

**LAW AND ECONOMICS SEMINAR**  
**Spring Term 2004**

**Professor Polinsky**

**Thursday, March 18, 2004**  
**4:00-5:30 P.M.**  
**Stanford Law School**  
**Room 272**

**“Do the Merits Matter Less in Securities Class Actions”**

**by**

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**Note: It is expected that you will have reviewed the speaker's paper before the Seminar.**

## Abstract

Examining a sample of initial public offerings from 1990 to 1999 facing a mix of Section 11 and Rule 10b-5 antifraud claims, the paper provides evidence on the impact of the Private Securities Litigation Reform Act of 1995 (PSLRA). Others have provided evidence that the PSLRA increased the significance of merit-related factors in determining the incidence and outcomes of securities fraud class actions. The increase in the importance of merit-related factors, however, is consistent with two possible hypotheses. First, the PSLRA may have reduced solely the incidence of frivolous litigation. Second, the PSLRA may have reduced the incidence of both frivolous litigation as well as a subset of the pre-PSLRA meritorious claims where the additional costs imposed by the PSLRA made such claims unprofitable from the perspective of plaintiffs' attorneys. This paper tests between these hypotheses and provides evidence that non-nuisance claims lacking obvious "hard evidence" indicia of fraud (such as an accounting restatement or SEC action) are (a) less likely to be filed post-PSLRA, (b) face a greater likelihood of receiving a dismissal or low-value settlement in the post-PSLRA period, and (c) can expect a longer resolution time (resulting in higher costs) in the post-PSLRA time period. In determining the welfare implications of blocking frivolous suits with the PSLRA, policymakers should therefore consider the negative impact of the PSLRA in also blocking a significant fraction of non-nuisance litigation.

# **Do the Merits Matter Less After the Private Securities Litigation Reform Act?**

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March 5, 2004  
**Preliminary Draft**

## **Abstract**

The paper provides evidence on the impact of the Private Securities Litigation Reform Act of 1995 (PSLRA) by examining a sample of initial public offerings from 1990 to 1999 facing a mix of Section 11 and Rule 10b-5 antifraud claims. Others have provided evidence that the PSLRA increased the significance of merit-related factors in determining the incidence and outcomes of securities fraud class actions. The increase in the importance of merit-related factors, however, is consistent with two possible hypotheses. First, the PSLRA may have reduced solely the incidence of nuisance litigation. Second, the PSLRA may have reduced the incidence of both nuisance litigation as well as a subset of the pre-PSLRA meritorious claims where the additional costs imposed by the PSLRA made such claims unprofitable from the perspective of plaintiffs' attorneys. This paper tests between these hypotheses and provides evidence that meritorious claims lacking obvious "hard evidence" indicia of fraud (such as an accounting restatement or SEC action) (a) are less likely to be filed post-PSLRA, (b) face a greater likelihood of receiving a dismissal or low-value settlement in the post-PSLRA period, and (c) can expect a longer resolution time (resulting in higher costs) in the post-PSLRA period. In determining the welfare implications of blocking frivolous suits with the PSLRA, policymakers should therefore consider the negative impact of the PSLRA in also discouraging a significant fraction of meritorious litigation.

**Keywords:** Securities litigation, litigation risk, accounting fraud.

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## 1. Introduction

Securities fraud class actions provide dispersed shareholders of a corporation a mechanism to aggregate shareholder interests in pursuing litigation against companies and related parties who engage in fraud. Without class actions, dispersed shareholders in publicly-held corporations may not find litigation individually cost-effective, leading to few, if any private enforcement actions against fraudulent companies. Securities fraud class actions act as a complement to public enforcement actions on the part of the Securities and Exchange Commission (SEC) in deterring securities fraud.

Plaintiffs' attorneys initiate and manage securities class actions in the United States. Attorneys, however, may not put the best interests of shareholders or even the investor-members of a class ahead of the attorneys' own self-interest. Many argue that at least some class actions are brought even where the probability of obtaining a judgment on the merits is relatively low (Rosenberg and Shavell, 1985; Bebchuk, 1988; and Alexander, 1991). Suits are initiated in expectation of a nuisance settlement, paid by the defendants to avoid the distraction of litigation, high defense attorney fees, and the negative publicity surrounding a securities lawsuit.<sup>1</sup> In response to the fear of nuisance litigation, Congress enacted the Private Securities Litigation Reform Act of 1995 (PSLRA).

The PSLRA applies only to securities class actions filed after the enactment of the PSLRA.<sup>2</sup> The paper refers to suits filed prior to the PSLRA as in the "Pre-PSLRA" period and

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<sup>1</sup> Nuisance suits include suits brought where the plaintiffs have no expectation at all of finding any evidence of fraud or culpability on the part of defendants. Arguably, nuisance suits also include, more broadly, situations where the plaintiffs' expected costs of undergoing a trial exceed the expected benefits of doing so (but the plaintiffs file suit nonetheless to extract a positive settlement from defendants unwilling to go to trial). For exposition purposes, this paper treats as nuisance those claims that have absolutely no merit as well as claims with only a de minimis chance of winning at trial.

<sup>2</sup> On the other hand, after the enactment of the PSLRA some circuits applied PSLRA-type pleading with particularity standards on suits filed *prior* to the PSLRA arguing that the circuits' pre-PSLRA standard was the same as that adopted in the PSLRA. See, e.g., *Williams v. WMX Tech., Inc.*, 112 F.3d 175, 177-78 (5th Cir. 1997) ("This

suits filed after the PSLRA as in the “Post-PSLRA” period. The PSLRA contains a number of provisions aimed directly at discouraging nuisance litigation. For claims under both the Securities Act of 1933 (Securities Act) and the Securities Exchange Act of 1934 (Exchange Act), the PSLRA imposes a lead plaintiff requirement, designating the investor among those who seek to be lead plaintiff with the largest financial interest at stake in the litigation as the presumptive lead plaintiff.<sup>3</sup> The lead plaintiff provision forces the plaintiffs’ attorney to expend resources in locating a suitable plaintiff who will likely be appointed the lead plaintiff, thereby increasing the plaintiffs’ attorney’s chance of getting selected as lead counsel.<sup>4</sup> The PSLRA requires courts to review a class action on the merits (after the “final adjudication” occurs) and impose sanctions (including the defendants’ attorney’s fees) on frivolous litigation.<sup>5</sup> Courts must also review attorney fees to ensure that they are “reasonable”, potentially reducing the expected return to plaintiffs’ attorneys for any given settlement or judgment amount.<sup>6</sup> Greater court scrutiny of both the merits of the complaint as well as the reasonableness of attorneys’ fees lowers the expected return to plaintiffs’ attorneys from bringing a class action. At the very least, attorneys must spend more care and attention compared with the pre-PSLRA period in convincing the court of the merits of their case (should they lose and face possible sanction from the court) as well as the need for their attorneys fees. The PSLRA establishes a safe harbor against private litigation for fraud involving forward-looking statements in certain contexts (excluding however

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suit was filed prior to the effective date of the [PSLRA], and while the provisions do not apply, the Act adopted the same standard we apply today.”).

<sup>3</sup> See Section 27(a)(3), Securities Act; Section 21D(a)(3), Exchange Act.

<sup>4</sup> Alternatively, plaintiffs’ attorneys may compete with one another (lowering their fees) to become lead plaintiffs’ counsel. The expectation of this competition lowers the expected return to plaintiffs’ attorneys from filing a class action suit.

<sup>5</sup> See Section 27(c), Securities Act; Section 21D(c), Exchange Act.

<sup>6</sup> See Section 27(a)(6), Securities Act; Section 21D(a)(6), Exchange Act. Part of the purpose of the PSLRA was to address: “the manipulation of class action lawyers of the clients whom they purportedly represent”. See Conference Report, H.R. Rep. No. 369, 104th Cong., 1st Sess., 31 (1995), reprinted in 1996 U.S.C.C.A.N. 730 (p. 1103).

initial public offerings).<sup>7</sup> Discovery also is stayed in post-PSLRA litigation until after the motion to dismiss.<sup>8</sup> Without the ability to engage in discovery, plaintiffs' attorneys face a higher cost in determining the presence of specific misleading statements and omissions and the materiality of such misstatements and omissions.

For securities fraud claims under the Exchange Act, including in particular Rule 10b-5, the PSLRA requires that plaintiffs must plead with particularity facts giving rise to a strong inference that the defendants meet the requisite state of mind (scienter) requirement.<sup>9</sup> Without discovery until after the motion to dismiss, however, plaintiffs face a difficult time in gathering facts related to the state of mind of particular defendants in engaging in fraud. Some courts have dismissed combined Rule 10b-5 and Securities Act claims (including Section 11 claims) where the plaintiffs failed to meet the pleading with particularity requirement with respect to the Rule 10b-5 claims (Pritchard and Sale, 2003). In addition, the PSLRA imposes proportionate liability on defendants of a Rule 10b-5 action, relieving less culpable parties (such as auditors and outside directors) of a portion of the total liability.<sup>10</sup>

While some evidence exists that the PSLRA reduced nuisance litigation, this paper focuses on a different aspect of the PSLRA: the impact of the PSLRA on meritorious litigation. Plaintiffs' attorneys determine which companies will face a securities fraud class action. As profit-maximizers, the plaintiffs' attorneys select only those companies that provide a positive expected return from initiating litigation. To the extent the PSLRA failed to raise costs only for nuisance suits, the PSLRA may also deter more meritorious litigation. The paper first tests whether plaintiffs' attorneys filed suits less frequently against companies where the expected

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<sup>7</sup> See Section 27A, Securities Act; Section 21E, Exchange Act

<sup>8</sup> See Section 27(b), Securities Act; Section 21D(b)(3)(B), Exchange Act.

<sup>9</sup> See Securities Act; Section 21D(b)(2), Exchange Act

<sup>10</sup> See Securities Act; Section 21D(f), Exchange Act. Outside directors also enjoy proportionate liability under Section 11 of the Securities Act. See Section 11(f)(2), Securities Act.

payoff from litigation is relatively small in the post-PSLRA period (the “size effect hypothesis”). Using a dataset of all the initial public offerings (IPO) from 1990 to 1999 and suits brought based on disclosures in the IPOs (involving a mix of Section 11 and Rule 10b-5 claims), the paper reports evidence that companies with smaller IPO offering amounts and lower aftermarket losses faced a significantly reduced risk of a class action in the post-PSLRA period. For smaller companies, the PSLRA deterred all forms of class actions – both nuisance and meritorious. The lack of meritorious litigation may decrease the overall deterrence against fraud for such firms.

The impact of the PSLRA in raising the costs for pursuing meritorious actions may not be uniform. Consider “hard evidence” of fraud, defined to include a public announcement of an accounting restatement (or an inquiry that is expected to lead to a restatement) or SEC investigation or enforcement action. Where hard evidence prior to the filing of suit is absent, plaintiffs’ attorneys face a disproportionate increase in costs. Hard evidence of fraud facilitates the ability of plaintiff attorneys’ to meet the various PSLRA-imposed requirements, including the heightened pleading requirements at the motion to dismiss stage for Rule 10b-5 actions.<sup>11</sup> Even after the motion to dismiss, the presence of hard evidence increases the plaintiffs’ overall

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<sup>11</sup> Consider the case of Paracelsus Healthcare Corp. The company went public in IPO in August 1996 (post-PSLRA). On October 9, 1996, Paracelsus issued a press release in which it announced an earnings shortfall and that it had appointed a special committee of the board (consisting of non-management members) to direct an inquiry by outside counsel into Paracelsus’s accounting and financial reporting practices and procedures. The press release stated that Paracelsus expected to restate its financial results based on the outside counsel’s investigation (relating to the use of reserves and recognition of certain bad debt expenses, among others). Shortly after the October 9, 1996 “hard evidence” announcement, the following plaintiffs’ attorneys firms filed class action lawsuits against Paracelsus and several of the company’s top officers:

Milberg Weiss Bershad Hynes & Lerach LLP (October 11, 1996)  
Kaplan, Kilsheimer & Fox (October 11, 1996)  
Savett Frutkin Podell & Ryan, P.C. (October 11, 1996)  
Schoengold & Sporn, P.C. (October 16, 1996)  
Weiss & Yourman (October 18, 1996)  
Abbey & Ellis (October 29, 1996)  
Goodkind Labaton Rudoff & Sucharow LLP (October 29, 1996)  
Wechsler Harwood Halebian & Feffer LLP (November 14, 1996)

The class actions ultimately resulted in a settlement in July, 1999 consisting of \$15 million in cash and 2.74 million shares of stock.

expected probability of success in litigation (through greater expected damages, for example), raising the payoff to a plaintiffs' attorney of pursuing such a suit despite the increased costs due to the PSLRA. The paper therefore predicts that the PSLRA had a disproportionately larger negative impact on meritorious litigation lacking hard evidence of fraud (termed soft evidence cases). The paper finds that non-nuisance, soft evidence claims in the pre-PSLRA period were much less likely to face a lawsuit in the post-PSLRA period (the "soft evidence hypothesis").<sup>12</sup> Additionally, if soft evidence claims had in fact faced a lawsuit, the claims would have experienced longer resolution times (increasing the cost to plaintiffs' attorneys) as well as a higher probability of receiving either a dismissal or low-value settlement amount.

Section 2 delineates the PSLRA and the paper's hypotheses on the impact of the PSLRA on meritorious litigation. Section 3 describes the paper's dataset. Section 4 reports evidence on the size effect hypothesis. Section 5 discusses the results on the soft evidence hypothesis.

## **2. The PSLRA and Hypotheses**

Mixed evidence exists on the stock market impact of the enactment of the PSLRA. Spiess and Tkac (1997) and Johnson, Kasznik, and Nelson (2000) both report a significant positive abnormal return for dates around the time of Congress's override of President Clinton's veto of the PSLRA, consistent with the view that the PSLRA increased shareholder welfare for firms in high litigation risk industries.<sup>13</sup> In contrast, Ali and Kallapur (2001) provide evidence of statistically significant negative cumulative abnormal returns from the day before the

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<sup>12</sup> Many soft evidence claims achieve settlements above nuisance value (defined as settlements over \$2 million as discussed later in the paper). Jenny Craig Inc. went public in the Fall of 1991 (prior to the enactment of the PSLRA). Shortly thereafter, Milberg Weiss filed a class action securities lawsuit against Jenny Craig alleging, among other things, that the company had forecast a 20 percent jump in business despite the knowledge that the diet-center market was "saturated". Jenny Craig eventually settled the case for \$9.5 million in 1992.

<sup>13</sup> In a related study, Johnson, Nelson, and Pritchard (2000) provide evidence that the promulgation of the Ninth Circuit's stringent (pro-defendant) interpretation of the post-PSLRA pleading with particularity standard resulted in a significant positive cumulative abnormal return, particularly for firms at high risk for litigation.



congressional vote on the conference committee bill on the PSLRA to the next trading day after the PSLRA's passage into law.

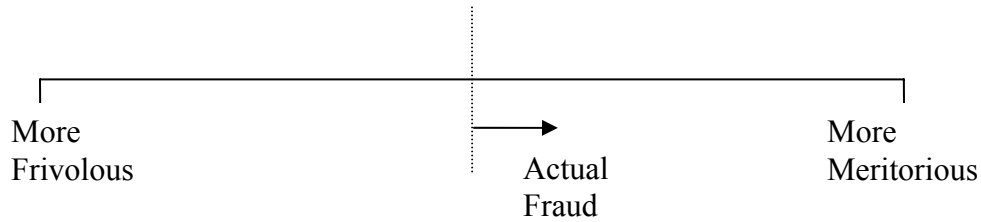
Pritchard and Sale (2003) examine the impact of the PSLRA's heightened pleading standards on the ability of plaintiffs to survive a motion to dismiss in the Second and Ninth Circuits from 1996 to 2001. They hypothesize that hard evidence accounting claims (particularly related to revenue restatements) are more likely to survive the heightened post-PSLRA pleading requirements.<sup>14</sup> Pritchard and Sale report that while revenue-related accounting violations are not significantly related to dismissals, other GAAP allegations are negatively correlated with dismissals in the Second Circuit in the post-PSLRA period.

Johnson, Nelson and Pritchard (JNP) (2002) provide a test of whether merits matter more in the post-PSLRA period compared with the pre-PSLRA period. Their sample includes all firms targeted with a securities fraud class action in the computer hardware and software industries from 1991-2000 and a set of matching firms that did not face a lawsuit (matched based on a similar minimum one-day return for the 250 trading days prior to the class period end and from the same industry). Focusing on suit filings, JNP report that the likelihood of a securities fraud class action is not significantly correlated with whether a firm experienced an accounting restatement in the pre-PSLRA period. In contrast, during the post-PSLRA period, whether a firm faced an accounting restatement is significantly associated with an increased likelihood of a lawsuit. JNP interpret this shift between the pre and post-PSLRA periods as consistent with the merits mattering more post-PSLRA. JNP also look at the outcomes of litigation, reporting that the presence of an accounting restatement is significantly related to a higher probability of a non-nuisance settlement (defined as a settlement for more than \$2 million).

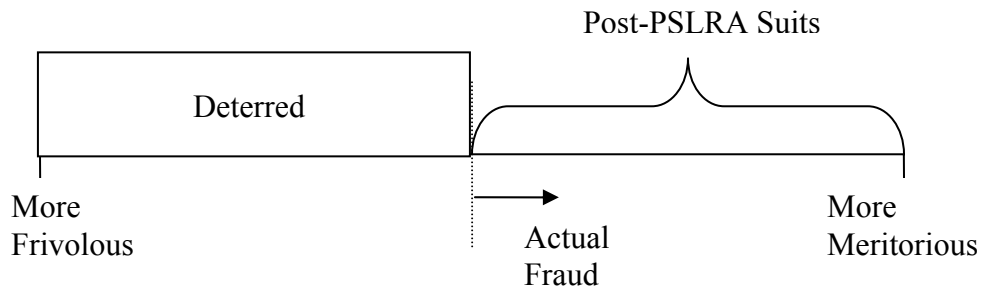
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<sup>14</sup> In a study of secondary market antifraud lawsuits in the pre-PSLRA period, Jones and Weingram (1996b) report a positive correlation between accounting restatements and the likelihood that plaintiffs' attorneys will file suit against a firm.

A question remains unanswered in existing research on the PSLRA, however. While frivolous suits may very well be less prevalent in the post-PSLRA period, are meritorious suits also less prevalent? Imagine that the suits in the pre-PSLRA period are arrayed as follows:<sup>15</sup>

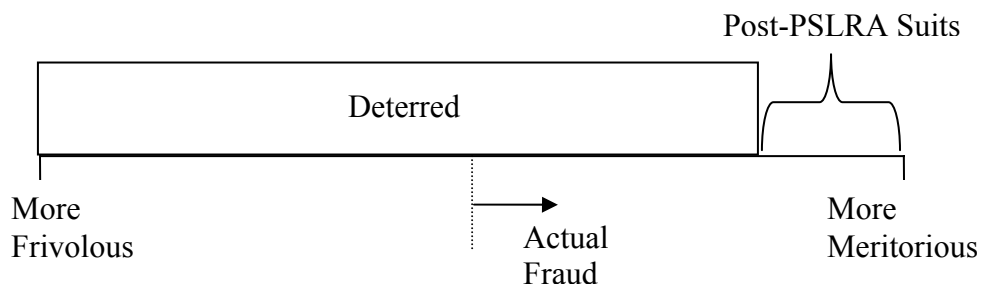


The fact that after the enactment of the PSLRA, suits with more hard evidence of fraud (accounting restatements or an SEC investigation) are more prevalent could result from one of two possibilities. First, plaintiffs’ attorneys may stop filing frivolous suits, leaving only the meritorious suits – in which case the PSLRA is unambiguously welfare-increasing (at least before taking into account the costs of implementing the PSLRA) as diagramed below:



<sup>15</sup> The diagram posits a dividing line between frivolous and meritorious suits denoted as the “Actual Fraud” point. As discussed in the Introduction, the position of this point is debatable. For exposition purposes, this paper treats as frivolous those claims that have absolutely no merit as well as claims with only a de minimis chance of winning at trial.

Second, plaintiffs' attorneys may stop filing both frivolous suits as well as a large portion of the meritorious suits, leaving primarily meritorious suits in the set of firms that are sued in the post-PSLRA period, but with far different welfare implications as diagramed below:



If the second alternative is the case, lawmakers must balance the gain from the decrease in frivolous suits against the loss from the reduction in meritorious suits to determine whether the PSLRA in fact is socially beneficial.

Several testable hypotheses relate to the impact of the PSLRA on meritorious, non-  
nuisance suit litigation as follows:

**Hypothesis 1 (Size Effect):** The minimum potential damage award available for a securities class action before a plaintiffs' attorney will choose to file a securities fraud class action increased in the post-PSLRA period.

The higher costs imposed on plaintiffs' attorneys due to the PSLRA will result in plaintiffs' attorneys demanding a higher expected return from litigation before they file suit. Evidence from the pre-PSLRA period exists that companies offering smaller damage awards for plaintiffs' attorneys rarely faced a securities class action (Bohn and Choi, 1996). Grundfest and Perino (1997) provide summary statistic evidence on the early post-PSLRA experience, covering only 1996. Grundfest and Perino report an increase in the average price decline for firms facing

a lawsuit in the post compared with pre-PSLRA period. The increase in the average price decline is consistent with the need of plaintiffs' attorneys to show more "wrongdoing" due to the greater obstacles imposed by the PSLRA.

Plaintiffs' attorneys may also react to the PSLRA differentially based on whether there exists hard or soft evidence of fraud prior to the filing of suit as described in the next hypothesis:

**Hypothesis 2 (Soft Evidence):** Plaintiffs' attorneys are less likely to file non-nuisance claims that involve only soft evidence of fraud in the post-PSLRA period.

Some limited evidence exists that plaintiffs' attorneys avoid more soft evidence claims post-PSLRA. Bajaj, Muzumdar, and Sarin (BMS) (2003) report summary statistic evidence that the number of cases alleging accounting-related fraud increased in the post-PSLRA period while cases alleging a more generic failure to disclose decreased.

Why might plaintiffs' attorneys avoid non-nuisance, soft evidence claims in the post-PSLRA period? Two possibilities exist. First, the expected outcome of soft evidence claims may be less favorable for plaintiffs and their attorneys in the post-PSLRA period (leading to more frequent dismissals for example). Second, the PSLRA may have resulted in soft evidence claims taking longer to resolve (assuming they survive the motion to dismiss). Both of these claims are embodied in the following two hypotheses:

**Hypothesis 2A (Outcomes):** Non nuisance, soft evidence claims are more likely to receive a dismissal or low value settlement in the post-PSLRA period.

**Hypothesis 2B (Resolution Time):** Non-nuisance soft evidence claims that settled take longer to reach settlement, all other things being equal, in the post-PSLRA period.

Summary statistic evidence exist that resolution times generally increased in the post-PSLRA period. BMS (2003) report that the fraction of cases settling within 4 years of the filing date dropped from 57.59% pre-PSLRA to only 26.06% post-PSLRA. In addition, while 2.67% of cases settled within 1 year pre-PSLRA, only 0.67% settled within 1 year post-PSLRA.

### **3. The Dataset**

The paper's dataset consists of all initial public offerings from January 1, 1990 to December 31, 1999 as identified in the Securities Data Corporation database. Only IPOs of U.S. corporations not in a financial services related industry (SICs 6000 to 6999) and not involving a spinoff were included in the sample for a total of 3585 IPOs.<sup>16</sup> IPOs that faced a class action suit were identified through several sources including the Securities Class Action Alert, the Stanford Securities Class Action Clearinghouse, searches on Westlaw and Lexis, and searches through the websites of plaintiffs' attorneys as well as securities claims administrators (for a total of 191 IPO suit firms).<sup>17</sup> Only suits related to the IPO were collected, defined as suits that alleged fraud relating back to disclosures made during the IPO and that include the IPO date in the class period. Panel A of Table 1 reports the number of IPOs as well as the number of IPO firms facing a suit by year. Panel B of Table 1 breaks down of IPO suit firms by primary securities market.

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<sup>16</sup> SIC 6000 to 6999 represent financial service companies that face different regulation than other firms. Spin-off IPOs may present companies with different financial needs as well as different types of managers (with different objectives) than other IPOs and are therefore excluded.

<sup>17</sup> It is possible that the searches may have missed some less visible class actions. The less visible class actions, nonetheless, are likely the smaller and economically unimportant actions.

**Table 1: Summary Data on Suit and Matching Samples****Panel A: Number of IPOs and Suit by Year**

Year	Number of IPOs	Number of Suits	Percentage
1990	129	8	6.20%
1991	277	21	7.58%
1992	362	21	5.80%
1993	450	34	7.56%
1994	400	14	3.50%
1995	444	20	4.50%
1996	655	28	4.27%
1997	429	21	4.90%
1998	234	12	5.13%
1999	396	12	3.03%
Total	3776	191	5.06%

Fraction of IPOs with a suit issued before the enactment of the PSLRA (1990-1995) = 0.0573

Fraction of IPOs with a suit issued after the enactment of the PSLRA (1996-1999) = 0.0425

t-test of the difference in suit incidence for IPOs issued before and after the enactment of the PSLRA = 2.059 (p= 0.0396)

**Panel B: Breakdown of Suits Firms by Securities Exchange**

Exchange	Suit	Percent
AMEX	8	4.2%
NASDAQ	139	72.8%
NYSE	20	10.5%
OTC	10	5.2%
SmallCap	14	7.3%
Total	191	100.0%

**Panel C: Breakdown of Types of Claims**

	Suit filed pre-PSLRA	Percent	Suit filed post-PSLRA	Percent	Total	Percent
Section 11 Only	11	18.0%	31	34.1%	42	27.6%
Rule 10b-5 Only	8	13.1%	14	15.4%	22	14.5%
Both Section 11 and Rule 10b-5	42	68.9%	46	50.6%	88	57.9%
Total	61	100.0%	91	100.0%	152	100.0%

t-test of difference in fraction of Section 11-only suits between Pre-PSLRA and Post-PSLRA = -2.187 (p=0.030).

Focusing on initial public offerings provides both advantages and disadvantages in testing the impact of the PSLRA. An advantage of focusing on IPOs is that many factors driving a company to engage in fraud are relatively similar across all companies in the sample.

Companies engaged in an IPOs are often at a similar stage in terms of need for financial capital (thus the IPO) and therefore have similar incentives to engage in fraud (to raise more proceeds from the IPO). Comparing IPO firms against one another requires fewer controls for the need and incentive on the part of company officials to engage in fraud. Furthermore, the deterrence impact on fraud from meritorious litigation as well as the higher costs imposed through frivolous litigation are particularly acute for IPO firms and their investors. Often, investors know relatively little about an IPO firm prior to the IPO, giving company officials a potentially greater ability to engage in fraud. Determining the impact of the PSLRA on IPO firms therefore is important from a societal perspective.

Disadvantages of looking at initial public offerings exist. Congress targeted the PSLRA largely on antifraud liability under the Exchange Act (including Rule 10b-5). Only part of the PSLRA applies (excluding in particular the pleading with particularity requirement for the state of mind) for the antifraud liability under the Securities Act focusing on offerings, including most importantly Section 11 liability. Panel C of Table 1 indicates that for some of the IPO suits, plaintiffs filed only a Section 11 claim. Moreover, plaintiffs filed an increased fraction of Section 11-only claims in the Post-PSLRA period (18% in the pre-PSLRA period and 34.1% in the post-PSLRA period – difference significant at the 5% level). The majority of claims in both the pre and post-PSLRA periods, nonetheless, include a Rule 10b-5 claim. Further research should examine the hypotheses set forth in this paper on purely secondary market fraud cases.

#### **4. Size Effect Hypothesis**

The increased costs after the enactment of the PSLRA may lead plaintiffs' attorneys not to file suit against firms offering only lower expected value claims. Note first from Panel A of

Table 1 that while 5.73% of the 2062 IPOs issued prior to the enactment of the PSLRA faced a securities fraud class action, only 4.25% of 1714 the IPOs issued after the enactment of the PSLRA faced a class action (difference significant at the 5% level). The overall incidence of class actions targeting IPOs decreased after the enactment of the PSLRA.

To assess the size hypothesis, the paper compares the IPOs issued before and after the enactment of the PSLRA in terms of offering amount (adjusted to 1999 dollars) as reported in Table 2.<sup>18</sup> All other things being equal, IPOs with lower offering amounts present plaintiffs' attorneys with reduced expected damage amounts for antifraud claims. For the subset of offerings from \$0 to \$20 million, the fraction of offerings facing a lawsuit is not significantly different for IPOs issued before and after the enactment of the PSLRA: 2.5% of the 749 pre-enactment IPOs and 2.8% of the 464 post-enactment IPOs. However, for the subsets of offerings ranging from \$0 to \$60 million and \$0 to \$100 million in amount, the fraction of IPOs facing a securities class action is significantly lower for IPOs issued in the post-enactment period.

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<sup>18</sup> Some IPOs issued before the enactment of the PSLRA may face a suit filed after the enactment. To control partially for this effect, IPOs issued in 1995 are dropped from the comparison.



**Table 2: Summary Description of IPO Offering Amount and Suits**

Offer Amount (1999 dollars) (Millions)	Pre-Enactment of PSLRA Number of IPOs	Number of Suits	Suits as a Percent of IPOs	Post-Enactment of PSLRA Number of IPOs	Number of Suits	Suits as a Percent of IPOs
<\$20	749	19	2.5%	464	13	2.8%
≥\$20 to <\$40	454	41	9.0%	457	20	4.4%
≥\$40 to <\$60	203	17	8.4%	317	14	4.4%
≥\$60 to <\$80	85	7	8.2%	173	9	5.2%
≥\$80 to <\$100	36	5	13.9%	91	6	6.6%
≥\$100 to <\$120	18	3	16.7%	61	2	3.3%
≥\$120 to <\$140	16	2	12.5%	34	2	5.9%
≥\$140 to <\$160	8	0	0.0%	22	1	4.5%
≥\$160 to <\$180	10	1	10.0%	16	0	0.0%
≥\$180 to <\$200	7	3	42.9%	17	1	5.9%
≥\$200	32	0	0.0%	62	5	8.1%
Total	1618	98	6.1%	1714	73	4.3%

Excludes 1995 for the Pre-Enactment of PSLRA period

t-test of difference in suit incidence where offering amount is ≥\$0 and <\$20 = -0.280 (p=0.7798)

t-test of difference in suit incidence where offering amount is ≥\$0 and <\$60 = 2.040 (p=0.0415)

t-test of difference in suit incidence where offering amount is ≥\$0 and <\$100 = 2.151 (p=0.0315)

Second, the paper examines the one-year adjusted aftermarket loss from the IPO offering amount reported in Table 3 (in 1999 dollars).<sup>19</sup> While plaintiffs' attorneys may file suit up to three years after the IPO,<sup>20</sup> the paper focuses on the first-year performance to screen out the impact of factors unrelated to the IPO on aftermarket performance. Because the IPOs lack any pre-IPO trading data with which to estimate a market model, losses are adjusted based on the Center for Research in Security Prices (CRSP) NYSE/AMEX/NASDAQ market index. For all IPOs with a positive one-year adjusted aftermarket loss (e.g., greater than zero losses), 9.6% of the IPOs issued pre-enactment of the PSLRA faced a suit compared with 6.0% post-enactment (difference significant at the 1% level). For the subsets of firms ranging respectively, \$0 to \$20

<sup>19</sup> As with the offering amount comparison, IPOs issued in 1995 are dropped.

<sup>20</sup> After the period of this paper's study, the Sarbanes-Oxley Act increased the statute of limitations period for Rule 10b-5 claims.

million, \$0 to \$40 million, and \$0 to \$100 million in losses, the IPOs issued pre-enactment faced a greater incidence of suits compared with IPOs issued post-enactment (all differences significant at the 1% level). Lower aftermarket losses translate into lower expected damages from an antifraud lawsuit, all other things being equal. As with the offering amount data, the comparison of one-year post-IPO adjusted market performance is consistent with the size hypothesis that plaintiffs' attorneys shifted away from smaller fraud claims after the enactment of the PSLRA, leaving such IPOs with reduced (if any) private enforcement against fraud.

**Table 3: Summary Description of One-Year Adjusted Aftermarket Loss for IPOs and Suits**

1 Year Aftermarket Adj. Loss (1999 dollars) (Millions)	Pre-Enactment of PSLRA			Post-Enactment of PSLRA		
	# IPOs	Suits	Percent	#IPOs	Suits	Percent
≥0 to <\$20	712	41	5.8%	593	16	2.7%
≥\$20 to <\$40	106	22	20.8%	253	23	9.1%
≥\$40 to <\$60	30	13	43.3%	112	10	8.9%
≥\$60 to <\$80	16	6	37.5%	48	6	12.5%
≥\$80 to <\$100	4	2	50.0%	27	2	7.4%
≥\$100 to <\$120	3	0	0.0%	26	3	11.5%
≥\$120	8	0	0.0%	41	6	14.6%
Total	879	84	9.6%	1100	66	6.0%

Excludes 1995 for the Pre-Enactment of PSLRA period

t-test of difference in suit incidence where adjusted loss is ≥\$0 and <\$20 = 2.699 (p=0.0070)

t-test of difference in suit incidence where adjusted loss is ≥\$0 and <\$60 = 3.222 (p=0.0013)

t-test of difference in suit incidence where adjusted loss is ≥\$0 and <\$100 = 3.456 (p=0.0006)

To assess whether other factors may affect the decision on the part of plaintiffs' attorneys to avoid lower loss IPOs in filing suit, the paper compares the lawsuit firms against a set of matching firms. For each IPO suit firm, the paper identifies a matching firm from among the non-suit IPOs based on three criteria. First, matching firms were chosen based on having an offering amount from 33% to 300% of the IPO suit firm's IPO offering amount.<sup>21</sup> Second,

<sup>21</sup> The paper matched based on offering amount to control for the potential maximum Section 11 damages based on the IPO. See Section 11(e), Securities Act.

matching firms were chosen from the same 3-digit SIC code as the IPO suit firms. Where no matching firm existed (meeting all the criteria), a firm was selected from neighboring 3-digit SIC code groups, but within the same 2-digit industry SIC group. Lastly, matching firms were chosen from among IPOs in the same IPO year as the IPO suit firm. Where no matching firm existed meeting all three criteria in the same year, firms in the year before and after the IPO suit firm's IPO year were examined. For IPO suit firms in the pre-PSLRA period (1990-1995), matching firms were only drawn from the same 1990-1995 period. Similarly for post-PSLRA suit firms, matching firms were drawn from only the 1996-1999 period. Using these three criteria, a total of 185 pairs of suit and matching firms were selected.

Table 4 reports a comparison of the means for various offering characteristic variables. Note that no statistically significant difference exists between the suit and matching samples in terms of IPO offering price, offering amount, offered shares as a fraction of the outstanding shares pre-IPO, the asset size of the firm at the time of the IPO, or the market capitalization of the firm immediately after the IPO regardless of whether the suit was filed pre or post-PSLRA. In the pre-PSLRA period, the matching firm IPOs have a higher fraction of offerings with a lockup option (weakly significant at only the 20% level); in the post-PSLRA, no statistically significant difference exists in the incidence of lockup options between suit and matching firms. Table 5 provides a comparison of the means for variables related to the aftermarket performance of the lawsuit and matching firms in the first-year after the IPO. In Panel A, observe that the one-year post-IPO adjusted loss (adjusted based on the CRSP market index and in 1999 dollars) is significantly higher for the suit firms compared with the matching firms for both suits filed in the pre and post-PSLRA periods. In addition, the minimum one-day return during the first-year after the IPO (the one-year post-IPO minimum 1-day return) is significantly lower for the suit

sample of firms. As discussed in JNP (2002), the minimum one-day return embodies the perceived tendency of plaintiffs' attorneys to file suit against companies experiencing unusually large one-day drops in their stock price. In contrast, the one-year post-IPO turnover of stock in the secondary market is significantly higher for the suit firms only in the post-PSLRA period. This evidence is weakly consistent with the findings of Francis, Philbrick, and Schipper (1994), Jones and Weingram (1996a,b), and Skinner (1996) that demonstrate a positive correlation between the share turnover and an increased risk of securities litigation. Lastly, the first-day return after the IPO is significantly higher for matching firms compared with suit firms in the pre-PSLRA period (at the 10% level). This is consistent with Tinic (1988) who argues that firms may purposefully underprice their IPOs as a means of reducing their exposure to securities class actions. On the other hand, in the post-PSLRA period, the first-day return is no longer significantly different between the suit and matching firms.

Comparing the suit and matching firms based on aftermarket performance in the first-year after the IPO may introduce bias to the extent some suits are initiated in the first year after the IPO (and therefore the aftermarket return for suit firms may incorporate the negative effects of defending the lawsuit itself). As an alternative, a set of composite aftermarket performance measures is constructed using (a) the performance of the IPO suit sample from the time of the IPO to the day after the end of the class period and (b) the one-year performance for the matching firms. The mean filing time for the suits is approximately one year.<sup>22</sup> A comparison

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<sup>22</sup> The mean number of days between the IPO and the earliest filing of suit for the pre-PSLRA period is 338.3 days and 378.4 days for the post-PSLRA period (difference insignificant).

**Table 4: Comparison of Suit and Matching Firm Offering Characteristics**

Matching firms selected based on (a) offering amount within 300% and 33% of the suit firm's offering amount; (b) same 3-digit SIC code (if none found then searched neighboring 3-digit SIC codes but within same 2-digit SIC grouping); (c) same IPO year (if none found then searched one year after and one year before). For IPO suit firms in the pre-PSLRA period (1990-1995), matching firms were only drawn from the same 1990-1995 period. Similarly for post-PSLRA suit firms, matching firms were drawn from only the 1996-1999 period. Comparison is between matching firms and those suit firms with a corresponding match.

	Suit Filed Pre-PSLRA Sample Mean	Match Sample Mean	p-value	Suit Filed Post-PSLRA Sample Mean	Match Sample Mean	p-value
Offer Price	12.34	12.62	0.6199	12.20	11.71	0.4800
Offer Amount (mill.) (in 1999 dollars)	45.00	43.81	0.8090	61.87	54.25	0.6054
Offered shares as fraction of outstanding pre-IPO	0.3266	0.3380	0.4784	0.3708	0.4213	0.5256
Offer Amount/Market Capitalization	0.3423	0.3361	0.7483	0.3365	0.3433	0.7928
Fraction of offerings with a Lockup Option	0.9255	0.9680	0.1956	0.9438	0.9551	0.7341
Market Cap. (based on Offer Price) (mill.) (in 1999 dollars)	161.86	143.89	0.4076	259.10	182.90	0.3188
Assets (mill.) (in 1999 dollars)	105.58	103.77	0.9488	157.64	123.04	0.6228

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.  
p-value is for a t-test of the difference between pre and post-PSLRA means.

**Table 5: Comparison of Aftermarket Performance for Suit and Matching Firms**

**Panel A: First-Year Aftermarket Performance**

One-year post-IPO adjusted loss is the loss from the offering amount measured from the IPO date to one year after the IPO date adjusted based on the CRSP NYSE/AMEX/NASDAQ market index. One-year minimum one-day return is the lowest one-day return from the IPO date to one year after the IPO date. The first-year turnover is calculated for the first-year after the IPO as follows:  $1 - (1 - \text{Turn})^{250}$ , where Turn is average daily trading volume divided by the number of shares outstanding. Comparison is between matching firms and those suit firms with a corresponding match.

	Suit Filed Pre-PSLRA	Match	p-value	Suit Filed Post-PSLRA	Match	p-value
One-Year post-IPO Adjusted Loss (Millions)	21.62	-14.61	0.0000***	44.58	1.85	0.0005***
One-Year post-IPO Minimum 1-Day Return	-0.2782	-0.1424	0.0000***	-0.3271	-0.1976	0.0000***
First-Day Return	0.0469	0.1270	0.0518*	0.1456	0.0672	0.2908
One-Year post-IPO Turnover	0.7814	0.7701	0.6558	0.8386	0.7469	0.0005***

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.  
p-value is for a t-test of the difference between pre and post-PSLRA means.

**Panel B: Composite Aftermarket Performance**

Composite adjusted loss is (a) the loss from the offering amount measured from the IPO date to the day after the end of the class period for suit firms adjusted based on the CRSP NYSE/AMEX/NASDAQ market index or (b) the loss from the offering amount measured from the IPO date to one year after the IPO date adjusted based on the CRSP NYSE/AMEX/NASDAQ market index for matching firms. Composite minimum one-day return is (a) the lowest one-day return at any time from the IPO date to the day after the end of the class period for suit firms or (b) the lowest one-day return from the IPO date to one years after the IPO date for matching firms. Comparison is between matching firms and those suit firms with a corresponding match.

	Suit Filed Pre-PSLRA	Match	p-value	Suit Filed Post-PSLRA	Match	p-value
Composite Adjusted Loss	25.36	-14.61	0.0000***	45.29	1.72	0.0008***
Composite Minimum 1-Day Return	-0.2925	-0.1424	0.0000***	-0.3552	-0.1979	0.0000***

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.  
p-value is for a t-test of the difference between pre and post-PSLRA means.

based on the one-year aftermarket performance of the matching firms therefore results in roughly the same mean period after the IPO for both samples. Panel B of Table 5 reports that the composite adjusted loss is greater for the suit sample compared with the matching sample in both the pre and post-PSLRA periods. Similarly, the composite minimum 1-day return is lower for the suit sample in the pre and post-PSLRA periods.

Table 6 compares the corporate governance structure of the lawsuit and matching firms measured immediately after the IPO. Firms with weaker corporate governance structures may give managers greater leeway to engage in fraud (and indeed, may rely on private class actions as an ex post mechanism to compensate for weak ex ante corporate governance (Romano, 1991)). The paper tracks several corporate governance variables including: (1) the number of directors on the board; (2) the fraction of the board consisting of non-“grey”, outside directors (a “grey” director is defined to include an outside director who is a founder of the company, a consultant or a person with some other non-director-related business relationship with the issuer, affiliated with the underwriter for the issuer; affiliated with the issuer’s law firm, a former employee of the issuer, a relative of a top officer of the issuer, or an affiliate of a large block shareholder (defined as greater than 30% ownership of the votes) of the issuer); (3) the presence of a classified board of directors; (4) whether the CEO is a separate position from the chairman of the board; (5) the presence of an audit committee without an insider or grey outside director on the committee; (6) the fraction of shares in the hands of the CEO; (7) the fraction of shares in the hands of the group of directors and officers; (8) the number of 10% block shareholders; (9) the fraction of shares in the hands of the largest shareholder of the firm; and (10) whether the CEO is the largest shareholder in the firm. For suits filed in the pre-PSLRA period, the matching firms have a significantly higher fraction of firms with a separate chair and CEO (significant at

**Table 6: Comparison of Corporate Governance at the time of the IPO for Suit and Matching Firms**

All corporate governance variables are measured immediately after the IPO. Grey directors are defined as those outside directors who is either (a) a founder of the company; (b) a consultant or a person with some other non-director-related business relationship with the issuer; (c) affiliated with the underwriter for the issuer; (d) affiliated with the issuer's law firm; (e) a former employee of the issuer; (f) a relative of a top officer of the issuer; (g) an affiliate of a large block shareholder (defined as greater than 30% ownership of the votes) of the issuer. Comparison is between matching firms and those suit firms with a corresponding match.

	Suit Filed Pre-PSLRA			Suit Filed Post-PSLRA		
	Sample Mean	Match Sample Mean	p-value	Sample Mean	Match Sample Mean	p-value
Number of directors on the board	5.97	6.19	0.3414	6.09	5.90	0.5344
Fraction of the board consisting of outsider (non-grey) directors	0.4019	0.4318	0.3356	0.3800	0.3908	0.7308
Presence a classified board	0.3830	0.4255	0.5547	0.5169	0.4382	0.2962
Fraction of issuers with a separate Chairman	0.2872	0.4894	0.0043***	0.3258	0.2921	0.6288
Number of other board seats for the outside directors	4.61	4.65	0.9554	3.37	4.69	0.0978*
Presence of an independent audit committee	0.3192	0.4362	0.0990*	0.3146	0.3371	0.7508
Fraction of shares in the hands of the directors and officers (after the IPO)	0.4224	0.4155	0.8180	0.4734	0.4418	0.3330
Fraction of shares in the hands of the CEO (after the IPO)	0.1891	0.1455	0.1288	0.1840	0.1789	0.8663
Number of 10% block owners (after the IPO)	1.71	1.75	0.7953	1.67	1.60	0.6055
Fraction of shares in the hands of the largest shareholder (after the IPO)	0.2968	0.2620	0.1893	0.3165	0.3221	0.8588
CEO is the largest shareholder (after the IPO)	0.3871	0.3085	0.2616	0.5056	0.4270	0.2956

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level  
p-value is for a t-test of the difference between pre and post-PSLRA means.



the 1% level). Matching firms also have a higher incidence of independent audit committees (significant at the 10% level). Interestingly, for suits filed in the post-PSLRA period, none of these governance variables are significantly different between the suit and matching groups. Instead, outside directors of the matching firms hold more seats on other boards than suit firms in the post-PSLRA period (significant at the 10% level).

Table 7 compares the presence of “gatekeepers” for the suit and matching firms. Higher reputation underwriters lend part of their reputation to offerings, thereby signaling the quality of the offering (Carter and Manaster, 1990). Table 7 reports the average reputation ranking of the first three listed managing underwriters in the offering based on the Carter-Manaster ranking (updated for the 1990s by Jay Ritter).<sup>23</sup> In the pre and post-PSLRA periods, no significant difference exists in the Carter-Manaster ranking for suit and matching firms. Investors may also view IPO firms using a higher reputation accounting firm as posing a reduced risk of fraud. Table 7 reports that the fraction of suit and matching firms with a Big 6 Accounting firm is not significantly different in the pre-PSLRA period. Post-PSLRA, the matching firm sample has a weakly greater fraction of Big 6 accounting firms (significant at only the 20% level).

Lastly, Table 8 compares the presence of other related actions dealing with potential fraud arising out of the IPO. Public announcements of accounting restatements (including inquiries expected to lead to a restatement) and SEC actions (investigations and enforcement actions) relating to disclosures made in the IPO were tracked for both suit and matching firms. Accounting restatements and SEC actions are obtained through searches of SEC filings, Nexis news stories and press releases, as well as SEC litigation releases. For both the suits filed pre

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<sup>23</sup> The Jay Ritter version of the Carter-Manaster ranking is available at <http://bear.cba.ufl.edu/ritter/Rank.HTM> (last visited on January 13, 2004).

**Table 7: Comparison of the Gatekeepers for Suit and Matching Firms**

Carter-Manaster Ranking for underwriters in the 1990s obtained from Professor Jay Ritter's web page located at <http://bear.cba.ufl.edu/ritter/Rank.HTM>. The auditor for the issuer at the time of the IPO is identified from Securities Data Corporation Comparison is between matching firms and those suit firms with a corresponding match.

	Suit Filed Pre-PSLRA Sample Mean	Match Sample Mean	p-value	Suit Filed Post-PSLRA Sample Mean	Match Sample Mean	p-value
Average CM Ranking for first 3 managing underwriters	7.11	7.35	0.3200	6.52	6.60	0.8241
Fraction of issuers with a Big 6 Accounting Firm	0.9575	0.9681	0.7019	0.8315	0.9091	0.1260

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level  
p-value is for a t-test of the difference between pre and post-PSLRA means.

**Table 8: Comparison of "Hard" evidence of Problems Pre and Post PSLRA**

Hard Evidence is defined to include the public announcement of either an accounting restatement (or an inquiry that is expected to lead to a restatement) or SEC action (investigation or enforcement) related to disclosures in the IPO. Pre-Filing Hard Evidence is defined as Hard Evidence where a public announcement occurs (a) prior to the earliest filing of the class action suit for suit firms or (b) within three years of the IPO for matching firms.

	Suit Filed Pre-PSLRA Sample Mean	Match Sample Mean	p-value	Suit Filed Post-PSLRA Sample Mean	Match Sample Mean	p-value
Accounting Restatement	0.1170	0.0319	0.0263**	0.2697	0.0449	0.0000***
SEC Action	0.1064	0.0000	0.0011***	0.2697	0.0112	0.0000***
Hard Evidence	0.1596	0.0319	0.0028***	0.3708	0.0562	0.0000***
Pre-Filing Hard Evidence	0.0745	0.0319	0.1956	0.3034	0.0562	0.0000***

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level  
p-value is for a t-test of the difference between pre and post-PSLRA means.

t-test of difference in fraction of suits with Accounting Restatement filed pre and post-PSLRA = -2.6603 (p=0.0085)  
t-test of difference in fraction of suits with SEC Enforcement Action filed pre and post-PSLRA = -2.8872 (p=0.0044)  
t-test of difference in fraction of suits with Hard Evidence filed pre and post-PSLRA = -3.3259 (p=0.0011)  
t-test of difference in fraction of suits with Pre-Filing Hard Evidence filed pre and post-PSLRA = -4.1407 (p=0.0001)

and post-PSLRA, the incidence of accounting restatements and SEC actions is significantly higher for the suit compared with matching firms. As well, the incidence of restatements and SEC actions is higher for suits filed in the post-PSLRA period compared with suits filed pre-PSLRA (significant at the 1% level). Note that suit firms have a significantly higher fraction of hard evidence compared with matching firms in both the pre and post-PSLRA periods. As well, suits filed post-PSLRA have a higher incidence of hard evidence compared with suits filed pre-PSLRA (difference significant at the 1% level).

To determine the importance of the presence of hard evidence prior to the filing of a private class action, the paper looked at suits with hard evidence of fraud where public announcement of the hard evidence occurred either (a) pre-filing for firms that faced a class action suit or (b) within the first three years after the IPO for the matching firms (termed “Pre-Filing Hard Evidence”). Table 8 reports that in the pre-PSLRA period, Pre-Filing Hard Evidence is only weakly different between the suit and matching firms (at the 20% level only). In contrast, in the post-PSLRA period, Pre-Filing Hard Evidence is significantly higher for suit compared with matching firms (at the 1% level). Summary statistic evidence exists that plaintiffs’ attorneys shifted their focus post-PSLRA toward cases involving hard evidence of fraud. To the extent hard evidence cases are easier to maintain under the PSLRA (both in terms of surviving a motion to dismiss and obtaining a higher expected settlement overall from bringing the suit), plaintiffs’ attorneys enjoy a higher expected return from these cases.

To provide a multivariate test of the size hypothesis, the paper estimates a series of probit models with a binary dependent variable equal to 1 for a suit firm and 0 for a matching firm (as reported in Table 9). Model 1 is estimated for the pre-PSLRA period only and includes an independent dummy variable for whether the one-year adjusted aftermarket loss is less than the

median loss for pre-PSLRA suit firms (termed the “Low Loss Dummy”). Model 2 is estimated for the post-PSLRA period only with the same Low Loss Dummy variable based on the median loss for suit firms in the pre-PSLRA period. Model 3 is estimated for the combined pre and post-PSLRA periods and includes interaction terms for Post-PSLRA x Pre-Filing Hard Evidence and Post-PSLRA x Low Loss Dummy to determine if plaintiffs’ attorneys shifted their behavior after the enactment of the PSLRA. Model 4 is the same as Model 3 estimated only for suits (and corresponding matches) with a Rule 10b-5 allegation (those suits most affected by the PSLRA).

Each of the models includes a set of additional control variables. The Appendix provides definitions of the controls included in the models (and used throughout the paper). First, the models include *Offering Characteristic* variables (the offer price and the log of the market capitalization measured immediately after the IPO). Firms with higher market capitalizations, all other things being equal, may be greater targets for a class action to the extent they have greater resources (and thus greater ability to pay out a settlement award). Firms with a large market capitalization may also have a greater likelihood of holding liability insurance, also increasing the likelihood of a large settlement for plaintiffs’ attorneys.

Second, the models contain *One-Year Aftermarket Performance* variables including the one-year adjusted aftermarket loss in value from the IPO offering amount (adjusted based the CRSP market index and in 1999 dollars), the one-year post-IPO 1-day minimum return, the first-day return, and the one-year post-IPO turnover as defined in the Appendix. The amount of potential damage award from bringing a suit under Section 11 or Rule 10b-5 depends on the amount of losses from the IPO offering amount (for Section 11) as well as the aftermarket losses and trading volume (for Rule 10b-5).

Third, the models add *Gatekeeper* variables. These include a variable for whether a Big 6 Accounting firm is associated with the IPO firm and the average Carter-Manaster rating for the first three listed managing underwriters in the IPO (as defined in the Appendix). IPOs associated with higher reputation offerings are less likely to contain fraud. To the extent the merits matter, one would expect IPOs with high reputation gatekeepers should face a lower likelihood of suit.

Fourth, the models include *Corporate Governance* variables. These consist of the presence of a classified board, a separate chair of the board, the fraction of the board comprised of non-grey outside directors, the number of other board seats held by the outside directors, and the share holdings of the CEO (as defined in the Appendix). To the extent firms with a weaker corporate governance structure at the time of the IPO are more prone to fraud, one would expect a greater likelihood of suit for firms with weaker corporate governance.

Finally, to control for changes in the overall IPO environment, the total number of IPOs for the IPO year of the firm is included in the model. Greater numbers of IPOs in any particular year may indicate a “hot” IPO market during which investors are more prone to purchasing shares at inflated prices (Ritter, 1984; Ritter 1991). Firms interested in defrauding investors may find more opportunity to do so during a hot market.

### **Table 9: Probit Models For the Decision to File Suit**

The dependent variable is equal to 1 for a suit and 0 for a matching firm. Model 1 is for the pre-PSLRA period only. Model 2 is for the post-PSLRA period only. Model 3 is estimated for the combined pre and post-PSLRA periods with interaction terms for Post-PSLRA x Pre-Filing Hard Evidence and Post-PSLRA x Low Loss Dummy (based on the median one-year adj. loss for pre-PSLRA suit firms). Model 4 is for the combined pre and post-PSLRA periods estimated only for suit firms (and corresponding matches) with a Rule 10b-5 allegation. All models are estimated for the matching firms and those suit firms with a corresponding match.

Independent Variables	Model 1	Model 2	Model 3	Model 4
Constant	-0.918 (-0.610)	-2.571* (-1.700)	-0.515 (-0.570)	-2.936** (-2.140)

Offer Price	-0.056 (-1.140)	0.122** (2.170)	0.025 (0.770)	-0.066 (-1.360)
Log(Market Cap.)	0.284 (1.130)	-0.379 (-1.360)	-0.181 (-1.080)	0.250 (1.020)
One-year Post-IPO Adj. Loss	0.022*** (2.980)	0.006* (1.780)	0.008*** (2.630)	0.005 (1.420)
One-year Post-IPO 1-day Minimum Return	-7.266*** (-5.000)	-7.751*** (-5.470)	-6.960*** (-7.470)	-7.670*** (-5.580)
First-Day Post-IPO Return	0.215 (0.470)	0.060 (0.180)	0.108 (0.430)	-0.097 (-0.270)
One-year Post-IPO Turnover	0.753 (0.920)	2.149** (2.300)	0.873 (1.620)	1.769** (2.370)
Carter-Manaster	-0.093 (-0.940)	-0.116 (-0.950)	-0.060 (-0.900)	-0.070 (-0.770)
Big 6 Accounting firm Dummy	-0.342 (-0.460)	-0.865* (-1.710)	-0.408 (-1.080)	-0.144 (-0.240)
Classified Board Dummy	-0.181 (-0.690)	-0.044 (-0.150)	-0.235 (-1.300)	-0.279 (-1.070)
Separate Chair Dummy	-0.506* (-1.850)	-0.060 (-0.180)	-0.238 (-1.250)	-0.364 (-1.320)
Fraction of Non-Grey Outsiders on the Board	-0.925 (-1.410)	0.713 (0.950)	-0.290 (-0.650)	-0.070 (-0.100)
Number of Other Board Seats held by Outside Directors	0.008 (0.340)	-0.012 (-0.320)	0.011 (0.680)	0.024 (1.130)
CEO Share Holdings as Fraction of Outstanding Shares	-0.004 (-0.010)	0.173 (0.220)	0.320 (0.670)	0.752 (1.120)
Number of IPOs in the year of the issuer's IPO	-0.001 (-0.580)	0.001 (1.240)	0.000 (-0.350)	0.001 (0.700)
Pre-Filing Hard Evidence	0.448 (0.720)	2.463*** (5.150)	0.793 (1.370)	0.084 (0.100)
Low Loss Dummy	0.006 (0.010)	-1.343*** (-3.190)	-0.151 (-0.560)	-0.012 (-0.030)
Post-PSLRA x Pre-Filing Hard Evidence	.	.	1.620** (2.250)	3.137*** (3.060)
Post-PSLRA x Low Loss Dummy	.	.	-1.364*** (-4.290)	-2.067*** (-4.080)
N	186	172	358	204
Pseudo Adj. R2	0.424	0.524	0.408	0.461
Log Likelihood	-74.331	-56.745	-146.888	-76.217

z-statistics in parentheses. \*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

In Model 1 (pre-PSLRA period only), the one-year adjusted aftermarket loss and the one-year post-IPO minimum 1-day return variables (representing the aftermarket performance of the IPO) are significant. Both greater losses and a more negative minimum one-day return are correlated with a higher likelihood of facing a securities fraud class action. Note that the coefficient on the Low Loss Dummy is not statistically different from zero. In contrast, in Model 2 (post-PSLRA period only) observe that the coefficient on the Low Loss Dummy is both negative and significant at the 1% level. Firms with a low aftermarket loss are much less likely to face a class action in the post-PSLRA period, consistent with the size effect hypothesis. Models 3 and 4 confirm this pattern for the combined pre and post-PSLRA periods. The coefficients on the Post-PSLRA x Low Loss Dummy interaction terms are negative and significant at the 1% level for Models 3 and 4, again consistent with the size effect hypothesis.

Strong evidence exists therefore that after the PSLRA, plaintiffs' attorneys shifted their focus toward higher value claims.<sup>24</sup> Not all lower value claims are necessarily frivolous. Small offering issuers in particular will offer plaintiffs' attorneys only a low value claim due to the size of the offering. The lack of private class action enforcement against lower value claims may result in greater amounts of fraud among such companies.

## 5. Soft Evidence Hypothesis

This section tests the soft evidence hypothesis that plaintiffs' attorneys in the post-PSLRA period shifted away from meritorious cases involving only soft evidence. As a proxy for

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<sup>24</sup> As a check on robustness, two unreported variations were estimated based on Model 3 of Table 9. First, the model was estimated with the one-year post-IPO *unadjusted* loss from the IPO offering amount and a low loss dummy based on the median *unadjusted* loss in the first-year for pre-PSLRA suit firms. The coefficient on the Post-PSLRA x Pre-Filing Hard Evidence variable was positive and significant at the 5% level. The coefficient on Post-PSLRA x Low Loss Dummy variable was negative and significant at the 1% level. Second, the *composite aftermarket performance* variables were used as defined in the Appendix. Under this variation, the coefficient on the Post-PSLRA x Composite Low Loss Dummy was negative and significant at the 1% level. The coefficient on the Post-PSLRA x Pre-Filing Hard Evidence variable, however, was positive but only significant at the 20% level.

meritorious suits, the paper follows JNP (2002) in viewing suits that result in dismissal or a low-value settlement (of \$2 million or less) as “nuisance” and suits that result in a settlement of over \$2 million as “non-nuisance”. While not a perfect division between nuisance and non-nuisance suits, the \$2 million mark provides a rough approximation. To the extent defendants settle nuisance suits to avoid defense litigation costs as well as possible distraction on management and negative publicity, the maximum amount defendants will settle a nuisance claim typically will not exceed \$2 million.<sup>25</sup> While some meritorious suits may also fall under \$2 million in value, those suits above \$2 million represent the more economically important fraud cases. Rather than capture all “legally” meritorious claims, the \$2 million cutoff treats as non-nuisance those claims that have legal merit and involve fraud resulting in substantial harm to investors.

The models of Table 9 provide evidence consistent with a shift among plaintiffs’ attorneys toward cases involving more “hard” evidence of fraud. The coefficients on the Post-PSLRA x Pre-Filing Hard Evidence interaction terms are positive and significant in Models 3 and 4 of Table 9 at the 5% and 1% confidence levels respectively. Pre-Filing Hard Evidence is significantly correlated with a higher risk of suit post-PSLRA (although not pre-PSLRA).

Should we care about the shift toward hard evidence cases (and the implied shift away from more “soft” evidence cases not involving a pre-filing restatement or SEC enforcement action)? Where the soft evidence cases are uniformly frivolous then the shift to “hard” evidence

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<sup>25</sup> JNP (2003) refer to the \$2 million amount as a “conservative estimate of defense costs”. See also Joseph A. Grundfest, *Why Disimply*, 108 Harv. L. Rev. 727, 740-41 (1995)(contending that “a key statistic in the merits debate is the difference between the observed settlement amount and the amount a defendant would be willing to pay simply to avoid the costs of mounting a defense. A defendant always has an incentive to settle a case for an amount less than avoidable defense costs because any such settlement is less costly than pursuing the case to verdict and prevailing at trial. In contrast, a defendant never has an incentive to settle for an amount in excess of avoidable defense costs unless the defendant recognizes some probability, however small, that a jury will rule in plaintiffs’ favor. It follows that the difference between the observed settlement and the defendants’ avoidable litigation costs at the time of settlement (the “settlement differential”) is a critical signal of the defendants’ own perception of the merits of plaintiffs’ claims.”). In reviewing settlement data from other studies, Grundfest adopts the rule of thumb that settlements for less than a cutoff ranging from \$2.5 to \$1.5 million are nuisance in the sense that “the merits may not have mattered at all in the resolution of the litigation”. *Id.* at 742-43.



unambiguously improves on the private class action regime. However not all soft evidence cases are frivolous. To test whether a shift in the *non-nuisance* soft evidence suits occurred from the pre to post-PSLRA period, the paper follows the following methodology:

1. Non-nuisance suits filed in the pre-PSLRA period are identified based on receiving over a \$2 million settlement (JNP, 2002).
2. A probit model for the decision to file suit is estimated solely for the post-PSLRA period.
3. The estimated probit model is used to generate *predicted* probabilities of suit for the soft and hard non-nuisance suits filed pre and post-PSLRA.

To the extent plaintiffs’ attorneys file suit more frequently against cases providing a higher expected return, the predicted probability represents the “value” of the particular claim to the attorneys. If plaintiffs’ attorneys expect a lower return from soft evidence claims in the post-PSLRA period, they will shift away from soft evidence claims that otherwise may have faced a non-nuisance suit in the pre-PSLRA period (the soft evidence hypothesis). If such a shift occurred, the predicted probabilities and thus, the expected values from litigation, for the non-nuisance soft evidence claims pre-PSLRA should be lower than for suits filed post-PSLRA.

**Table 10: Predicted Litigation Probability Comparison**

**Panel A: Mean Predicted Litigation Probability for Non-Nuisance Suits filed Pre and Post-PSLRA Based on Model Estimated for Suits Filed Post-PSLRA Only**

Model estimated for the post-PSLRA period only (based on Model 2 of Table 9).  
 For the model: n=172; log likelihood = -56.7445; Pseudo Adj. R<sup>2</sup> = 0.524.

	Suit Filed Pre-PSLRA	Suit Filed Post-PSLRA	p-value
Soft Non-Nuisance	0.426	0.847	0.0000**
Hard Non-Nuisance	0.837	0.817	0.8724

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.  
 p-value is for a t-test of the difference between pre and post-PSLRA mean predicted values.

**Panel B: Mean Predicted Litigation Probability for Non-Nuisance Suits filed Pre and Post-PSLRA Based on Model Estimated for Rule 10b-5 Suits Filed Post-PSLRA Only**

Model estimated for suit firms involving a Rule 10b-5 claim and corresponding matching firms in the Post-PSLRA period only (based on Model 2 of Table 9). For the model: n=111; log likelihood = -30.333; Pseudo Adj. R<sup>2</sup> = 0.606.

	Suit Filed Pre-PSLRA	Suit Filed Post-PSLRA	p-value
Soft Non-Nuisance	0.328	0.860	0.0000**
Hard Non-Nuisance	0.998	0.842	0.1399

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.  
p-value is for a t-test of the difference between pre and post-PSLRA mean predicted values.

Panel A of Table 10 reports the results of the test for the soft evidence hypothesis. The probit model is based on Model 2 of Table 9 (for the decision to file suit in the post-PSLRA only period) with the same *Offering Characteristics*, *One-Year Aftermarket Performance*, *Gatekeeper*, *Corporate Governance* groups of variables (as defined in the Appendix) and a control for the total number of IPOs for the offering year as independent variables. Panel A reports the comparison of the mean predicted probability of suit (based on the post-PSLRA model) for non-nuisance, soft evidence firms sued in the pre-PSLRA period and in the post-PSLRA period. Note that the mean predicted litigation probability is 42.6% for the pre-PSLRA non-nuisance, soft evidence suit firms and 84.7% for the post-PSLRA non-nuisance, soft evidence suit firms (difference significant at the 1% level). On the other hand, no statistical difference exists between the predicted probability of suit for the hard evidence, non-nuisance suits filed in the pre- and post-PSLRA periods.

As a check of the robustness of the results, Panel B of Table 10 estimates a probit model limited solely to post-PSLRA suits involving a Rule 10b-5 claim (and corresponding matching

firms).<sup>26</sup> In Panel B, the predicted post-PSLRA probability of suit is once again significantly lower for pre-PSLRA non-nuisance soft evidence suits compared with the post-PSLRA period; in contrast no statistical difference exists in the predicted probability of suit for non-nuisance hard evidence suit firms in the pre and post-PSLRA periods.

The paper's results provides evidence that a significant fraction of non-nuisance, soft evidence suits that plaintiffs' attorneys brought in the pre-PSLRA period would not have been brought in the post-PSLRA period, consistent with the soft evidence hypothesis. Instead, plaintiffs' attorneys shifted their focus toward non-nuisance cases involving Pre-Filing Hard Evidence of fraud after the enactment of the PSLRA.

Consistent with the implication of the soft evidence hypothesis that plaintiffs' attorneys post-PSLRA shifted away from cases requiring lengthy and costly investigation toward cases with more obvious indicia of fraud, plaintiffs' attorneys in the post-PSLRA period also spent less time investigating pre-filing hard evidence of fraud prior to the filing of suit. The mean number of days between the first public announcement of hard evidence of fraud and the earliest filing of suit was 144.9 days in the pre-PSLRA period and only 48.4 days post-PSLRA. The t-test of the difference in means = 2.565 (prob=0.0149). The shift in suits away from Rule 10b-5 and toward Section 11-only claims in the Post-PSLRA period, reported earlier in Panel C of Table 1 also supports the soft evidence hypothesis. Plaintiffs' attorneys seeking to earn a profit shifted toward Section 11-only claims where the PSLRA had a lessened effect (e.g., the lack of a scienter requirement makes Section 11 suits easier for plaintiffs' attorneys to litigate) despite the loss of additional Rule 10b-5 damages.

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<sup>26</sup> Unreported, the paper estimated a probit model with the *composite aftermarket performance* variables described in the Appendix. The results of the model and the comparison between the predicted probability of suit for pre and post-PSLRA non-nuisance claims is substantially the same as the tests in Panels A and B of Table 11.

## **5.1 Determinants of Suit Outcomes**

One explanation for the reluctance of plaintiffs' attorneys to pursue non-nuisance, soft evidence litigation in the post-PSLRA period is a possible shift in the expected outcomes of suits. More stringent pleading requirements with respect to scienter post-PSLRA, for example, may make it more difficult for plaintiffs' attorneys alleging a Rule 10b-5 claim to survive a motion to dismiss. The lack of discovery prior to the motion to dismiss may also make it difficult for plaintiffs' attorneys to make specific allegations of material misstatements or omissions. The paper examines the probability of obtaining a non-nuisance outcome to test whether the PSLRA had a disproportionately negative impact on soft evidence, non-nuisance claims. To control for the possibility that the PSLRA may have impacted the outcomes of suits filed pre-PSLRA that were resolved post-PSLRA, such IPO suit firms (and corresponding matching firms) are excluded from all the tests involving suit outcomes.

## **5.1 Suit Outcomes**

If the PSLRA decreased the likelihood for a suit to obtain a non-nuisance settlement award (with a corresponding increase in the likelihood of a dismissal or a low-value settlement), then plaintiffs' attorneys may rationally respond to the PSLRA with a reduction in the likelihood of filing suit. Table 11 provides summary statistics on suit outcomes. In Panel A (for the combined pre and post-PSLRA periods), note that 78.1% of suits reached settlement. The remainder of the suits resulted in some form of victory for defendants (dismissal, plaintiffs dropping the suit, or summary judgment for the defendants). None of the suits resulted in a judgment at trial. Panel B reports on outcomes separately for suits filed in the pre and post-

PSLRA periods. Observe that in the post-PSLRA period 25.0% of suits resulted in a dismissal compared with only 13.0% pre-PSLRA (difference significant at the 10% level).

**Table 11: Lawsuit Outcomes**

**Panel A: Lawsuit Outcomes for Full Sample**

Outcome	Number of Suits	Percentage of Total
Settlement	139	78.1%
Dismissal	34	19.1%
Plaintiff Dropped Suit	3	1.7%
Summary Judgment for Defendant	2	1.1%
Total	178	100.0%

**Panel B: Comparison of Lawsuit Outcomes for Suits Filed Pre- and Post-PSLRA**

	Suit Filed Pre-PSLRA Number of Suits	Percentage of Total	Suit Filed Post- PSLRA Number of Suits	Percentage of Total
Settlement	45	83.3%	63	75.0%
Dismissal	7	13.0%	21	25.0%
Plaintiff Dropped Suit	2	3.7%	0	0.0%
Summary Judgment for Defendant	0	0.0%	0	0.0%
Total	54	100.0%	84	100.0%

t-test of difference in dismissal fraction Pre and Post-PSLRA = -1.722 (p=0.0873)  
Excludes suits filed Pre-PSLRA and resolved Post-PSLRA.

To examine of the likelihood of receiving a *non-nuisance* settlement, the paper estimates a series of probit models with a binary dependent variable equal to 1 if a suit receives a non-*nuisance* and 0 otherwise (e.g., dismissal or low-value settlement) as reported in Table 12. Model 1 of Table 12 is estimated solely for the pre-PSLRA period. Model 2 is estimated solely for the post-PSLRA period. Both Models 1 and 2 include a dummy variable for the presence of hard evidence of fraud to determine whether hard evidence suits are more likely to receive a non-*nuisance* outcome in either period. Because the outcome will depend on the presence of hard

evidence regardless of whether the hard evidence is announced pre-filing, the models focus on the presence of hard evidence of fraud relating to the IPO regardless of when announced. Model 3 is estimated for both the pre and post-PSLRA periods and includes interaction variables for Post-PSLRA x Hard Evidence and Post-PSLRA x Soft Evidence to determine whether soft evidence or hard evidence claims faced a reduced probability of obtaining a non-nuisance settlement after the enactment of the PSLRA compared with pre-PSLRA suits.

The non-nuisance probit models add several control variables. The models include *Gatekeeper* variables (for Big 6 Accounting Firm and the Carter-Manaster Ranking) and the *Corporate Governance* group of variables (Classified Board Dummy, Separate Chair Dummy, Fraction of Non-Grey Outsiders on the Board, Number of Other Board Seats Held by Outside Directors, and CEO Share Holdings as Fraction of Outstanding Shares) as defined in the Appendix. The models also contain a dummy variable for high technology industries (biotechnology, computer, and electronics)<sup>27</sup> traditionally with a high incidence of securities class actions to control for possible differences in settlements between high litigation and lower litigation risk industries (High Technology Dummy). To control for the possibility that Section 11-only suits may result in different outcomes compared with suits involving Rule 10b-5, a dummy variable for Section 11-only suits is added in the model. The models include dummy variables for Milberg Weiss as a lead plaintiff counsel and litigation in a high securities volume jurisdiction (SDNY, ND Cal, CD Cal, and SD Cal). As the largest plaintiffs' attorney firm, Milberg Weiss may have more resources to bear (credibly) the high cash flow requirements of pursuing litigation and therefore may cause defendants to settle more readily. Litigation in high securities volume jurisdictions may also face a different probability of a non-nuisance result to the extent experience gives judges greater sophistication in dismissing frivolous claims; judges in

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<sup>27</sup> These industries correspond to SIC codes 2833-2836, 3570-3577, and 7370-7379.

high volume securities jurisdictions may also have a greater incentive to clear their dockets, leading to more dismissals.

**Table 12: Non-Nuisance Outcomes**

**Panel A: Non-Nuisance Outcome Probit Model**

The dependent variable is equal to 1 for a non-nuisance outcome and 0 for a nuisance outcome (e.g., dismissal or low-value settlement of \$2 million or less). Model 1 is for the pre-PSLRA period. Model 2 is for the post-PSLRA period. Model 3 is estimated for the combined pre and post-PSLRA periods.

Independent Variables	Model 1	Model 2	Model 3
Constant	-2.685 (-1.020)	-2.723*** (-3.370)	-1.367* (-1.880)
High Technology Industry Dummy	-0.334 (-0.570)	0.311 (0.910)	0.201 (0.730)
Big 6 Accounting firm Dummy	.	0.136 (0.270)	0.002 (0.000)
Carter-Manaster	0.406 (1.340)	0.247*** (2.610)	0.219*** (2.710)
Section 11 only Dummy	.	-0.310 (-0.900)	-0.467 (-1.530)
Classified Board Dummy	-0.256 (-0.500)	-0.026 (-0.080)	-0.057 (-0.220)
Separate Chair Dummy	-0.840 (-1.280)	0.306 (0.800)	-0.024 (-0.080)
Fraction of Non-Grey Outsiders on the Board	-1.406 (-1.050)	0.805 (0.950)	0.113 (0.180)
Number of Other Board Seats held by Outside Directors	0.287** (2.300)	-0.016 (-0.450)	0.036 (1.260)
CEO Share Holdings as Fraction of Outstanding Shares	1.307 (0.760)	1.087 (1.140)	0.743 (0.990)
Dummy for SDNY, SD Cal, ND Cal, CD Cal Court	-0.706 (-1.060)	-0.378 (-1.140)	-0.424 (-1.560)
Dummy for Milberg Weiss	0.477 (0.690)	0.254 (0.760)	0.189 (0.720)
Hard Evidence dummy	-0.353 (-0.500)	0.904** (2.470)	-0.342 (-0.680)

Post-PSLRA x Hard Evidence			0.551 (1.050)
Post-PSLRA x Soft Evidence			-0.650* (-1.810)
N	41	85	126
Adj. R2	0.257	0.174	0.149
Log Likelihood	-20.001	-48.450	-74.275

z-statistics in parenthesis. Excludes suits filed pre-PSLRA and resolved post-PSLRA.

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

Wald Chi-Squared(13) for the Heckprob = 23.80 (prob=0.0330).

### Panel B: Actual and Predicted Non-Nuisance Fraction for Pre-Filings Suits (Predictions Based on Model Estimated for Suits Filed in the Post-PSLRA Period Only)

Predicted fraction of non-nuisance suits based on Model 2 of Panel A (estimated for the post-PSLRA period only)

	Actual	Predicted	p-value
Soft Evidence	0.645	0.391	0.0080***
Hard Evidence	0.600	0.783	0.3155

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

p-value is for a t-test of the difference between pre-PSLRA actual and pre-PSLRA predicted mean values.

Excludes suits filed pre-PSLRA and resolved post-PSLRA.

From Panel A of Table 12 note that the Hard Evidence dummy variable is not significant in Model 1 for the pre-PSLRA period but is both positive and significant in Model 2 for the post-PSLRA period. In Model 3, combining the pre and post-PSLRA periods, the coefficient on the interaction term between Post-PSLRA x Hard Evidence is insignificant however. Instead, the coefficient on the Post-PSLRA x Soft Evidence interaction term is both negative and significant in Model 3 (at the 10% level). For suits filed post-PSLRA compared with pre-PSLRA, the likelihood of a non-nuisance settlement is significantly lower for Soft Evidence claims.<sup>28</sup>

<sup>28</sup> A selection bias may exist in the probit models of suit outcome to the extent unobserved factors may determine what suits are filed among the entire set of IPOs. To control for this bias, the paper uses the STATA Heckprob procedure, with a first-stage probit model for whether an IPO firm faces a suit. The first-stage probit model includes both the *offering characteristic* (offer price and log of market capitalization) and *one-year aftermarket performance* (one-year post-IPO adjusted aftermarket loss, one-year post-IPO minimum one-day return, first-day return, one-year post-IPO turnover, and the Low Loss Dummy) groups of independent variables as described in the Appendix. In addition first-stage probit model includes the total number of IPOs for the IPO year of each firm. The independent variables of the first-stage probit model are assumed correlated with the probability of a



Of course, some soft evidence claims may be frivolous. To determine the impact of the PSLRA on non-nuisance, soft evidence claims, the paper focuses solely on suits in the pre-PSLRA period. If the PSLRA imposed greater burdens on meritorious litigation, the paper predicts that a significantly greater fraction of soft evidence claims in the pre-PSLRA period would have received a dismissal or low-value settlement had they been brought in the post-PSLRA period. To determine how soft and hard evidence claims in the pre-PSLRA period would have done in the post-PSLRA period, the following methodology is employed:

1. The predicted probability of a non-nuisance outcome is obtained using the post-PSLRA only model (Model 3 in Panel A of Table 12).
2. The predicted probability of a non-nuisance outcome post-PSLRA is compared with the actual fraction of non-nuisance suits in the pre-PSLRA period.

Panel B reports that 64.5% of the soft evidence suits in the pre-PSLRA period resulted in a non-nuisance outcome. The predicted fraction of non-nuisance outcomes based on the post-PSLRA model for soft evidence claims however is only 39.1% (difference significant at the 1% level). A significant fraction of soft evidence claims pre-PSLRA that received a non-nuisance outcome therefore would have received a dismissal or low-value settlement in the post-PSLRA period. In contrast, the actual fraction of hard evidence cases that resulted in a non-nuisance settlement in the pre-PSLRA period was 60%. The predicted fraction based on the post-PSLRA model is higher at 78.3% (difference statistically insignificant). These results are consistent with the hypothesis that post-PSLRA, soft evidence (but not hard evidence) non-nuisance claims

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suit but uncorrelated with a non-nuisance outcome. While the decision on the part of plaintiffs' attorneys to bring suit may turn on the size of potential damages (correlated with offering characteristics and aftermarket losses), whether a suit is dismissed or receives a low-value settlement depends instead on the merits of the fraud claim. The STATA Heckprob procedure conducts a maximum likelihood estimation of the first-stage selection equation with the second stage model of suit outcomes (based on Model 3). Unreported, the coefficients in the second-stage probit model are qualitatively the same as in Model 3 of Table 12 (with one important difference – the coefficient on the Post-PSLRA x Soft Evidence interaction term is now negative and significant at the 5% level).

faced a significantly higher probability of receiving a dismissal or low-value settlement outcome.<sup>29</sup>

## 5.2 Resolution Time

Another reason why plaintiffs' attorneys may choose not to file suit against firms post-PSLRA that would have faced a non-nuisance suit in the pre-PSLRA period is an increase in the amount of time (and corresponding associated costs) to resolve the lawsuit. Table 13 reports on the mean resolution time for lawsuits, defined as the number of days between the resolution date and the earliest filing date of the lawsuit. Suits filed post-PSLRA took on average 847.4 days to resolve while suits filed pre-PSLRA took only 634.9 days (different significant at the 5% level). Non-nuisance, soft evidence claims experienced the most statistically significant increase, rising to 1009.7 days mean resolution time post-PSLRA compared with 735.0 days pre-PSLRA (significant at the 5% level). While the resolution time for non-nuisance, hard evidence cases as well as dismissals also increased, the increase is not statistically significant.

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<sup>29</sup> As an alternate test of suit outcomes, the paper examines the total settlement amounts for settled suits (adjusted to 1999 dollars). Examining settlements amounts has at least two potential problems. First, for many of the settlements, the total settlement amount data often was not available, particularly for pre-PSLRA suits. To the extent companies may deem relatively smaller settlements immaterial and therefore fail to disclose such settlements, this may bias the pre-PSLRA suit sample in particular toward larger settlements. Second, the presence of liability insurance for firms is often unobservable, leading to an omitted variables bias in the tests (JNP (2003)). Given these caveats the paper estimates an OLS model with the log of the settlement amount as the dependent variable for the post-reform period. Among independent variables, the model includes a dummy variable for a high tech industry, a dummy for a Section 11-only claim, the class length, and the *Offering Characteristics, Composite Aftermarket Performance, Gatekeeper, Corporate Governance* groups of variables (see Appendix). To determine how suits that settled for a *non-nuisance* amount in the pre-PSLRA period would fare in the post-PSLRA, predicted settlement values are obtained from the post-PSLRA period settlement model. Unreported, the mean predicted post-PSLRA settlement amount is not statistically different from the actual pre-PSLRA mean settlement amount for both soft evidence and hard evidence non-nuisance settlements. Conditional on reaching a settlement, the total settlement amount for soft evidence cases is not statistically different in the pre and post-PSLRA periods.

**Table 13: Resolution Time Summary Statistics (in Days)**

	Pre-PSLRA Filed Suit	Post-PSLRA Filed Suit	p-value
All Cases	634.9	847.4	0.0136**
Non-Nuisance Hard Evidence	582.3	844.5	0.2908
Non-Nuisance Soft Evidence	735.0	1009.7	0.0219**
Nuisance Settlement	598.4	1102.8	0.1023
Dismissal	399.5	544.2	0.3474

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

p-value is for a t-test of the difference between pre and post-PSLRA means.

Excludes suits filed pre-PSLRA and resolved post-PSLRA.

To control for other factors that may affect the resolution time, Table 14 estimates a series of OLS model with the resolution time in days as the dependent variable. All the models include a dummy variable for whether the resolution resulted in nuisance outcome (e.g., dismissal or settlement of \$2 million or less) (Nuisance Suit Dummy). Both dismissals and low-value settlements may occur sooner than other forms of resolution. The models also include a dummy variable for the presence of hard evidence of fraud (Hard Evidence Dummy). Model 1 fits only suits filed in the pre-PSLRA period. Model 2, in turn, is estimated for suits filed only in the post-PSLRA period. To focus more specifically on non-nuisance suits, Model 3 is estimated for the entire pre and post-PSLRA sample. Interaction terms for Post-PSLRA x Non-Nuisance Soft Evidence and Post-PSLRA x Non-Nuisance Hard Evidence are added to the model as independent variables to determine the effect of the PSLRA on such suits compared with pre-PSLRA suits.

All the OLS resolution time models include a number of additional control variables. The models include the *Gatekeeper* variables (for Big 6 Accounting firm and Carter-Manaster ranking) and the *Corporate Governance* group of variables (Classified Board Dummy, Separate Chair Dummy, Fraction of Non-Grey Outsiders on the Board, Number of Other Board Seats

Held by Outside Directors, and CEO Share Holdings as Fraction of Outstanding Shares) (see Appendix for definitions). In addition, the models contain a dummy for whether the IPO firm is a member of a high technology industry and a dummy variable for whether the class action complaint alleges a Section 11-only cause of action. Firms in a high technology industry as well as firms facing a Section 11-only complaint may tend to resolve their cases differently than other firms. Because suits in different jurisdictions or with different plaintiffs' attorneys may take varying times to reach resolution, a dummy variable for a suit in a jurisdiction traditionally with a high volume of securities litigation (SDNY, CD Cal, ND Cal, SD Cal) and a dummy variable for Milberg Weiss as a lead plaintiff attorney are included in the models.

**Table 14: Resolution Time OLS Model**

The dependent variable for all models is the resolution time in days. Model 1 is for the pre-PSLRA period only. Model 2 is for the post-PSLRA period only. Model 3 is estimated for the combined pre and post-PSLRA period.

Independent Variables	Model 1	Model 2	Model 3
Constant	28.539 (0.050)	1794.284*** (6.020)	1373.238*** (5.110)
High Technology Industry Dummy	240.667* (1.910)	-49.726 (-0.430)	47.474 (0.560)
Big 6 Accounting firm Dummy	2.412 (0.010)	-277.916* (-1.810)	-261.056** (-1.980)
Carter-Manaster	136.005** (2.510)	-76.066** (-2.370)	-44.287 (-1.660)
Section 11 only Dummy	-580.311 (-1.560)	-155.586 (-1.320)	-181.686* (-1.730)
Classified Board Dummy	-308.327** (-2.350)	-173.378 (-1.590)	-159.988* (-1.940)
Separate Chair Dummy	197.666 (1.510)	-50.340 (-0.390)	57.586 (0.600)
Fraction of Non-Grey Outsiders on the Board	-189.909 (-0.700)	-80.834 (-0.280)	-141.755 (-0.690)

Number of Other Board Seats held by Outside Directors	4.982 (0.420)	33.460** (2.310)	20.200** (2.090)
CEO Share Holdings as Fraction of Outstanding Shares	272.034 (0.880)	-119.807 (-0.410)	-15.026 (-0.070)
Dummy for SDNY, SD Cal, ND Cal, CD Cal Court	-396.265** (-2.610)	-262.927** (-2.470)	-293.972*** (-3.550)
Dummy for Milberg Weiss	-76.727 (-0.600)	243.945** (2.340)	174.176** (2.210)
Nuisance Suit Dummy	147.731 (1.140)	-160.098 (-1.430)	53.546 (0.360)
Hard Evidence dummy	-316.747* (-1.930)	-164.487 (-1.340)	-46.530 (-0.370)
Post-PSLRA x Nuisance Suit Dummy Variable	.	.	4.503 (0.030)
Post-PSLRA x Non-Nuisance Hard Evidence	.	.	-0.199 (-0.000)
Post-PSLRA x Non-Nuisance Soft Evidence	.	.	290.209** (2.230)
N	32	69	101
Adj. R2	0.186	0.377	0.341

t-statistics in parentheses. Excludes suits filed pre-PSLRA and resolved post-PSLRA.

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

Note that in both Models 1 and 2 of Panel A of Table 14 (for the pre and post PSLRA periods respectively), suits in a high securities volume jurisdiction experience much quicker resolution, all other things being equal (coefficients significant at the 5% level). While in the pre-PSLRA period, association with a higher-quality underwriter (as proxied by the Carter-Manaster rating) correlates with a longer resolution period (significant at the 5% level), association with a Big 6 Accounting Firm or a higher-quality underwriter in the post-PSLRA period correlates with a shorter resolution time (significant at the 10% and 5% levels respectively). The PSLRA appears to have reduced the amount of time IPO firms associated with higher quality gatekeepers must spend in securities fraud litigation (thereby reducing the

pressure for underwriters and accountants associated with such firms to settle). Lastly note that the coefficient on the dummy for Milberg Weiss is positive and significant only in the post-PSLRA period (Model 2).

Looking at the combined pre and post-PSLRA periods, Model 3 reports that the coefficients on the Post-PSLRA x Non-Nuisance Hard Evidence and Post-PSLRA x Nuisance interaction terms are not significant. However, the coefficient on the Post-PSLRA x Non-Nuisance Soft Evidence interaction terms is positive and significant at the 5% level. Non-nuisance, soft evidence suits experience an increase in resolution time of 290.2 days on average (significant at the 5% level) in the post-PSLRA period. The increase in resolution time (with accompanying increase in costs) is consistent with the soft evidence hypothesis and partially explains why plaintiffs' attorneys reduced their willingness to bring even non-nuisance, soft evidence cases in the post-PSLRA period.<sup>30</sup>

## 6. Conclusion

Congress enacted the PSLRA primarily to reduce the incidence of nuisance suits. An easy way to deter all nuisance suits would be simply to remove private causes of action for securities fraud. Removing private causes of action, however, also eliminates all meritorious securities fraud class actions. To the extent the PSLRA works like a “magic bullet” in removing

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<sup>30</sup> To control for possible selection bias in the sample of suit firms, a Heckman two-stage model is estimated. In the first stage, a probit model for the decision to file a suit is estimated using the *offering characteristic* (offer price and log of market capitalization) and *one-year aftermarket performance* variables (one-year post-IPO adjusted aftermarket loss, one-year post-IPO minimum one-day return, first-day return, one-year post-IPO turnover, and the Low Loss Dummy) as described in the Appendix in addition with a control for the number of IPOs in the IPO offering year. These variables are assumed uncorrelated with the resolution time of the lawsuit. Instead, the resolution time depends on the merits of the case, with less meritorious claims resolving sooner (either through dismissal or a low value settlement) than other claims. In the second stage, the resolution time OLS model used in Model 3 of Table 14 (for the combined pre and post-PSLRA periods) is estimated with the addition of the inverse Mills' ratio calculated from the first-stage probit model. Unreported, the coefficient on the inverse Mills' ratio coefficient is not statistically significant and the other coefficients in the second stage OLS resolution time model are qualitatively the same as in Model 3 of Table 14.

only nuisance litigation, policymakers do not have to face such a tradeoff in assessing the value of the PSLRA. Earlier articles, including JNP (2003), address solely whether the PSLRA increased the incidence of hard evidence cases of fraud without examining the impact of the PSLRA on other potentially meritorious claims.

Focusing on meritorious litigation, this paper tests whether the PSLRA selectively eliminated only nuisance litigation. The paper reports evidence that the PSLRA had at least two important negative impacts on non-nuisance litigation. First, companies engaged in smaller offerings or with a lower secondary market volume (and therefore reduced potential damage awards) are significantly less likely to find themselves the target of a securities class action in the post-PSLRA period. To the extent such companies are not immune to engaging in fraud, the lack of any significant class action activity may require an increase in public enforcement.<sup>31</sup>

Second, companies engaged in fraud where no hard evidence of the fraud is publicly announced pre-filing of a suit are significantly less likely to face a private securities class action in the post-PSLRA period. The PSLRA caused plaintiffs' attorneys to shift their attention to the subset of fraud cases where the presence of hard evidence made it easier for such attorneys to meet enhanced pleading requirements under the PSLRA absent discovery. The presence of hard evidence also makes it more likely that the plaintiffs' attorneys will recover a larger amount of money (through settlement), offsetting the higher costs imposed on plaintiffs' attorneys through the PSLRA's lead plaintiff provision, court review for sanctions, and restriction on attorneys' fees to "reasonable" levels. In comparison, the paper provides evidence that non-nuisance, soft evidence cases post-PSLRA, all other things being equal, experienced an increase in resolution

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<sup>31</sup> On a related note, evidence exists that the level of funding for SEC enforcement activities did not keep pace with the growth in securities market activity in the 1990s. See Joel Seligman, *The Transformation of Wall Street: A History of the Securities and Exchange Commission and Modern Corporate Finance* 630 (3d ed. Aspen Publishing, 2003) (reporting that during most of the 1990s the SEC's budget grew at 6 percent per year while during "the 1990s' bull market, virtually every significant measure of securities activity grew far faster.").

time (leading to higher costs for plaintiffs' attorneys) as well as an increased probability of receiving a dismissal or low-value settlement amount.

The empirical observation that the PSLRA reduced the incidence of nuisance suit litigation after the enactment of the PSLRA therefore is only part of the required analysis in assessing the welfare implication of the PSLRA. The PSLRA also worked to reduce more meritorious litigation, particularly aimed at smaller companies and companies engaged in fraud involving only soft evidence. The PSLRA operated less like a selective deterrence against fraud and more as a simple tax on all litigation (including meritorious suits). Perversely, the PSLRA may have increased the ability of such firms to engage in fraud consistent with Lerach (2001)'s view that fraud increased after the PSLRA. Whether the PSLRA in fact raised overall investor welfare turns on an assessment of the relative magnitude of the benefit from reducing nuisance suits against the cost of lowered deterrence against fraud.



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## Appendix: Definitions of Frequently Used Groups of Variables

### Offering Characteristics

Variable Name	Definition
Offer Price	IPO Offer Price
Log(Market Cap.)	Log of the market capitalization of the IPO firm measured immediately after the IPO (using the IPO Offering Price)

### One-Year Aftermarket Performance

Variable Name	Definition
One-year Post-IPO Adj. Loss	Aftermarket loss in the first-year after the IPO adjusted for the CRSP NYSE/AMEX/NASDAQ market index
One-year Post-IPO 1-day Minimum Return	Lowest one-day raw return during the first-year after the IPO
First-Day Return	The raw return for the first-day after the IPO
One-year Post-IPO Turnover	The first-year turnover is calculated for the first-year after the IPO as follows: $1 - (1 - \text{Turn})^{250}$ , where Turn is average daily trading volume divided by the number of shares outstanding.
Low Loss Dummy	Dummy = 1 if the one-year post-IPO adj. loss is less than the median one-year adjusted loss for pre-PSLRA suit firms

### Composite Aftermarket Performance

Variable Name	Definition
Composite Post-IPO Adj. Loss	Either (a) the Class Period Post-IPO Adj. Loss for IPO suit firms or (b) the One-Year Post-IPO Adj. Loss for Matching firms
Composite Post-IPO 1-day Minimum Return	Either (a) the Class Period Post-IPO 1-day Minimum Return for IPO suit firms or (b) the One-Year Post-IPO 1-day Minimum Return for Matching firms
First-Day Return	The raw return for the first-day after the IPO
One-year Post-IPO Turnover	The first-year turnover is calculated for the first-year after the as follows: $1 - (1 - \text{Turn})^{250}$ , where Turn is average daily trading volume divided by the number of shares outstanding.
Low Composite Loss Dummy	Dummy = 1 if the composite post-IPO adj. loss is less than the median loss for pre-PSLRA suit firms

### Class-Period Aftermarket Performance

Variable Name	Definition
Class Period Post-IPO Adj. Loss	Aftermarket loss from the IPO date to the trading day immediately after the end of the class period adjusted for the CRSP NYSE/AMEX/NASDAQ market index
Class Period Post-IPO 1-day Minimum Return	Lowest one-day raw return from the date of the IPO to the trading day after the end of the class period
First-Day Return	The raw return for the first-day after the IPO
One-year Post-IPO Turnover	The first-year turnover is calculated for the first-year after the IPO as follows: $1 - (1 - \text{Turn})^{250}$ , where Turn is average daily trading volume divided by the number of shares outstanding.
Class Length	Number of days in the class period

### Gatekeeper

Variable Name	Definition
Carter-Manaster	Carter-Manaster average ranking for the first 3 listed manager underwriters for the IPO (using Jay Ritter's updated 1990s Carter-Manaster rankings)
Big 6 Accounting Firm Dummy	Dummy variable if the IPO firm is associated with a Big 6 Auditor

### Corporate Governance Variables

Variable Name	Definition
Classified Board Dummy	Dummy variable for the presence of a classified board
Separate Chair Dummy	Dummy variable for the presence of a separate chair of the board
Fraction of Non-Grey Outsiders on the Board	Fraction of outside directors on the board who are not grey directors (e.g., founders, consultants, former employees, affiliates with a shareholder with over 30% of the outstanding shares/votes, directors with other business relationship with the firm)
Number of Other Board Seats Held by Outside Directors	Number of board seats of other companies held by outside directors as identified in the biography of the outside directors
CEO Share Holdings as Fraction of Outstanding Shares	Fraction of outstanding shares in the hands of the CEO