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SEC Investigations and Securities Class Actions: An Empirical Comparison

*Stephen J. Choi and A. C. Pritchard**

Using actions with both an SEC investigation and a class action as our baseline, we compare the targeting of SEC-only investigations with class-action-only lawsuits. Looking at measures of information asymmetry, we find that investors in the market perceive greater information asymmetry following the public announcement of the underlying violation for class-action-only lawsuits compared with SEC-only investigations. Turning to sanctions, we find that the incidence of top officer resignation is greater for class-action-only lawsuits relative to SEC-only investigations. Our findings are consistent with the private enforcement targeting disclosure violations at least as precisely as (if not more so than) SEC enforcement.

I. INTRODUCTION

Critics of securities class actions (e.g., Rose 2008) commonly contrast those suits, which are frequently dismissed, with SEC enforcement actions, which typically settle at the same time as they are filed. According to those critics, the high dismissal rate for class actions suggests a scattershot approach and that the SEC is superior to plaintiffs' lawyers in targeting disclosure violations. Critics of class actions argue that more precise targeting of suits by the SEC yields a stronger deterrent punch for SEC enforcement relative to class actions. If one assumes that: (1) targeting significantly affects deterrence, and (2) the SEC could maintain the precision of its targeting if the agency were allocated greater resources, it follows from this argument that shifting enforcement dollars to the

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government enforcement would yield a bigger deterrent impact for the marginal dollar spent (Bratton & Wachter 2011).

In this study, we attempt to shed light on a key premise of this argument—the relative precision of private and public enforcement in targeting disclosure violations. We think that critics contrasting securities class actions and SEC enforcement actions may be comparing apples to oranges. The comparisons ignore a critical institutional detail: SEC enforcement actions are brought only after the SEC has done a substantial investigation, aided by the SEC’s subpoena power, which yields cooperation from defendants even when not explicitly invoked. By contrast, plaintiffs filing securities class actions cannot seek discovery from defendants while a motion to dismiss is pending, so plaintiffs must rely almost exclusively on publicly available information, which explains the high dismissal rate.

Instead of looking solely at filed SEC enforcement actions, we compare SEC *investigations* with class action suits against public companies. The ultimate goal of both SEC enforcement lawyers and plaintiffs’ attorneys is to uncover and sanction fraud. We recognize that class action attorneys and SEC attorneys face different incentives, which might affect their targeting of suits and investigations. The profit incentive for class action attorneys is well known. In contrast, the SEC works to maximize the number of cases brought, penalties, and media attention. In a recent speech, the SEC’s Director of Enforcement trumpeted that “we filed 755 actions last year—the most ever filed in the history of the Commission. And we obtained orders for over \$4 billion in monetary sanctions—nearly 20% larger than our previous high.”¹ We take those incentives as a given, and compare the targeting decisions of class action lawyers and the SEC that flow from them. We conjecture that the SEC and plaintiffs’ attorneys have roughly the same access to information when they begin an investigation or file a class action suit. We also compare public and private enforcement at later stages in the proceedings: (1) SEC formal investigations and class actions that have survived a motion to dismiss and (2) settled SEC enforcement actions and settled class actions.

To facilitate our comparison, we split our cases into three categories: SEC Only, Class Action Only, and Both. SEC Only involves investigations of public companies only by the SEC. Class Action Only involves filings against public companies only by private plaintiffs’ attorneys. Both involves both an SEC investigation and a class action. Using these three categories allows us to assess the targeting precision of both the SEC and private plaintiffs’ attorneys.

We compare the relative precision of targeting by the SEC and plaintiffs’ lawyers using three market-based metrics of information asymmetry: changes in earnings response coefficients, institutional ownership, and the bid-ask spread. Prior work suggests that these measures correlate with the market’s perception of the likelihood of fraud. We also examine the decisions of corporate boards to terminate CEOs and CFOs in response to SEC investigations and class actions. We argue that boards have access to

¹Andrew Ceresney, Remarks to the American Bar Association’s Business Law Section Fall Meeting (Nov. 21, 2014), available at: <http://www.sec.gov/News/Speech/Detail/Speech/1370543515297>.

nonpublic information relating to the officer's culpability, so the termination decision may also proxy for the likelihood of fraud. Overall, the evidence we present here contradicts the conventional wisdom that the SEC targets disclosure violations more precisely than do plaintiffs' lawyers.

We proceed as follows. In Section II, we develop our hypotheses based on our review of prior literature relating to SEC enforcement actions and securities class actions. Section III describes our sample and variables. Section IV reports the results of our tests of our hypotheses. Section V concludes with a discussion of our results and their potential policy implications.

II. PRIOR LITERATURE AND HYPOTHESES

A. Market Reactions to Disclosure Violations

Numerous studies have shown significant stock price reactions to the announcement of potential disclosure violations (Kinney & McDaniel 1989; Karpoff & Lott 1993; Palmrose et al. 2004). Similar results are found for studies focusing specifically on SEC enforcement actions (Feroz et al. 1991; Karpoff et al. 2008a; Nelson et al. 2009; Griffin & Sun 2011) and for securities fraud class actions (Griffin et al. 2004). These findings confirm the common-sense intuition that the discovery of potential fraud is bad for companies. The limitation of these studies is that stock price reactions cannot disentangle the reaction to possible disclosure violations—and potential culpability for those violations—from reaction to a business setback. Stock prices may be responding to potential litigation costs and problems revealed with the firm's underlying business as much as to the loss of credibility flowing from the disclosure problem. Moreover, these studies do not distinguish between different types of enforcement. In comparing SEC enforcement with private plaintiffs, stock price reactions are clearly more relevant to the litigation choices of the latter, as private plaintiffs must prove both loss causation and damages in order to recover. A larger stock price drop makes satisfying those elements easier.

B. Sanctions

Cox et al. (2004) find that securities class actions lead to larger settlements if there is also a parallel SEC enforcement proceeding. They do not, however, examine SEC enforcement proceedings without a parallel class action. Karpoff et al. (2008a) find that both government penalties and class action settlements are related to the magnitude of the harm, although these monetary sanctions are only a small portion of the loss of wealth experienced by shareholders of defendant companies. As with stock price reactions, however, SEC enforcement and class action settlements are difficult to compare head-to-head. Culpability for disclosure violations will be relevant to the resolution of both SEC enforcement proceedings and class actions, but the SEC has a wider range of sanctions available in its enforcement actions. That broader range of sanctions may influence the monetary component of settlements in SEC actions because different types of sanctions may be bargained away in negotiating a settlement. In addition, the

SEC may be trading off sanctions against the company and sanctions against individuals. By contrast, class actions are typically limited to seeking money damages (and plaintiffs' attorneys are compensated with a percentage of those damages), and those damages are typically paid by the company and its insurer. Moreover, private plaintiffs need to prove more elements than the SEC in order to prevail at trial, so settlement negotiations presumably take place with those hurdles in the background. Thus, comparing sanctions, while relevant to consequences, is unlikely to shed much light on the precision of targeting because a variety of other factors will be at play.

C. Market Measures of Information Asymmetry

Although event studies and sanctions are of limited utility in assessing the precision of targeting, alternative market measures have been used to assess the effects of potential fraud on the information environment. These measures are generally considered to be proxies for investors' perceptions of the reliability of disclosure in the market for a company's common stock. For example, Dechow et al. (1996), studying a sample of companies charged by the SEC in accounting enforcement actions, find an increase in the bid-ask spread, a drop in analyst following, an increase in short interest, and an increase in the dispersion of analysts' earnings forecasts. These findings are confirmed by later work using alternative measures of market confidence in disclosure. Murphy et al. (2009) show that share price responses for firms accused of misconduct correlate with subsequent changes in the level of certainty about earnings. In addition, reputational harm can result in less investor confidence in earnings announcements (Nelson et al. 2008). Finally, institutional ownership declines significantly after a restatement (Burns et al. 2010). These market responses provide a cleaner measure of the market's assessment of the likelihood of underlying fraud than do event studies. None of these studies, however, compares SEC enforcement with securities class actions, which is the principal contribution of this article.

D. Consequences for Officers

As fictional legal entities, companies are incapable of committing fraud; it is the misstatements and omissions of the corporation's agents—typically high-level officers—that are attributed to the company. Given the adverse consequences for companies from disclosure violations, it is generally accepted that fraud may reflect agency costs by officers concerned with job retention or incentive compensation. Prior work suggests that boards respond to those agency costs. Given that directors have access to nonpublic information arising from internal investigations (a routine response to allegations of potential fraud), the retention/termination decisions by corporate directors may serve as a particularly strong proxy for culpability. Karpoff et al. (2008b) find that over 90 percent of the individuals identified as responsible for fraud lose their jobs by the end of the enforcement proceedings. Niehaus and Roth (1999) find that turnover of CEOs is higher for companies named in securities class actions relative to nonsued firms. This result is confirmed by Humphery-Jenner (2012), who also finds that CFOs are more

likely to be terminated after the filing of a securities class action. None of these studies compare SEC enforcement with class actions.

E. Framework and Hypotheses

For our comparison of SEC investigations and securities class actions we use the Both category as our baseline for two reasons. First, by definition the Both category includes situations in which both the SEC and private plaintiffs' attorneys separately decide to initiate an action (an investigation by the SEC and a class action filing by a private plaintiffs' attorney). Culpability is relevant to both the SEC and plaintiffs' attorneys because it similarly influences both their likelihood of prevailing and potential penalties/damages. Consequently, a consensus in pursuing an underlying disclosure violation likely reflects the salience of that violation.² Thus, the Both category provides a benchmark validating our measures of the likelihood and magnitude of a disclosure violation. If a public company is investigated only by the SEC, or sued only in a class action, we expect a lower probability of underlying fraud relative to the Both category. If this supposition is correct, the SEC Only and Class Action Only categories will each compare unfavorably with Both.

Our tripartite division allows us to construct a number of testable hypotheses. In particular, it allows us to assess the marginal impact of eliminating either SEC investigations or class actions on the pool of public companies targeted for disclosure violations. If actions in the Class Action Only category compare unfavorably to our SEC Only category, this finding would support the conventional wisdom that private enforcement is less precise than SEC enforcement.

For our comparison we rely on three market metrics that have been accepted in the literature discussed above as proxies for the reliability of disclosure: decrease in earnings responsiveness and institutional ownership and increase in bid-ask spread. In addition, we rely on a measure of sanctions that may reflect directors' superior information about potential culpability: officer resignations.

These metrics allow us to test the following hypotheses:

H1: Companies targeted by class actions will have smaller decrease in earnings responsiveness relative to SEC companies (Earnings Responsiveness Hypothesis).

H2: Companies targeted by class actions will have a smaller drop in institutional ownership relative to SEC companies (Institutional Ownership Hypothesis).

²One concern is that the SEC (or plaintiffs' attorneys) may systematically account for the initial identification of cases in the Both category. Other work (Dyck et al. 2010), however, finds that only a small percentage of fraud is uncovered by either the SEC or the class action bar. In most cases, the Both category involves cases with public indicia of fraud from the company or source other than the SEC or the class action bar. Moreover, it does not appear that either the SEC or the class action is the "first mover" in the Both category: for our Both sample, the SEC-initiated investigation is disclosed first in 116 of the cases, the class action was filed first in 117, and two cases were commenced the same day.

H3: Companies targeted by class actions will have a smaller increase in residual bid-ask spread relative to the SEC companies (Bid-Ask Spread Hypothesis).

H4: Officers of companies targeted by class actions will be less likely to be terminated relative to SEC companies (Officer Resignation Hypothesis).

III. DATA

A. Sample

Our sample consists of public companies sued in a securities class action or that disclosed an SEC investigation between 2004 through 2007. We obtained the securities class actions from the Stanford Securities Class Action Clearinghouse. We identified SEC investigations through NEXIS searches as well as searches of SEC filings by public companies. The SEC typically does not disclose its investigations unless and until it files an enforcement action, so our search relies on disclosures by companies that they are being investigated. The SEC does not mandate disclosure of an SEC investigation; consequently, we may miss investigations that the company deems immaterial. We conjecture that these undiscovered SEC investigations likely involved few SEC resources and are of small economic importance. We use securities price data available on the Center for Research on Security Prices (CRSP).

One concern with our comparison is that the initiation of a SEC investigation may not be comparable with the decision to file suit by a plaintiffs' attorney. To address this concern, we also look to see if there are differences among our categories for investigations/cases that survive an initial screening process. We create two subsamples reflecting roughly parallel later stages: (1) SEC investigations and class actions that survived an initial screening process and (2) those that resulted in settlements. These subsamples provide a window on the relative strength of the screening processes used for SEC investigations and class actions, while continuing to provide an apples-to-apples comparison. For the SEC investigations, we use formal orders of investigation: SEC Only (Formal). The SEC staff has determined that there is enough evidence of a securities law violation to warrant the request of a formal order of investigation. For the Class Action Only category, we identify cases that have survived a motion to dismiss by the defendants: Class Action Only (Win MTD). A court has determined that the plaintiff's complaint alleges sufficient indicia of fraud, particularly scienter, to meet the heightened standards imposed by the Private Securities Litigation Reform Act. For our baseline Both category, we identify situations in which both the SEC has made a formal order of investigation *and* the class action has survived a motion to dismiss: Both (Formal + Win MTD).

The screening process is not complete until the case is finally settled. The SEC provides companies with an opportunity to respond to a Wells notice that it intends to charge the company; for class actions, plaintiffs' lawyers will gain access to discovery if they withstand a motion to dismiss. Access to additional information should lead to further screening. Accordingly, we further narrowed the screened categories to include

only cases that led to a settlement: SEC Only (Settle) and Class Action Only (Settle). For the Both category, we limited this subsample to cases in which the SEC secured a settlement: Both (Settle).

Our final screen narrows the categories of settled cases to only those that include allegations of a Rule 10b-5 violation, which requires scienter. SEC investigations are initially aimed at uncovering fraud. Those investigations may, however, result in evidence of behavior that violates the securities laws, but does not significantly call into question disclosure quality or reliability because it was unintentional. For example, Sections 17(a)(2) and (3) of the Securities Act and Section 13 of the Exchange Act involve disclosure violations, but they do not require the SEC to show scienter, so they provide a fallback set of violations for an enforcement action if the evidence uncovered will not support allegations of intentional deception. (From an enforcement attorney's perspective, it may be better to allege a negligence count than come away with nothing.) Private plaintiffs cannot pursue those causes of action for disclosure violations, but they can pursue negligence-based cases in connection with public offerings under Sections 11 and 12 of the Securities Act, in connection with tender offers under Section 14 of the Exchange Act, and under the Investment Company and Investment Advisers Acts. To the extent that SEC investigations and class actions involve allegations of disclosure violations that do not require intentional wrongdoing, the market may view them as raising fewer concerns about management credibility. If there were evidence of fraud, a Rule 10b-5 allegation presumably would have been alleged because it maximizes potential penalties and/or damages.³ This final pool is necessarily limited to settled actions, as we do not know what allegations will be made by the SEC until an enforcement action is filed. This restricted sample allows us to focus on the effect of scienter allegations, which may be treated more seriously by the market. The cases that remain in this Rule 10b-5 category are arguably the most comparable, with differing elements only for loss causation and damages. This final screen does, however, substantially reduce the number of observations available for statistical analysis, and thus statistical power.

Table 1 reports descriptive statistics for the sample (variable definitions are provided in the Appendix). In Panel A, we see that the SEC Only and Class Action Only categories are roughly similar in number, with substantially fewer companies in the Both category. We see that roughly half the observations in the SEC Only and Class Action Only categories are likely to survive the initial screening process, while the Both category has a substantially higher survival rate (81.3 percent).

Panel B of Table 1 reports summary statistics for key variables in our analysis. We see that the screening process matters, and that cases that survive an initial screen are much more likely to settle. In particular, the settlement rate for class actions nearly doubles for cases that survive a motion to dismiss. Turning to other characteristics, the incidence of restatements—essentially a concession by the company of a material

³The SEC sometimes gives up Rule 10b-5 allegations in the process of negotiating a settlement, particularly if the SEC has not made the particular action an enforcement priority. It is unlikely that it negotiates away Rule 10b-5 allegations where the evidence of scienter is strongest, so relying on settled Rule 10b-5 cases biases our results in favor of the SEC.

Table 1: Descriptive Statistics

<i>Panel A: Investigations/Class Actions by Year</i>										
	SEC Only	SEC Only	% of	Both	Both	Both (Formal +	% of Both	Class Action	Class Action	% of Class
	(Formal)	(Formal)	SEC Only	Both	Both	Win MTD)		Only	Only (Win MTD)	Action Only
2004	122	74	60.7	88	68	68	77.3	141	76	53.9
2005	113	52	46.0	62	55	55	88.7	105	44	41.9
2006	148	59	39.9	65	54	54	83.0	54	25	46.3
2007	79	39	49.4	25	18	18	72.0	130	73	56.2
Total	462	224	48.5	240	195	195	81.3	430	218	50.7

<i>Panel B: Key Characteristics Mean (Median)</i>										
	SEC Only	SEC Only	Both	Both	Both	Both (Formal +	SD	Class Action	Class Action	SD
	SD	(Formal)	SD	Both	Both	Win MTD)	SD	Only	Only (Win MTD)	SD
Settlement	0.342 (0.000)	0.475 (0.000)	0.705 (1.000)	0.457 (1.000)	0.733 (1.000)	0.443 (1.000)	0.297 (1.000)	0.477 (0.000)	0.940 (1.000)	0.237 (1.000)
Accounting	0.172 (0.000)	0.378 (0.000)	0.127 (0.000)	0.333 (0.000)	0.159 (0.000)	0.366 (0.000)	0.330 (0.000)	0.220 (0.000)	0.250 (0.000)	0.434 (0.000)
Restatement	0.330 (0.000)	0.471 (0.000)	0.282 (0.000)	0.451 (0.000)	0.534 (1.000)	0.500 (1.000)	0.493 (1.000)	0.230 (0.000)	0.278 (0.000)	0.449 (0.000)
Market Cap	13490.8 (1527.8)	39305.5 (1772.2)	18761.9 (1772.2)	52120.5 (1772.2)	12738.1 (1413.6)	31946.4 (1360.1)	27213.2 (11879.1)	9431.0 (764.8)	8931.3 (511.5)	32599.4 (32599.4)
Market/Book	3.457 (2.496)	3.595 (2.455)	2.680 (2.455)	1.381 (2.221)	3.666 (2.221)	7.595 (2.227)	1.638 (2.227)	3.761 (2.745)	3.419 (2.487)	3.351 (2.487)
Beta	1.197 (1.105)	0.579 (1.075)	1.189 (1.075)	0.584 (1.390)	1.505 (1.390)	0.717 (1.390)	0.708 (1.390)	1.396 (1.280)	1.350 (1.255)	0.640 (1.255)
Adj Ret	0.109 (-0.002)	0.902 (-0.006)	0.094 (-0.006)	0.897 (-0.006)	0.035 (-0.102)	0.794 (-0.136)	0.808 (-0.136)	-0.011 (-0.147)	-0.057 (-0.212)	0.938 (-0.212)

Table 1: Continued

Violation	Panel C: Type of Investigation		
	SEC Only	Both	Class Action Only
Section 11 Securities Act	n/a	0.138	0.207
Section 17(a) Securities Act	0.367	0.533	n/a
Rule 10b-5 Exchange Act	0.420	0.975	0.874
Section 13(a) Exchange Act	0.400	0.738	n/a
Section 13(b) (2) (A) Exchange Act	0.653	0.729	n/a
Section 13(b) (2) (B) Exchange Act	0.620	0.720	n/a
Section 13(b) (5) Exchange Act	0.193	0.327	n/a
Section 14 Exchange Act	0.120	0.113	0.037
Section 30A Exchange Act	0.193	0.075	n/a

SEC Settlement	Panel D: Outcomes		
	Incidence		Monetary Penalty
	SEC Only	Both	p Value
	0.340	0.481	0.000
Class Action Settlement	0.477	0.596	0.003
		SEC Only	p Value
		17.0	0.727
		Class Action Only	p Value
		18.6	0.000
		Both	p Value
		58.4	0.000

Notes: Panel B: Descriptive statistics are all measured prior to first public disclosure leading to the investigation or lawsuit. For the whole sample: p value comparing incidence of settlement for SEC Only and Both is 0.000; p value comparing the incidence of settlement for Class Action Only and Both is 0.000. For the Formal + Win MTD sample: p value comparing incidence of settlement for SEC Only and Both is 0.000; p value comparing the incidence of settlement for Class Action Only and Both is 0.152.

Panel D: Monetary penalty is in millions of dollars. Incidence p value is from a χ^2 test. Monetary penalty p value is from t test of difference of means between SEC Only and either Both or Class Action Only as indicated above. Wilcoxon rank-sum test of difference in median SEC monetary penalty between SEC Only and Both categories is significant (p value = 0.012). Wilcoxon rank-sum test of difference in median class action settlement between Class Action Only and Both categories is significant (p value = 0.000).

misstatement—is substantially higher for the Both category, which may explain the consensus among the SEC and plaintiffs’ lawyers in these cases. Finally, we note that market capitalization is greatest for the SEC Only firms, particularly relative to the Class Action Only firms.

Panel C of Table 1 reports the alleged violations. The sample for these statistics is necessarily truncated for the SEC investigations in the sample. We do not know the actual allegations until an enforcement action has been filed, which typically does not happen until the SEC and the defendants have agreed to a settlement. We see that the SEC Only category stands out in having a substantially lower incidence of Rule 10b-5 allegations (42 percent). Rule 10b-5 is the bread-and-butter for private actions; it is alleged in nearly all of the Both cases, and in 87 percent of Class Action Only. What violations does the SEC allege when it does not uncover evidence sufficient to pursue a Rule 10b-5 violation, but still decides to file an enforcement action? Predominantly, Sections 17(a)(2) and (3) of the Securities Act and Section 13 of the Exchange Act, which involve disclosure violations, but neither of which requires the SEC to prove scienter, unlike Rule 10b-5.⁴ These causes are not available to private litigants; conversely, the SEC cannot rely on the private cause of action under Section 11.

We obtained the settlement outcomes for the SEC investigations from the SEC’s enforcement releases. For the class actions, we obtain the settlement amount from the settlement order.⁵ We compare the incidence and amounts of settlements for our three categories in Table 1, Panel D. The Both category is considerably more likely to result in a settlement for the SEC than the SEC Only category. Over 48 percent of the SEC investigations resulted in a settlement for the Both category, compared to 34.0 percent in the SEC Only category (difference significant at the 1 percent level). For those investigations that led to a settlement, however, there is no significant difference in the amount of monetary penalty extracted by the SEC, with the SEC Only category being slightly larger (\$17.0 million compared to \$14.8 for Both). It appears that the investigations in the SEC Only category lead to more dry holes for the agency, but the consequences are no less severe for the company involved when the SEC brings an enforcement action.

⁴The negotiation of the settlement will typically include negotiation over the violation to be alleged by the SEC. Defendants will seek to avoid Rule 10b-5 allegations because of the scienter element, which implies culpability. Defendants will be more amenable to Sections 17(a)(2) and (3) and Section 13 violations and may be willing to pay greater penalty amounts in exchange for the omission of Rule 10b-5 counts. Section 17(a)(1) requires scienter, but it is essentially redundant to a Rule 10b-5 allegation; they are typically charged in tandem.

⁵The SEC formally terminated many of the SEC investigations that did not settle. In the SEC Only category, 24.95 percent of the SEC investigations were formally terminated. In the Both category, 24.35 percent of the SEC investigations were formally terminated. Other SEC investigations disappeared with no resolution; we assume that they were informally terminated. Almost all the class action suits that were not settled resulted in dismissal. In the Both category, 37.8 percent of the suits resulted in dismissal; in the Class Action Only category, 49.1 percent resulted in dismissal. The remainder of the class action suit outcomes included largely summary judgments for the defendant and class certification motions denied. There was one trial verdict for the plaintiff in the Class Action Only category.

Table 2: Event Studies

	N	Violation Date		
		Abnormal Return	Positive: Negative	Patell Z
SEC Only	231	-0.88%	88:143<<	-5.538***
(Formal)	113	-0.78%	44:69<	-3.250**
(Settle)	81	-0.55%	35:46	-2.020*
Both	162	-7.31%	47:115<<<	-42.532***
(Formal + Win MTD)	134	-7.35%	40:94<<<	-36.933***
(Settle)	122	-7.07%	36:86<<<	-34.185***
Class Action Only	222	-11.42%	57:165<<<	-70.926***
(Win MTD)	106	-12.36%	23:83<<<	-49.507***
(Settle)	98	-13.27%	20:78<<<	-51.434***

NOTES: *, **, and *** denote statistical significance at the 0.05, 0.01, and 0.001 levels for one-sided tests. <, <<, and <<< and >, >>, and >>> correspond to 0.10, 0.05, 0.01, and 0.001 levels and show the direction of the generalized sign test. Abnormal returns are computed using a one-day window event study centered on the Violation Date. We estimated the CAR using a market model based on 255 trading days ending 50 days prior to the Violation Date using the CRSP value-weighted market index.

Turning to the differences between Both and Class Action Only, the Both category is significantly more likely (at the 1 percent level) to lead to a settlement in the class action, with 59.6 percent of those suits producing a settlement compared with 47.7 percent in the Class Action Only category. Moreover, the size of the Both settlements is much greater, with a mean of \$58.4 million, compared to only \$18.6 million for the Class Action Only category, suggesting that either the evidence or magnitude of violations in the Both category is stronger.

B. Event Study

We first report the stock price reaction from an event study in response to the disclosure of the bad news underlying the alleged disclosure violations.⁶ We start with a one-day event window centered on the date of the first public disclosure of the problem leading to the investigation or class action, which we label the Violation Date. At that point, the market is aware of the potential misconduct, but not what the legal response will be. As theory (confirmed by prior research) suggests that the abnormal stock market reaction will be negative, we use one-sided tests of significance. We present the results in Table 2.

The event study measures the stock market's response to the underlying problem. The Class Action Only category has by far the strongest negative reaction, an average abnormal return of -11.42 percent. Class action plaintiffs need to establish loss causation, so this result is not surprising; presumably, plaintiffs' lawyers are selecting, at least

⁶We estimate the abnormal return in our event studies using a market model based on 255 trading days ending 50 days prior to the event date and using the CRSP value-weighted market index.

in part, on this basis. The Both category is still substantial, -7.31 percent, despite the fact that category has both a higher incidence of settlements than Class Action Only and settlements of much greater magnitude. The SEC Only category, however, is a mere -0.88 percent, notwithstanding the substantial penalties imposed in those actions. As reported in Table 2, the Patell z statistics indicate that each of these abnormal returns is significantly different from zero. The smaller negative stock market reaction to the first announcement of the underlying problem for the SEC Only relative to Class Action Only is not surprising given that the SEC does not have to prove loss causation and damages.⁷

We also conduct event studies (reported in Table 2) for our screened subsamples. The stock price reactions were similar in magnitude to those found for the larger sample, although the returns for the Class Action Only (Win MTD) category are slightly more negative (-12.25 percent). We also found similar abnormal returns for the settlement subsample, with returns for the Class Action Only (Settle) category of -13.15 percent. For the SEC Only and Both categories, the differences for the screened subsamples from the returns for the overall samples are negligible.⁸

IV. RESULTS

A. Market Tests of Disclosure Credibility

Stock market reaction may encompass other negative effects on the firm, including the distraction and litigation expenses the company is likely to incur in defending an action, regardless of whether it is meritorious. Accordingly, we present a series of tests that measure the impact of the violation on the market's perception of: (1) the reliability of the company's management and disclosures and (2) information asymmetry. We conjecture

⁷We subdivided the Both category Violation Dates between those where the SEC initiated the investigation and those where the class action was filed first. The mean abnormal return for the Violation Date where the SEC initiated the investigation first was -4.72 percent. The mean abnormal return for the Violation Date where a class action was filed first was -9.53 percent (difference significant at the 5 percent level). Thus, even for those instances where both the SEC investigates and a class action is filed, the market reacts more negatively in those cases in which a private plaintiff attorney acts first.

⁸The market may not fully respond to the first public revelation of the disclosure violation, but instead react to the later announcement of the start of an SEC investigation or filing of a class action. To assess this possibility, we conduct an event study centered on the Action Date, defined as the date of the first public disclosure of the SEC investigation or class action filing date (and in the case of the Both category, the earlier of the two). The reactions (untabulated) are smaller, and the range is correspondingly narrower, consistent with market anticipation of legal action at the Violation Date. The disclosure of an SEC investigation in the SEC Only category generates only a -0.61 percent abnormal response from the market, which is similar in magnitude for the response to the initial disclosure of the bad news that leads to an SEC investigation. The Both category, however, provokes a larger -2.14 percent response. The market response to the disclosure of a class action filing in the Class Action Only category is only -0.76 percent, marginally more than the SEC Only reaction. We also reestimated the event studies using three-day event windows centered on both the violation and action dates. Unreported, we obtained similar qualitative results as in Table 2 although the magnitudes of the negative cumulative abnormal returns were generally larger. For example, the cumulative abnormal return for Both centered on the Violation Date was -11.28 percent and for Class Action Only centered on the Violation Date was -22.07 percent for the whole sample. Finally, we reestimated all the models in Table 2 using the CRSP equal-weighted market index instead of the CRSP value-weighted market index in the event study market models. Unreported, we obtained qualitatively the same results as in Table 2.

that *plausible* allegations of disclosure violations, particularly if intentional, will cause investors to lose trust in a company's management and its credibility, thus increasing the market's perception of information asymmetry.

1. Changes in Earnings Response

Our first test examines the relative impact on the earnings response coefficients for the firms in our sample following the methodology set forth in Nelson et al. (2008). If the market perceives targets of SEC investigations to be less credible than defendants in securities class actions, we expect a greater decline in confidence in earnings reports for those firms. That lack of confidence should manifest itself in relatively smaller cumulative abnormal returns in response to unexpected earnings subsequent to the revelation of the problem.

To assess this, we measure the cumulative abnormal return in the (-1,+1) window centered on the date after the earnings announcement date for the quarters immediately preceding and following the quarter containing the Violation Date as the dependent variable.⁹ estimate ordinary least squares models using the cumulative abnormal return as the dependent variable. We look at our three categories (SEC Only, Both, and Class Action Only) in separate models, comparing the periods pre-Violation Date and post-Violation Date (Post). In these models the Pre-Violation Date period is the baseline.

$$\begin{aligned} \text{CAR}_i = & \alpha + \beta_{1i} \text{UEPS}_i + \beta_{2i} \text{Post}_i + \beta_{3i} \text{UEPS} * \text{Post}_i + \beta_{4i} \text{Accounting}_i + \beta_{5i} \text{Restatement}_i \\ & + \beta_{6i} \text{Market Cap}_i + \beta_{7i} \text{Market/Book}_i + \beta_{8i} \text{Beta}_i + \text{Year Controls} + \varepsilon_i \end{aligned}$$

To measure unexpected earnings (UEPS), we subtract the most recent IBES median consensus quarterly forecast prior to the earnings announcement from IBES actual earnings, scaled by price at the end of the fiscal quarter. We include control variables for whether the underlying violation involved an accounting problem (Accounting) and whether there was a restatement (Restatement). Following Nelson et al. (2008), we include the log of Market Cap, Market/Book, defined as market value of equity divided by the book value of equity, and Beta as additional control variables. Beta is the market model beta estimated for 255 trading days ending 50 trading days prior to the quarter earnings announcement date. We also include year controls for the year of the earnings announcement. To reduce the effect of outliers, we eliminate observations where the Studentized residuals have an absolute value of greater than 2. Model 1 is limited to the SEC Only category, Model 2 is the Both category, and Model 3 is the Class Action Only category. The results are presented in Table 3.

In Model 1, for the SEC Only category, UEPS * Post, which reflects the change in the response to unexpected earnings for the post-period compared with the pre-period, is not significantly different from zero. We find no evidence that investors reduce their reliance on earnings announcements after the Violation Date when only the SEC initiates an investigation. In contrast, the coefficient on UEPS * Post is negative and significant at the

⁹We estimate the CAR using a market model based on 255 trading days ending 50 days prior to the earnings announcement date and using the CRSP value-weighted market index. We center on the date after the earnings announcement because the announcement is typically made after the close of trading for the day.

Table 3: Change in Earnings Response Coefficient

	<i>Model 1</i> <i>SEC Only</i>	<i>Model 2</i> <i>Both</i>	<i>Model 3</i> <i>Class Action Only</i>
UEPS	0.519* (0.212)	6.523** (2.294)	4.951+ (2.831)
Post	0.003 (0.008)	0.034* (0.015)	0.015 (0.016)
UEPS * Post	0.096 (0.242)	-6.536** (2.280)	-4.982+ (2.830)
Accounting	-0.007 (0.009)	0.023 (0.020)	-0.012 (0.017)
Restatement	-0.001 (0.010)	-0.006 (0.021)	-0.031 (0.020)
Market Cap	0.001 (0.002)	0.005 (0.005)	0.007+ (0.004)
Market/Book	0.001 (0.001)	-0.001 (0.001)	-0.005* (0.002)
Beta	-0.008 (0.007)	0.006 (0.013)	0.020+ (0.012)
Constant	0.035 (0.039)	-0.070 (0.073)	-0.077 (0.070)
Year effects	Yes	Yes	Yes
<i>N</i>	193	109	186
Adj. R^2	0.133	0.086	0.079

NOTES: Standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. Ordinary least squares regression with the cumulative abnormal return for a -1 to +1 window centered on the date after the earnings announcement date for the quarters immediately preceding and following the quarter containing the Violation Date as the dependent variable. We estimated the CAR using a market model based on 255 trading days ending 50 days prior to the earnings announcement date and using the CRSP value-weighted market index. Unexpected earnings (UEPS) are derived by subtracting the most recent IBES median consensus quarterly forecast prior to the earnings announcement from IBES actual earnings, scaled by price at the end of the fiscal quarter. Models are estimated only on observations with Studentized residuals with an absolute value of 2 or lower.

1 percent level in Model 2 (Both). The coefficient on UEPS * Post is negative and significant at the 10 percent level in Model 3 (Class Action Only). If both the SEC and private litigants or private litigants alone are involved in an action, investors place less weight on earnings reports after the Violation Date, consistent with a loss of credibility. Overall, these results suggest that investors have lost confidence in the earnings announcements of companies in the Both and Class Action Only categories, but not in firms in the SEC Only category. We therefore do not find evidence that the SEC is more precise in targeting disclosure violations compared with private plaintiffs' attorneys. These results are inconsistent with Hypothesis 1 (Earnings Responsiveness Hypothesis).¹⁰

¹⁰As a robustness test, we reestimated the models of Table 3 with standard errors clustered by company. Unreported, the results remained largely the same. The coefficient on UEPS * Post is negative and significant (at the 1 percent level) only for the Both model. The coefficient on UEPS * Post is positive and now significant at the 5 percent level for the SEC Only model, indicating that, if anything, investors become more willing to rely on information following the first public announcement of the underlying violation for the SEC Only category. The coefficient on UEPS * Post remains negative but is no longer significant for the Class Action Only model.

We reestimate Models 1, 2, and 3 using our three screened subsamples. The results, which we do not tabulate in order to conserve space, are similar to Models 1 and 3. In the SEC Only (Formal), SEC Only (Settle), and SEC Only (Settle Rule 10b-5) regressions, the UEPS * Post coefficients are not significantly different from zero. Unlike Model 2 of Table 3, in the Both (Formal), Both (Settle), and Both (Settle Rule 10b-5) regressions, the UEPS * Post coefficients are not significantly different from zero. Unlike in Model 3 of Table 3, in the Class Action Only (Formal), Class Action Only (Settle), and Class Action Only (Settle Rule 10b-5) regressions, the UEPS * Post coefficients are also not significantly different from zero. While we do not find evidence that investors have lost more confidence in firms in the Both and Class Action Only categories compared with the SEC Only category in the three screened subsamples, we also do not find that investors view firms in the SEC Only category as worse compared with the other two categories. Overall, these results do not support Hypothesis 1 and suggest that investors have not lost more confidence in earnings announcements from firms in the SEC Only category relative to Class Action Only.

2. Changes in Institutional Ownership

Our next test examines changes in institutional ownership. Our measure of institutional ownership is the sum of Form 13F ownership for a particular quarter, divided by the shares outstanding. We obtain the data on 13F filings from Thomson Reuters. Institutions are required to file 13F forms quarterly, so our measures rely on those reporting dates. We calculate the difference between the level of institutional holdings (1) for the quarter *prior* to the quarter that includes the Violation Date and (2) for the quarter *after* the quarter that includes the Violation Date (Change in Institutional Holdings). We postulate that institutional investors, who are more likely to trade than retail investors, will reduce their holdings in companies accused of disclosure violations because they lose trust in management's disclosures (Burns et al. 2010).

We use the Change in Institutional Holdings as a dependent variable in an ordinary least squares regression. The model, estimated with robust standard errors, is as follows.

$$\begin{aligned} \text{Change in Institutional Holdings}_i = & \alpha + \beta_{1i} \text{SEC Only}_i + \beta_{2i} \text{Class Action Only}_i \\ & + \beta_{3i} \text{Accounting}_i + \beta_{4i} \text{Restatement}_i + \beta_{5i} \text{Market Cap}_i + \beta_{6i} \text{Adj Ret}_i + \text{Industry Controls} + \varepsilon_i \end{aligned}$$

We include indicator variables for SEC Only and Class Action Only, with Both as the base comparison category. As with the prior regressions, we include indicator variables for restatements and accounting issues, the log of market capitalization, one-digit SIC code industry indicator variables, and year indicator variables for the year of the first public announcement of the violation. To control for the possibility that institutions may be selling due to poor performance rather than a disclosure problem, we also include Adj Ret, defined as the one-year return up to one week prior to the Violation Date, adjusted by the value-weighted CRSP index return for the same period. Given the disparities in the incidence of restatements and market capitalization reported in Table 1, Panel B, we also restricted our pool of observations following the

Table 4: Changes in Holdings by Institutional Investors

	<i>Model 1</i> <i>All</i>	<i>Model 2</i> <i>(Formal + Win MTD)</i>	<i>Model 3</i> <i>(Settle)</i>	<i>Model 4</i> <i>(Settle 10b-5)</i>
SEC Only	0.040** (0.012)	0.054** (0.015)	0.046** (0.017)	0.075** (0.023)
Class Action Only	0.020 (0.013)	0.022 (0.019)	0.026 (0.019)	0.026 (0.021)
Accounting	-0.005 (0.019)	0.019 (0.032)	0.027 (0.036)	0.044 (0.043)
Restatement	0.004 (0.011)	0.008 (0.017)	0.008 (0.018)	0.002 (0.022)
Market Cap	0.011** (0.003)	0.018** (0.004)	0.016** (0.004)	0.020** (0.005)
Adj Ret	0.020** (0.006)	0.032** (0.009)	0.028** (0.010)	0.028** (0.011)
Constant	-0.129** (0.045)	-0.170** (0.054)	-0.175** (0.059)	-0.187** (0.068)
Industry controls	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes
<i>N</i>	624	354	296	236
Adj. R^2	0.051	0.083	0.063	0.078

NOTES: Dependent variable is change in institutional holdings measured from -1Q to +1Q around the quarter containing the Violation Date. Standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. Ordinary least squares regression with robust standard errors. *F* test of difference of coefficients between SEC Only and Class Action Only in Models 1, 2, 3, and 4: 0.066, 0.072, 0.286, and 0.082.

procedure in Crump et al. (2009). Specifically, we estimate propensity scores using the independent variables in our model using a multinomial regression. We then discard all units with estimated propensity scores outside the range [0.1, 0.9].¹¹ The results of the model are presented in Model 1 of Table 4. We reestimate the model for the Formal + Win MTD, Settle, and Settle 10b-5 subsets and report the results in Models 2, 3, and 4 of Table 4, respectively.

The coefficients for SEC Only are positive in all four models (significant at the 1 percent level). The change in the amount of institutional investor ownership for the SEC Only category is significantly less negative than the Both category. For our sample, institutional investors are more willing to hold the shares of a company that faces an SEC investigation compared to firms that face both the SEC and private plaintiffs' attorneys. In contrast, the coefficient for Class Action Only is not significantly different from zero in any of the models, consistent with a similar change in institutional ownership with the Both category. The difference between the SEC Only and Class Action Only coefficients is significant at the 10 percent level in Models 1, 2, and 4 but insignificant in Model 3. We do not find evidence that the SEC is more precise in targeting disclosure violations compared with private plaintiffs' attorneys. If anything, the change in institutional ownership is consistent with greater loss of

¹¹This process is repeated for the two sets of tests that follow.

credibility following disclosure violations targeted by private plaintiffs' attorneys. Overall, these results are inconsistent with Hypothesis 2 (Institutional Ownership Hypothesis).¹²

3. Changes in Bid-Ask Spread

Our final set of market tests looks at a measure particularly focused on information asymmetry, bid-ask spread. If market participants believe that there is information asymmetry among the traders for a company's shares, they will incorporate that possibility into the trading cost. We follow the methodology of Dechow et al. (1996). We first estimate a model for the predicted bid-ask spread using all Nasdaq companies for 2004 to 2007.¹³ We then look at two windows, from -100 to -10 , and $+10$ to $+100$, around the Violation Date, computing the mean residual bid-ask spread for both. The residual spread for each firm is its actual bid-ask spread minus the predicted bid-ask spread. We then compute the change in mean residual spread from the window before the Violation Date to the window after the Violation Date (Change in Residual Bid-Ask Spread).

We estimate an ordinary least squares model with the log of the Change in the Residual Bid-Ask Spread as the dependent variable. The model, estimated with robust standard errors, is:

$$\begin{aligned} \ln(\text{Change in Residual Bid-Ask Spread})_i = & \alpha + \beta_{1i} \text{SEC Only}_i + \beta_{2i} \text{Class Action Only}_i \\ & + \beta_{3i} \text{Accounting}_i + \beta_{4i} \text{Restatement}_i + \beta_{5i} \text{Market Cap}_i + \text{Industry Controls} \\ & + \text{Year Controls} + \varepsilon_i \end{aligned}$$

We include indicator variables for SEC Only and Class Action Only, with Both as the base comparison category. We include Accounting, Restatement, and the log of Market Capitalization as independent variables. We also include one-digit SIC code industry indicator variables and year indicator variables for the year of the first public announcement of the violation. The results of the estimation are presented in Model 1 of Table

¹²As a robustness test, for each company observation in the models of Table 4 we computed the average change in institutional ownership for other companies in the same three-digit SIC code measured as the difference between (1) the quarter *prior* to the quarter that includes the Violation Date and (2) the quarter *after* the quarter that includes the Violation Date. We remove the industry control variables and instead include the industry change in institutional ownership as an independent variable to the models of Table 4. Unreported, we obtain the same qualitative results as in Table 4; none of the industry change in institutional ownership variables was significantly different from zero in the models. As a further robustness test, we reestimated the models of Table 4 with standard errors clustered by company. Unreported, we obtained the same qualitative results as in Table 4.

¹³We ran an ordinary least squares model using the actual daily bid-ask spread for Nasdaq companies from 2004 to 2007 using the log of trading volume, log of the number of market makers, and the log of the price as independent variables. We then used the model to predict the bid-ask spread for a particular company on a particular date. As a robustness test we also estimated the same ordinary least squares model using the actual daily bid-ask spread for NYSE, AMEX, and Nasdaq companies from 2004 to 2007. Unreported, using this alternate measure of the predicted bid-ask spread, we obtained the same qualitative results as in the models of Table 5.

Table 5: Change in Residual Bid-Ask Spread

	<i>Model 1</i> <i>All</i>	<i>Model 2</i> <i>(Formal + Win MTD)</i>	<i>Model 3</i> <i>(Settle)</i>	<i>Model 4</i> <i>(Settle 10b-5)</i>
SEC Only	-0.009** (0.003)	-0.012** (0.004)	-0.013** (0.004)	-0.010* (0.005)
Class Action Only	0.001 (0.004)	0.001 (0.005)	0.001 (0.005)	0.002 (0.005)
Accounting	0.003 (0.004)	0.001 (0.006)	0.001 (0.006)	0.001 (0.008)
Restatement	0.005* (0.002)	0.004 (0.003)	0.004 (0.003)	0.001 (0.004)
Market Cap	0.089 (0.161)	0.048 (0.200)	0.000 (0.000)	0.000 (0.000)
Constant	-0.850 (1.566)	-0.451 (1.952)	0.014 (0.011)	0.012 (0.014)
Industry controls	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes
<i>N</i>	360	195	169	144
Adj. R^2	0.062	0.012	-0.001	-0.038

NOTES: Standard errors in parentheses; ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. Ordinary least squares regression with the log of the Change in Residual Bid-Ask Spread as the dependent variable estimated with robust standard errors. Change in residual bid-ask spread is measured as the difference in the mean residual bid-ask spread for the two time periods from -100 days to -10 days and +10 to +100 around the Violation Date. *F* test of difference of coefficients between SEC Only and Class Action Only in Models 1, 2, 3, and 4: 0.001, 0.000, 0.001, and 0.020.

5. We reestimate the model for the Formal + Win MTD, Settle, and Settle 10b-5 subsamples and report the results in Models 2, 3, and 4 of Table 5, respectively.

The coefficient for SEC Only is negative and significant in all four models (at the 1 percent level in Models 1 through 3, and at the 5 percent level in Model 4). This result indicates that investors did not appreciably change their perception of information asymmetry as measured by the bid-ask spread for the SEC Only category, while investors became more concerned with information asymmetry for the Both category. The coefficient for Class Action Only is insignificant in all four models. *F* tests of the differences between SEC Only and Class Action Only are significant at the 1 percent level for all four models.¹⁴ We do not find evidence that the SEC is more precise in targeting disclosure violations compared with private plaintiffs' attorneys. If anything, the change in the bid-ask spread is consistent with disclosure violations targeted by private plaintiffs' attorneys leading to greater concerns of information asymmetry. These findings contradict Hypothesis 3 (Bid-Ask Spread Hypothesis).¹⁵

¹⁴We note that the coefficient for Market Cap is positive in all models. Table 1, Panel B shows that that the Class Action Only category targets smaller firms on average, so it is possible that the result here is driven by that disparity in size.

¹⁵As a robustness test, we reestimated the models of Table 5 with standard errors clustered by company. Unreported, we obtained the same qualitative results as in Table 5.

B. Officer Terminations

In this section, we turn to consequences for officers, which may correlate with the strength of the evidence of a disclosure violation and individual culpability for that violation or, alternatively, the intensity of litigation. We examine whether the CEO or CFO resigned or was terminated due to the subject matter of the underlying disclosure violation. Officer Resign is defined as 1 if the CEO or CFO resigns for reasons related to the underlying securities law violation (as determined from court documents, SEC filings, and litigation releases) and 0 otherwise.

We estimate a logistic regression model with Officer Resign as the binary dependent variable; resignation is coded as 1. The model is as follows:

$$\text{Prob}(\text{Officer Resign})_i = \alpha + \beta_{1i} \text{SEC Only}_i + \beta_{2i} \text{Class Action Only}_i + \beta_{3i} \text{Accounting}_i + \beta_{4i} \text{Restatement}_i + \beta_{5i} \text{Market Cap}_i + \beta_{6i} \text{Adj Ret}_i + \text{Industry Controls} + \text{Year Controls} + \varepsilon_i$$

We include indicator variables for SEC Only and Class Action Only, with Both as the base comparison category. For our control variables, we use indicator variables for an accounting problem or a restatement. We include the log of market capitalization and adjusted return (defined as the one-year return up to one week prior to first public disclosure date, adjusted by the value-weighted CRSP index return for the same period). CEOs and CFOs are more likely to resign from companies that have poor stock market returns. We also include one-digit SIC code industry indicator variables and year indicator variables for the year of the first public announcement of the violation. We present the results of these estimations in Model 1 of Table 6. We reestimate the model for the Formal + Win MTD, Settle, and Settle 10b-5 subsets and report the results in Models 2, 3, and 4 of Table 6, respectively.

Note that the coefficient on SEC Only is negative and significant at the 1 percent level in the first three models and significant at the 10 percent level in Model 4. These results indicate that the incidence of CEO or CFO resignation is smaller for SEC actions compared with the base Both category. The coefficient on Class Action Only is insignificant in all four models. The coefficient on SEC Only is more negative than Class Action Only in Models 1 through 3 (an *F* test of the difference is significant at the 1 percent level in Models 1 and 2 and at the 5 percent level in Model 3), although the difference is insignificant in Model 4. Overall, we do not find evidence that the SEC is more precise in targeting disclosure violations compared with private plaintiffs' attorneys. The incidence of CEO or CFO resignation is lower for SEC Only investigations—suggesting that directors perceive stand-alone SEC investigations as less serious than class actions. We view these results as contradicting Hypothesis 4 (Officer Resignation Hypothesis).¹⁶

¹⁶As a robustness test, we reestimated the models of Table 6 with standard errors clustered by company. Unreported, we obtained the same qualitative results as in Table 6.

Table 6: Logit Model of Officer Resignation Likelihood

	<i>Model 1</i> <i>All</i>	<i>Model 2</i> <i>(Formal + Win MTD)</i>	<i>Model 3</i> <i>(Settle)</i>	<i>Model 4</i> <i>(Settle 10b-5)</i>
SEC Only	-1.116** (0.239)	-1.218** (0.302)	-0.980** (0.339)	-0.863+ (0.499)
Class Action Only	-0.369 (0.236)	-0.263 (0.300)	-0.252 (0.315)	-0.276 (0.341)
Accounting	-0.265 (0.305)	-0.164 (0.400)	-0.401 (0.440)	-0.595 (0.506)
Restatement	1.414** (0.214)	1.227** (0.265)	1.151** (0.284)	1.184** (0.341)
Market Cap	-0.136* (0.0541)	-0.128+ (0.0685)	-0.136+ (0.0725)	-0.133 (0.0830)
Adj Ret	-0.059 (0.125)	-0.008 (0.164)	0.027 (0.179)	-0.034 (0.189)
Constant	0.574 (0.836)	1.482 (1.042)	1.394 (1.054)	1.531 (1.193)
Industry controls	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes
<i>N</i>	696	397	333	260
Pseudo R^2	0.172	0.177	0.152	0.159

NOTES: Standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. Dependent variable is the incidence of Officer Resigns, defined as 1 where the CEO or CFO resigns for reasons related to the underlying securities law violation as determined from court documents and SEC filings and litigation releases and 0 otherwise. *F* test of difference of coefficients between SEC and Class Action in Models 1, 2, 3, and 4: 0.002, 0.003, 0.038, and 0.285.

V. CONCLUSION

Critics of securities fraud class actions have traditionally argued that SEC enforcement is more likely to focus on actual cases of fraud. The empirical evidence supporting that argument, however, largely comes from studies examining SEC enforcement actions rather than investigations. Enforcement actions have been carefully screened by the SEC based on substantial investigation before filing. To put SEC enforcement and securities fraud class actions on a level playing field, we compare instead SEC investigations with class action filings.

In tests looking at market measures of the possibility of information asymmetry, we find that, relative to SEC Only investigations, earnings responsiveness and institutional ownership decline more for the Class Action Only cases after the revelation of a disclosure problem, while the bid-ask spread increases more. These market measures of disclosure credibility suggest that private class action attorneys target disclosure violations more precisely than the SEC. We also find evidence that the SEC Only category has a significantly lower incidence of top officer resignations relative to the Class Action Only category. If officer resignations stem from directors uncovering evidence of fraud in their internal investigations, this result also undermines the frequently invoked argument that SEC enforcement targets disclosure violations more accurately than plaintiffs' lawyers.

Our comparative analysis of SEC and plaintiffs' attorney targeting of suits implicitly assumes that targeting would not change if one or the other enforcement mechanism was eliminated, but it is conceivable that the SEC would change its practices if class actions were eliminated.¹⁷ Nonetheless, we believe that institutional features that lead the SEC to target more marginal cases in the SEC Only category would continue to affect how the SEC targets cases even in the absence of the class action mechanism.

We also cannot rule out the possibility that the enforcement pattern shown here is an optimal separating equilibrium. The SEC may be pursuing cases that, although important for investor protection, are not recognized as such by our measures, which correlate with the likelihood of intentional disclosure violations. Alternatively, market participants may not recognize the importance of SEC investigations if they are not accompanied by a class action. Our tests do not capture the overall deterrent value of SEC enforcement relative to private class actions. The examination of other possible benefits from SEC enforcement is an important topic for future research.

Finally, our statistical analysis is subject to the usual caveats about selection bias and the potential for omitted variables. The SEC and class action attorneys are not selecting randomly from the universe of potential violations. There may be factors for which we do not control that may be driving the results here, so our analysis is certainly not the last word on the topic.

Overall, the evidence presented here does not suggest that SEC enforcement is more precisely targeted than class actions. Our results suggest that private plaintiffs' attorneys, if anything, are more likely to pursue intentional disclosure violations compared to the SEC. From a policy perspective, our findings offer little support to commentators who call for a shift from private actions to greater public enforcement.

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¹⁷Class action lawyers are self-funding, so we assume that they bring all cases with positive expected value (and therefore would not pursue cases currently in our SEC Only category). By contrast, the SEC's resource constraint is set by Congress's budget choices, so the SEC would presumably pursue more investigations if Congress allocated it greater resources.

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APPENDIX: VARIABLE DEFINITIONS

<i>Variable</i>	<i>Definition</i>
SEC Only	Indicator variable equal to 1 if there is only a SEC investigation and no securities class action for the particular company violation.
Class Action Only	Indicator variable equal to 1 if there is only a securities class action and no SEC investigation for the particular company violation.
Both	Indicator variable equal to 1 if there is both a SEC investigation and a securities class action for the particular company violation.
Accounting	Indicator variable equal to 1 if accounting issues not involving a restatement are related to the SEC investigation and/or class action suit.
Restatement	Indicator variable equal to 1 if the firm restated earnings that are related to the SEC investigation and/or class action suit.

Appendix *Continued*

<i>Variable</i>	<i>Definition</i>
Market Cap	Log of market value of common equity for the issuer in question at the end of calendar year preceding the commencement of the SEC investigation (or if there was no SEC investigation, the class action filing).
Market/Book	Market value of common equity for the issuer in question divided by the book value of common equity measured at the end of the fiscal quarter in question. For the earning response coefficient models, these are the quarters immediately preceding and following the quarter containing the Violation Date.
Beta	Beta is the market model beta estimated for 255 trading days ending 50 trading days prior to the quarter earnings announcement date.
Adj Ret	The one-year return up to one week prior to first public disclosure date for the issuer in question, adjusted by the value-weighted CRSP index return for the same period.