlements are smaller, while the initial press announcements show that abnormal returns from settlements are larger. Our results imply a positive, though uncertain, relationship between firm size and the threat faced from punitive awards. The result appears sensitive to how firm size is measured and different event dates yield inconsistent results.

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Readers with comments should address them to:

John R. Lott, Jr.
John M. Olin Fellow in Law and Economics
The Law School
The University of Chicago
1111 E. 60th Street
Chicago, IL 60637

Table 1
Description of the Punitive Award Lawsuit Sample, 1985-1996

Panel A reports the number of lawsuits seeking punitive damage awards from publicly traded defendant corporations, January 1985 - June 1996, grouped by year and lawsuit type. Cases were identified through the Lexis/Nexis database. To be included in the sample, the defendant firm must be listed on the 1996 Center for the Study of Security Prices (CRSP) or 1996 Compustat databases. Panel B reports on the subset of lawsuits for which data are available only from the 1996 CRSP database. Panel C reports on the subset of lawsuits for which data are available on the 1996 CRSP database that received press coverage, as reported on Lexis/Nexis. The verdicts for all lawsuits in the sample were handed down between 1985 and 1995, although the initial press announcements for several lawsuits occurred before 1985. Miscellaneous claims include allegations of wrongful death, premises liability, liability for vehicular accidents, trademark violations, libel, toxic exposure, and civil rights violations.

	Fraud	Business negligence	Breach of contract	Product liability	Insurance claims	Asbestos claims	Employment claims	Vehicular accidents	Malpractice claims	Misc. claims	Total
Panel A: Total sample											
1985	11	3	9	18	23	0	22	6	5	26	123
1986	12	9	18	12	20	2	19	7	2	21	122
1987	12	23	15	26	35	10	20	6	3	35	185
1988	7	13	13	20	19	2	20	12	2	25	133
1989	18	17	15	28	29	11	15	10	1	35	179
1990	16	25	14	50	41	2	18	17	2	29	214
1991	9	48	12	39	45	6	18	12	1	38	228
1992	10	44	15	47	31	7	19	8	5	24	210
1993	11	35	13	46	27	16	23	11	3	38	223
1994	6	32	18	37	21	1	22	6	1	19	163
1995	6	31	5	33	18	2	23	11	0	23	152
1996	0	11	0	18	5	0	3	4	1	5	47
Total	118	291	147	374	314	59	222	110	26	318	1979
Panel B: Subsample in which defendant has data available on the 1996 CRSP tapes											
Total	67	185	80	255	221	31	150	60	18	182	1249
Panel C Event study subsample—events that received press attention											
Total	20	62	24	81	42	14	48	10	0	50	351

Table 2
Summary of Award Amounts

Summary statistics on compensatory, punitive, and total amounts awarded in 1,979 lawsuits in which plaintiffs sought punitive damage awards from defendants that are publicly traded corporations. Verdicts were rendered or settlements made between 1985 and 1996. The lawsuits are grouped in columns by outcome (defense verdict, plaintiff verdict, or settlement) and in rows by the lawsuit topic. In each cell, the top number is the mean punitive, compensatory, or total award for lawsuits in the cell. The number in parentheses is the median award, the number in square brackets is the maximum, and the number at the bottom is the standard deviation. Positive award amounts for defense verdicts represent payments agreed to after the verdict. All amounts are in millions of dollars.

	Defense verdicts			Plaintiff verdicts			Settlements			All lawsuits		
Lawsuit type:	Compen.	Punitive	Total	Compen.	Punitive	Total	Compen.	Punitive	Total	Compen.	Punitive	Total
Frauds		n=29			n=86			n=3			n=118	
	0.020	0.000	0.020	5.301	14.811	20.287	1.157	2.500	3.657	3.886	10.858	14.837
	(0.000)	(0.000)	(0.000)	(0.154)	(0.130)	(0.540)	(0.900)	(0.000)	(0.900)	(0.070)	(0.000)	(0.262)
	[0.294]	[0.000]	[0.294]	[154.160]	[250.000]	[404.160]	[2.250]	[7.500]	[9.750]	[154.160]	[250.000]	[404.160]
	.076	0.000	.076	20.437	42.989	60.114	0.990	4.330	5.285	17.547	37.221	51.935
Business negligence		n=6			n=280			n=5			n = 291	
	0.138	0.001	0.139	2.096	20.693	22.861	1.629	0.000	1.629	2.047	19.910	22.025
	(0.000)	(0.000)	(0.000)	(0.152)	(0.300)	(0.525)	(2.055)	(0.000)	(2.055)	(0.151)	(.300)	(.523)
	[0.830]	[0.005]	[0.835]	[287.000]	[5,000.000]	[5,287.000]	[2.600]	[0.000]	[2.600]	[287.000]	[5,000.000]	[5,287.000]
	0.339	0.002	0.341	17.449	298.763	316.486	1.124	0.000	1.124	17.117	293.069	310.433
Breach of contract		n=35			n=108			n=4			n = 147	
	0.000	0.000	0.000	7.837	9.550	17.567	1.381	0.000	1.381	5.797	7.016	12.960
	(0.000)	(0.000)	(0.000)	(0.394)	(0.000)	(0.912)	(0.685)	(0.000)	(0.685)	(0.117)	(0.000)	(0.253)
	[0.000]	[0.000]	[0.000]	[130.000]	[400.000]	[500.000]	[3.353]	[0.000]	[3.353]	[130.000]	[400.000]	[500.000]
	0.000	0.000	0.000	23.190	41.564	55.859	1.733	0.000	1.733	20.165	35.833	48.485
Product liability		n=42			n=310			n=22			n=374	
	0.000	0.000	0.000	3.734	6.184	9.917	0.765	0.000	0.765	3.140	5.126	8.265
	(0.000)	(0.000)	(0.000)	(1.059)	(0.694)	(2.030)	(0.430)	(0.000)	(0.430)	(0.652)	(0.197)	(1.449)
	[0.000]	[0.000]	[0.000]	[50.000]	[101.000]	[150.000]	[4.400]	[0.000]	[4.400]	[50.000]	[101.000]	[150.000]
	0.000	0.000	0.000	6.960	14.005	18.224	1.032	0.000	1.032	6.475	12.959	16.993
Insurance claim		n=48			n=244			n=22			n=314	

	Defense verdicts			Plaintiff verdicts			Settlements			All lawsuits		
Lawsuit type:	Compen.	Punitive	Total	Compen.	Punitive	Total	Compen.	Punitive	Total	Compen.	Punitive	Total
	0.000	0.000	0.000	0.939	3.817	4.804	1.482	0.080	1.495	0.828	2.972	3.836
	(0.000)	(0.000)	(0.000)	(0.200)	(0.100)	(0.611)	(0.365)	(0.000)	(0.330)	(0.100)	(0.000)	(0.366)
	[0.000]	[0.000]	[0.000]	[25.000]	[100.000]	[100.432]	[19.450]	[1.750]	[19.450]	[25.000]	[100.000]	[100.432]
	0.000	0.000	0.000	2.466	11.473	12.687	4.260	0.373	4.168	2.450	10.233	11.381
Asbestos claims		n=14			n=36			n=9			n=59	
	0.000	0.000	0.000	2.419	2.909	5.328	1.641	0.000	1.641	1.726	1.775	3.501
	(0.000)	(0.000)	(0.000)	(1.519)	(0.000)	(1.519)	(1.016)	(0.000)	(1.016)	(0.500)	(0.000)	(0.500)
	[0.000]	[0.000]	[0.000]	[8.450]	[54.000]	[57.370]	[3.877]	[0.000]	[3.877]	[8.450]	[54.000]	[57.370]
	0.000	0.000	0.000	2.707	9.474	10.315	1.746	0.000	1.746	2.421	7.497	8.378
Employment claims		n=50			n=168			n=4			n=222	
	0.000	0.000	0.000	0.852	2.693	3.578	1.045	0.000	1.045	0.662	2.038	2.719
	(0.000)	(0.000)	(0.000)	(0.250)	(0.100)	(0.500)	(0.750)	(0.000)	(0.750)	(0.154)	(0.000)	(0.284)
	[0.000]	[0.000]	[0.000]	[9.800]	[100.000]	[107.750]	[2.637]	[0.000]	[2.637]	[9.800]	[100.000]	[107.750]
	0.000	0.000	0.000	1.700	10.880	12.184	1.130	0.000	1.130	1.525	9.528	10.685
Vehicular accidents		n=3			n=98			n=9			n=110	
	0.000	0.000	0.000	0.992	0.991	2.015	2.304	0.000	2.304	1.063	.883	1.979
	(0.000)	(0.000)	(0.000	(0.376)	(0.015)	(0.545)	(2.797)	(0.000)	(2.797)	(0.338)	(0.010)	(0.523)
	[0.000]	[0.000]	[0.000]	[13.700]	[22.500]	[25.000]	[5.500]	[0.000]	[5.500]	[13.700]	[22.500]	[25.000]
	0.000	0.000	0.000	1.750	2.938	3.919	2.025	0.000	2.025	1.780	2.789	3.761
Malpractice claims		n=6			n=20			n=0			n=26	
	0.000	0.000	0.000	0.728	1.625	2.353				0.560	1.250	1.810
	(0.000)	(0.000)	(0.000)	(0.036)	(0.027)	(0.133)				(.015)	(0.000)	(0.067)
	[0.000]	[0.000]	[0.000]	[5.900]	[24.000]	[25.250]				[5.900]	[24.000]	[25.250]
	0.000	0.000	0.000	1.681	5.331	5.757				1.499	4.700	5.120
Misc. claims		n=57			n=245			n=16			n=318	
	0.000	0.000	0.000	3.890	3.419	7.376	1.507	0.000	1.507	3.090	2.634	5.765
	(0.000)	(0.000)	(0.000)	(0.200)	(0.040)	(0.478)	(0.307)	(0.000)	(0.307)	(0.071)	(0.000)	(0.177)
	[0.000]	[0.000]	[0.000]	[416.000]	[125.000]	[541.000]	[8.350]	[0.000]	[8.350]	[416.000]	[125.000]	[541.000]
	0.000	0.000	0.000	27.573	13.320	37.301	2.377	0.000	2.377	24.314	11.774	32.907

	Defense verdicts			Plaintiff verdicts			Settlements			All lawsuits		
Lawsuit type:	Compen.	Punitive	Total	Compen.	Punitive	Total	Compen.	Punitive	Total	Compen.	Punitive	Total
All Lawsuit Types		n=290			n=1,595			n=94			n=1,979	
mean	0.005	0.000	0.005	2.867	7.819	10.765	1.372	.098	1.460	2.377	6.317	8.749
(median)	(0.000)	(0.000)	(0.000)	(0.300)	(0.130)	(0.770)	(.517)	(0.000)	(.500)	(0.196)	(0.025)	(.478)
[maximum]	[0.830]	[0.005]	[0.835]	[416.000]	[5,000.000]	[5,287.000]	[19.450]	[7.500]	[19.450]	[518.536]	[5,000.000]	[5,287.000]
standard deviation	0.054	0.000	0.055	15.558	126.423	135.717	2.463	.792	2.609	18.242	113.507	121.940

Table 3
Determinants of Punitive Award Amounts

Estimates of the relations between the punitive award and characteristics of the lawsuit and the defendant company. Model 1 is a Tobit regression using data from 1078 cases, including cases in which the punitive and/or compensatory award is zero. Model 2 is a Tobit regression using data from 807 cases in which the compensatory award is positive. Model 3 is an ordinary least squares regression using data from 668 cases in which positive punitive amounts are awarded. All coefficients except for the compensatory award and compensatory award squared are in millions. p-values are in parentheses.

Variable	Model 1	Model 2	Model 3
Compensatory award	1.78*** (.000)	1.42*** (.000)	1.37*** (.000)
Compensatory award squared (x 10^{-9})	-9.57*** (.000)	-7.22*** (.000)	-0.04 (.980)
Ln of the market value of equity	0.55* (.071)	0.89*** (.007)	0.98*** (.002)
Index of industry exposure to punitive award liability	-0.92 (.978)	-1.30 (.713)	-30.70 (.374)
Number of defendants	0.01 (.987)	0.04 (.956)	1.57** (.033)
Fixed effects for lawsuit type	YES	YES	YES
Fixed year effects	YES	YES	YES
Fixed state effects	YES	YES	YES
Intercept	12.60** (.073)	8.79* (.210)	0.45 (.944)
n	1087	807	668
Chi-squared (F-value for model 3)	446.7	340.7	8.41
p-value	.000	.000	.000
Pseudo R^2 (adjusted R^2 for model 3)	.018	.015	.508

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on a two-tailed test.

Table 4
Factors Affecting the Likelihood that Punitive Damages Will be Awarded

Logistic regression estimates in which the dependent variable is equal to 1 if a positive punitive amount is awarded, and zero otherwise. Model 1 includes all cases in the sample for which the punitive award amount is reported and data are available on the firm's market value of equity. Model 2 includes additional firms without market value of equity data. Models 3 and 4 include only cases in which positive compensatory amounts are awarded. Significance levels are in parentheses.

Variable	Model 1	Model 2	Model 3	Model 4
Compensatory award (x 10^{-7})	2.16***	0.82**	0.58	0.17
	(.000)	(.013)	(.101)	(.152)
Compensatory award squared (x 10^{-16})	-26.70***	-1.85*	-9.22	-0.34
	(.000)	(.000)	(.148)	(.360)
Ln of the market value of equity	-0.05	----	-0.02	----
	(.195)		(.735)	
Index of industry exposure to punitive award liability	3.30	1.53	-1.05	-1.94
	(.449)	(.652)	(.861)	(.680)
Number of defendants	-0.12	-0.20***	-0.18	-0.218**
	(.202)	(.004)	(.181)	(.026)
Intercept	21.67***	19.52***	21.26***	20.67***
	(.000)	(.000)	(.000)	(.000)
Fixed effects for lawsuit type	YES	YES	YES	YES
Fixed year effects	YES	YES	YES	YES
Fixed state effects	YES	YES	YES	YES
n	953	1497	636	1058
Pseudo R^2	.220	.203	.183	.192
Model Chi-squared	287	411	135	221

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on a two- tailed test.

Table 5
Information on Important U.S. Supreme Court Decisions Regarding Punitive Damage Awards, 1985-1996

			U.S. Supreme Court dates			
Title	Description	Lower court outcome	Writ	Argued	Decided	Outcome
Aetna Life Insurance v. Lavoie	Breach of contract	$1,650 actual damages $3.5 million punitive award	NA	12/4/85	4/22/86	Award affirmed
Bankers Life and Casualty v. Crenshaw	Breach of contract	$20,000 actual damages $1.6 million punitive award	NA	10/30/87	5/16/88	Award affirmed
Browning-Ferris Industries v. Kelco Disposal, Inc.	Antitrust claim	$366,000 (treble) damages and court costs $6.066 million punitive award	12/5/88	4/18/89	6/26/89	Award affirmed
Pacific Mutual Life v. Haslip	Breach of contract	$200,000 actual damages $3.84 million punitive award	4/2/90	10/3/90	3/4/91	Award affirmed
TXO Production Corp. v. Alliance Resources Corp.	Title dispute	$19,000 actual damages $10 million punitive award	11/30/92	3/31/93	6/25/93	Award affirmed
Honda Motor Co. v. Oberg	Product liability	$900,000 actual damages $5 million punitive award	1/14/94	4/20/94	6/24/94	Reversed and remanded
BMW of North America v. Gore	Consumer fraud	$4,000 actual damages $2 million punitive award	1/23/95	10/11/95	5/20/96	Reversed

Table 6
Market-wide Stock Returns around Important U.S. Supreme Court Decisions

Aggregate equal-weighted market returns around key U.S. Supreme Court decisions regarding punitive damage awards, 1985-1996. Test statistics, in parentheses, are distributed approximately as unit normal under the null hypothesis of no abnormal returns. Each test statistic is computed as the cumulative aggregate return minus the expected return, divided by an estimate of the standard error of the cumulative return. The expected return and standard error are estimated from stock returns during the 200 trading days immediately preceding the event period.

	Cumulative aggregate returns around the following dates:					
	Petition for writ of certiorari granted		Arguments heard		Decision rendered	
	(-1, +1)	(-1, +10)	(-1, +1)	(-1, +10)	(-1, +1)	(-1, +10)
Aetna Life Insurance v. Lavoie	NA	NA	0.316 (0.23)	1.766 (0.81)	0.194 (-0.18)	0.979 (-0.20)
Bankers Life and Casualty v. Crenshaw	NA	NA	3.797** (2.06)	4.695 (1.14)	0.164 (-0.10)	1.573 (0.04)
Browning Ferris Industries v. Kelco Disposal, Inc.	0.392 (0.11)	3.060 (0.62)	0.413 (0.09)	1.943 (0.26)	0.749 (-1.293)	1.344 (-0.067)
Pacific Mutual Life v. Haslip	1.045** (-2.00)	1.532** (-1.99)	-2.353*** (-2.69)	-2.785* (-1.75)	2.192* (1.83)	6.199** (2.50)
TXO Production Corp. v. Alliance Resources Corp.	1.456 (1.08)	4.581 (1.44)	0.700 (-1.50)	0.692 (-1.02)	0.912 (0.34)	2.170 (-0.25)
Honda Motor Co. v. Oberg	0.489 (-0.20)	0.907 (-1.14)	0.650 (0.07)	1.830 (-0.36)	-0.407 (-1.18)	0.866 (-0.76)
BMW of North America v. Gore	0.168 (-0.96)	2.265 (0.42)	0.757 (1.91)	0.642 (0.50)	1.413** (1.75)	3.136* (1.94)
Average, cases 1 – 5	0.268	2.036	-0.295	1.262	0.543	2.453
t-statistic	(-0.47)	(0.04)	(-0.81)	(-0.25)	(0.27)	(0.91)
Average, cases 6 - 7	0.161	1.586	0.704	1.236	0.503	2.001*
t-statistic	(-0.79)	(-0.57)	(1.26)	(0.60)	(0.44)	(1.92)

*, *, and *** indicate that the abnormal return is statistically significant at the 10%, 5%, and 1% levels, respectively.

Table 7
Mean Abnormal Stock Returns for Firms with Recent, Current, or Pending Punitive Awards Cases

Mean three-day abnormal stock returns for defendant companies in lawsuits seeking punitive awards that occur within 365 calendar days of U.S. Supreme Court actions concerning seven cases with important implications for punitive awards. Each cell presents the number of firms with lawsuits settled within 365 days of the Supreme Court action, the mean abnormal stock return (in %) for the three days centered on the day of the Court action, and (in parentheses) the associated t-statistic.

	Petition for writ of certiorari granted	Arguments heard	Decision rendered
Aetna Life Insurance v. Lavoie	NA	n=127 -0.15 (-0.64)	n=148 -1.56 (-5.61)
Bankers Life and Casualty v. Crenshaw	NA	n=189 -3.36 (-7.76)	n=195 0.05 (0.22)
Browning-Ferris Industries v. Kelco Disposal, Inc.	n=185 -0.27 (-1.36)	n=185 0.35 (1.42)	n=200 0.18 (0.83)
Pacific Mutual Life v. Haslip	n=260 0.04 (0.22)	n=258 -1.53 (-4.79)	n=253 -0.27 (0.41)
TXO Production Corp. v. Alliance Resources Corp.	n=256 0.89 (3.76)	n=261 -0.18 (-0.62)	n=272 1.05 (5.55)
Honda Motor Co. v. Oberg	n=282 -0.35 (-1.87)	n=276 0.37 (1.57)	n=263 0.24 (1.48)
BMW of North America v. Gore	n=240 -0.27 (-1.52)	n=163 0.29 (1.43)	n=108 0.18 (0.93)

Table 8
Cross-sectional Determinants of Stock Price Reactions to Important U.S. Supreme Court Decisions

Estimated coefficients from regressions using the firm-specific three-day abnormal stock return as the dependent variable. In Panel A, abnormal stock returns are measured over the three trading days centered on May 20, 1996, the day the U.S. Supreme Court handed down its decision in the BMW case. In Panel B, abnormal stock returns are measured over the three trading days centered on June 24, 1994, the day the U.S. Supreme Court handed down its decision in the Honda Motors case. In each panel, observations are included only for firms that are defendants in punitive award cases within 365 calendar days, before or after, the date of the Supreme Court action. The regressors include the compensatory award divided by the firm's market value of equity, the punitive award divided by the firm's market value of equity, the natural log of the firm's market value of equity, and indices of the firm's exposure to punitive award liability. Index #1 reflects the relative frequency of punitive award lawsuits for firms in the same industry during the three-year period centered on the current year. Index #2 is index #1 multiplied by the average punitive award in those same lawsuits. t-statistics are in parentheses.

				Exposure to punitive award liability:						
Regression number	Compensatory award	Punitive award	Ln(MVE)	Index #1	Index #2	Index #1x ln(MVE)	Index #2x ln(MVE)	n	Adj. R-squared	F-statistic
	($\times 10^{-5}$)	($\times 10^{-5}$)	($\times 10^{-4}$)	($\times 10^{-1}$)	($\times 10^{-9}$)	($\times 10^{-3}$)	($\times 10^{-11}$)			
Panel A: Effects of BMW of North America v. Gore on values of firms with nearby punitive damage awards cases										
1	5.29^{***} (4.67)		7.58^{***} (3.43)	4.94^{**} (2.59)		-3.17^{**} (-2.48)		106	.292	11.85^{***}
2		-5.58 (-1.18)	7.41^{***} (3.00)	8.51^{***} (4.43)		-5.47^{***} (-4.23)		106	.151	5.68^{***}
3	6.53^{***} (6.10)		3.90^{**} 2.24		-1.52 (-0.50)		9.14 (0.50)	106	.244	9.46^{***}
4		-5.40 (-1.04)	7.07 (0.04)		-1.79 (-0.51)		10.82 (0.51)	106	-.024	0.39

Panel B: Effects of Honda Motor Co. v. Oberg on values of firms with nearby punitive damage awards cases.

1	-6.96*** (-5.15)		-3.71 (-1.17)	1.03 (0.54)		-5.39 (-0.41)	262	.094	7.74***
2		-6.84 (-6.01)	-4.77 (-1.52)	0.18 (0.10)		0.33 (0.03)	262	.123	10.18***
3	-7.07 (-5.27)***		-4.00 (-1.77)*		-0.81 (-0.41)	0.40 (0.33)	262	.089	7.39***
4			-7.02*** (-6.27)	-4.53** (-2.05)	-2.47 (-1.26)	1.41 (1.18)	262	.125	10.29***

Table 9
Stock Returns around Key Dates in the History of Punitive Award Reform Legislation

Three-day stock returns and abnormal stock returns centered on each of eight dates in the development of punitive award legislation during 1995 and 1996. The third column reports the cumulative equal weighted CRSP index return for the three days centered on the reported date. The far right column reports average abnormal three-day stock return for companies that are defendants in unresolved punitive award lawsuits on the date of the legislative development. Because our sample of firms ends in June 1996, the sample size of pending lawsuits declines over time, from 125 for the first date to 8 for the last date. t-statistics are in parentheses. For the index return, each test statistic is computed as the cumulative aggregate return minus the expected return, divided by an estimate of the standard error of the cumulative return. The expected return and standard error are estimated from stock returns during the 200 trading days immediately preceding the event period. For the firms with pending lawsuits, abnormal returns and t-statistics are calculated using estimates from a one-factor market model.

Date	Description of event	CRSP equal-weighted index return (%)	Average abnormal stock return for firms with pending adverse punitive awards (%)
3/10/95	House passes HR 988 (imposing costs in some circumstances on parties who refuse settlements); House passes HR 956 (capping damage awards)	0.94 (1.00)	0.63*** (2.97)
3/16/95	Headline on article when bills arrive in Senate: "House legal bill called all but dead in Senate"	0.84 (0.85)	-1.04*** (-5.37)
5/10/95	Watered-down curb on punitive awards passed in Senate	0.64 (0.45)	0.88*** (2.95)
3/18/96	Press attention for product liability bill approved by House-Senate conference committee	1.24 (0.90)	1.17*** (3.12)
3/21/96	Bill passes in Senate 59-40, ". . . not strong enough to override a veto."	0.75 (0.31)	-0.61* (-1.86)
3/29/96	Bill passes in House 259-158, ". . . not strong enough to override a veto."	1.15 (0.81)	-0.89*** (-4.74)
5/2/96	"Common Sense Product Liability Legal Reform Act" vetoed by President Clinton	0.57 (0.11)	-0.77 (-1.56)
5/9/96	House fails to override veto by 23 votes	1.38 (1.12)	1.39*** (3.00)

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on a two-tailed test.

Table 10
Cross-sectional Determinants of Stock Price Reactions
to Key Developments in Punitive Award Legislation

Estimated coefficients from ordinary least squares regressions using the firm-specific three-day abnormal stock return as the dependent variable. In Panel A, abnormal stock returns are measured over the three trading days centered on March 10, 1995, the day the U.S. House passed two bills that would discourage large punitive awards. In Panel B, abnormal stock returns are measured over the three trading days centered on March 16, 1995, the day leading U.S. Senators declared that passage in the Senate was unlikely. In Panel C, abnormal stock returns are measured over the three trading days centered on May 10, 1995, the day a weaker form of punitive award reform legislation was passed in the U.S. Senate. In each panel, observations are included only for firms that are defendants in unresolved punitive award lawsuits. The regressors include the compensatory award divided by the firm's market value of equity, the punitive award divided by the firm's market value of equity, the natural log of the firm's market value of equity, and an index of the firm's exposure to punitive award liability (which reflects the relative frequency of punitive award lawsuits for firms in the same industry during the three-year period centered on the current year). t-statistics are in parentheses.

Compensatory award ($\times 10^{-4}$)	Ln(MVE)	Index #1 of exposure to punitives ($\times 10^{-2}$)	Index #1 x ln(MVE)	n	Adj. R-squared	F-statistic
Panel A: Effects of U.S. House of Representatives passage of anti-punitive award legislation						
-0.92**	2.47***	10.98**	-0.68	119	.094	4.05***
(-1.97)	(2.79)	(2.59)	(-1.31)			
Panel B: Effects of publicity that passage of the legislation in the U.S. Senate was unlikely						
-5.27	0.84	14.95**	-0.92*	119	.021	1.65
(-1.23)	(1.03)	(2.12)	(-1.94)			
Panel C: Effects of U.S. Senate passage of weaker anti-punitive award reform legislation						
-20.85***	0.52**	40.81	-2.45	107	.120	7.61***
(-3.35)	(0.43)	(3.89)	(-3.49)			

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on a two-tailed test.

Table 11

The Relation between Stock Returns and Exposure to Punitive Award Liability around Key Supreme Court Decisions and Dates in the History of Punitive Award Reform Legislation

Results from ordinary least squares regressions using cross-sectional data for each of several dates regarding actual or proposed changes in the legal environment. In each regression, the dependend variable is the three-day abnormal stock return centered on date in question. The independent variables are the natural log of the market value of common stock, and the coefficient for the index (#1) of industry-related punitive award liability. Data on all firms listed in the 1996 CRSP tapes are used in each regression, subject to firm-specific data availability to estimate the firm's abnormal stock return. The coefficients on the index of liability exposure are reported, along with the associated t-statistics (in parentheses).

Date	Description of event	Coefficient for index of industry-related punitive liability exposure (t-statistic)	F-statistic (Sample size)
Panel A: Two important U.S. Supreme Court decisions			
6/24/94	Honda Motor Co. v. Oberg decision rendered	0.086 (0.93)	0.52 (n = 7203)
5/20/96	BMW of North America v. Gore decision rendered	0.153 (0.88)	28.58 (n = 8184)
Panel B: Important legislation or pending legislation announcement dates			
3/10/95	House passes HR 988 (imposing costs in some circumstances on parties who refuse settlements);	-0.060 (-0.36)	0.56 (n = 7802)
3/16/95	Headline on article when bills arrive in Senate: "House legal bill called all but dead in Senate"	0.083 (0.54)	27.48 (n = 7806)
5/10/95	Watered-down curb on punitive awards passed in Senate	0.096 (0.59)	27.33 (n = 7638)
3/18/96	Press attention for product liability bill approved by House-Senate conference committee	0.292 (1.76)*	4.09 (n = 7888)
3/21/96	Bill passes in Senate 59-40, ". . . not strong enough to override a veto."	-0.014 (-0.09)	30.95 (n = 8066)
3/29/96	Bill passes in House 259-158, ". . . not strong	0.105 (0.73)	5.05 (n = 8079)
5/2/96	"Common Sense Product Liability Legal Reform Act" vetoed by President Clinton	-0.111 (-0.59)	65.67 (n = 8113)
5/9/96	House fails to override veto by 23 votes	0.119 (0.82)	5.33 (n = 8018)

* denotes significance at the 0.10 level for the coefficient, based on a two-tailed test.

Table 12
Average Abnormal Stock Returns upon Press Announcements of Punitive Lawsuits

Average abnormal stock returns associated with 351 press announcements pertaining to lawsuits in which punitive damages were sought or awarded, involving 235 different defendant firms between 1979 and 1995. Each cell reports the mean and two-day abnormal return, the associated t-statistic (in parentheses), the z-statistic for the generalized sign test based on the proportion of positive abnormal returns [in brackets], and the number of announcements in that category. Superscripts indicate the significance levels associated with the t-tests and generalized sign tests. Events are grouped by announcement type and according to whether the announcement was the initial or a subsequent press announcement about the lawsuit. Abnormal returns are measured relative to a benchmark determined by a one-factor market model using the CRSP equal-weighted index.

Type of press announcement	Initial announcements	Subsequent announcements
Pre-verdict news	-1.02% (-2.86)** [-1.98]** n=80	0.49% (0.38) [0.82] n=10
Verdict or settlement news:		
Defense verdict	-0.36% (-0.51) [-1.12] n=15	-0.44% (-0.44) [-0.58] n=3
Settlement	-2.43% (-1.35) [-0.13] n=4	-- -- -- n=0
Plaintiff verdict	-0.62% (-2.74)*** [-1.94]* n=193	-1.36% (-2.37)** [-1.60] n=47

Type of press announcement	Initial announcements	Subsequent announcements
Post-verdict news:		
Neutral news	0.62% (1.35) [1.38] n=25	0.17% (0.26) [-0.15] n=11
Post-verdict news favorable to the defendant firm	1.29% (1.93)* [0.47] n=18	0.36% (0.80) [-0.56] n=39
Post verdict news unfavorable to the defendant firm	0.11% (-0.16) [-0.25] n=16	0.06% (-0.14) [-1.23] n=25
All announcements	-0.45% (-2.70)*** [-1.91]* n=351	-0.33% (-1.15) [-1.18] n=135

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on a two-tailed test.

Table 13
Changes in the Market Value of Equity

Summary statistics on the two-day abnormal changes in common stock market values associated with 351 initial press announcements between 1979 and 1995 pertaining to lawsuits in which punitive damages were sought or awarded from 235 defendant firms. The events are categorized by the timing of the initial press announcement relative to the verdict or settlement. The abnormal stock value changes are calculated as the two-day abnormal stock return times the market value of the firm's common stock measured ten calendar days before the press announcement. The abnormal stock return is measured relative to a benchmark determined by a one-factor market model using the CRSP equal-weighted index. All numbers represent millions of dollars ($ millions).

Type of press announcement	Minimum	25th percentile	Median	75th percentile	Maximum
Pre-verdict news (sample size = 80)	-2019.1	-39.4	-2.4	13.5	1317.9
Verdict or settlement:					
Defense verdict (sample size = 14)	-240.6	-40.3	-1.1	116.1	379.1
Settlement (sample size = 4)	-44.2	-32.7	-1.9	444.6	871.9
Plaintiff verdict (sample size = 193)	-1554.2	-77.9	-8.5	18.9	1802.3
Post-verdict news:					
Neutral news (sample size = 25)	-580.8	22.1	3.2	68.2	292.2
Favorable news (sample size = 18)	-426.2	-81.6	3.4	39.7	669.3
Unfavorable news (sample size = 16)	-371.5	-49.8	-4.0	19.1	313.1
All announcements	-2019.1	-62.0	-2.9	23.9	1802.3

Table 14
Comparison of the Award Amounts to the Loss in Firm Value

Summary statistics on loss in market value and court-imposed penalties for 242 lawsuits between 1979 and 1995. The loss in market value is computed as the initial press announcement two-day abnormal stock return times the firm's market value of equity measured 10 calendar days previously. Negative entries indicate that the mean (or median) change in firm value is positive. Only events for which the initial press article is about a current lawsuit, a verdict, or settlement are included. To eliminate extreme outliers, cases for which the absolute value of the ratio of the total award to the loss in market value exceeds 2.0 are excluded. All amounts, other than the ratios in the right-hand column, are in millions of dollars.

Type of lawsuit		Loss in equity value	Total award or settlement	Difference between loss and total award	Total award divided by the loss in equity value
Fraud	Mean	192.6	27.0	165.5	.35
(n = 14)	median	24.1	7.2	8.1	.17
Business negligence	Mean	53.6	6.0	47.5	-.09
(n = 44)	median	22.9	1.5	22.1	.00
Breach of contract	Mean	-48.0	15.5	-63.5	-.69
(n = 15)	median	1.3	5.2	-2.0	.03
Products liability	Mean	-79.0	17.1	-96.1	.29
(n = 54)	median	1.7	11.6	-2.9	.00
Insurance claims	Mean	40.3	11.4	28.9	.08
(n = 26)	median	15.2	5.7	3.3	.01
Asbestos claims	Mean	-20.0	5.5	-25.5	-.30
(n = 13)	median	-14.8	2.5	-16.6	-.11
Employment claims	Mean	21.3	8.8	12.6	.12
(n = 36)	median	19.6	1.3	16.2	.01
Vehicular accident claims	Mean	8.2	4.0	3.5	.38
(n = 7)	median	6.7	0.9	5.8	.13
Miscellaneous claims	Mean	-0.4	13.2	-13.6	.80
(n = 33)	median	10.4	4.5	0.9	.03
Totals - All lawsuits	Mean	6.9	12.2	-5.3	.16
(n = 231)	median	9.6	3.9	2.0	.01

Table 15
Determinants of the Defendant Firms' Announcement Period Abnormal Returns

Ordinary least squares estimates of the relations between abnormal returns associated with 287 initial announcements of punitive award lawsuits and characteristics of the lawsuit and defendant company. This table reports results only for cases in which the first news article reports news of a current lawsuit, verdict, or settlement. The dependent variable is the two-day announcement period abnormal stock return divided by its standard error. Independent variables include the natural log of the market value of firm equity, indices for the firm's exposure to punitive award liability, the compensatory and punitive amounts awarded, and dummy variables for the type of news about the lawsuit. t-statistics are in parentheses.

Variable	Model 1	Model 2	Model 3	Model 4
Ln of the market value of equity (in %)	2.77 (4.08)***	2.86 (4.17)***	2.24 (3.49)***	2.74 (3.98)***
Indices for industry-exposure to punitive award liability:				
Index 1 (based on relative frequencies of cases)	1.38 (1.97)**	1.25 (1.75)*	1.28 (1.80)*	
Index 2 (based on relative frequencies of cases and award amounts) (x 10^{-9})				2.89 (0.31)
Compensatory award divided by the market value of equity (x 10^{-4})	3.78 (1.55)	3.79 (1.56)		3.70 (1.51)
Punitive award divided by the market value of equity (x 10^{-4})	-0.64 (-0.70)	-0.64 (-0.70)		-0.67 (-0.74)
Total award divided by the market value of equity (x 10^{-4})			-1.74 (-1.00)	
Dummy variable for defense verdict announcement (in %)	2.99 (0.52)	3.71 (0.64)	3.43 (0.58)	2.97 (0.51)

Dummy variable for settlement announcement (in %)	9.00 (1.29)	8.67 (1.23)	9.46 (1.32)	8.53 (1.21)
Dummy variable for plaintiff verdict announcement (in %)	-1.34 (-0.50)	-1.11 (-0.41)	0.00 (0.00)	-1.10 (-0.41)
Dummy variable for death involved (in %)		1.76 (0.52)		
Dummy variable for non-death injury involved (in %)		-2.16 (-0.75)		
Intercept	-0.47 (-4.60)***	-0.48 (-4.65)***	-0.39 (-4.11)***	-0.44 (-4.34)***
F-value	3.21	2.61	2.96	2.63
p-value	[0.003]	[0.007]	[0.008]	[0.012]
Adjusted R^2	0.051	0.048	0.042	0.038

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on a two-tailed test.