The Cost to Firms of Cooking the Books

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Abstract

We examine the penalties imposed on all 585 firms that were targeted by SEC enforcement actions for financial misrepresentation from 1978 - 2002, which we track through November 15, 2005. The penalties imposed on firms through the legal system appear to be small, as the unconditional mean total of all legal penalties is only $23.5 million per firm. The penalties imposed by the market, in contrast, are huge. Our point estimate of the reputational penalty – which we define as the expected loss in the present value of future cash flows due to lower sales and higher contracting costs – is over 7.5 times the sum of all penalties imposed through the legal and regulatory system. For each dollar that a firm misleadingly inflates its market value, on average, it loses this dollar when its misconduct is revealed, *plus an additional $3.08*. Of this additional loss, $0.36 is due to expected legal penalties and $2.71 is due to lost reputation. In firms that survive the enforcement process, lost reputation is even greater at $3.83. In the cross-section, the reputational penalty is positively related to measures of the firm's reliance on implicit contracts and repeat contracting. This evidence belies a widespread belief that financial misrepresentation is disciplined lightly. To the contrary, reputation losses impose substantial penalties for cooking the books.

JEL classification: G38; K22; K42; L51; M41

Keywords: Financial reporting violations, fraud, financial disclosure, penalties, reputation.

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I. Introduction

What happens to firms when their managers cook the financial books? Too little, according to conventional wisdom. "Enough is enough," cried *Fortune* magazine about financial misrepresentation. "They lie, they cheat, they steal and they've been getting away with it for too long."[1] Many politicians and business leaders agree. Senator John McCain cited "... a climate of lax regulation" as the primary motive for the Sarbanes-Oxley Act of 2002.[2] Paul Volcker and Arthur Levitt, Jr. argue that new laws to encourage better financial disclosure are a "... response to the breakdown in corporate checks and balances" (Volcker and Levitt 2004).

The view that financial misconduct is punished lightly has a large effect on public policy. It has helped motivate new investigations into the investment banking and mutual fund industries, as well as potential changes in corporate voting rules and the regulation of hedge funds.[3] There is, however, little evidence on the penalties meted out for financial misconduct. In this paper we examine the consequences to firms involved in Securities and Exchange Commission (SEC) and Department of Justice (DOJ) enforcement actions for financial misrepresentation. Our unique sample includes detailed data on all administrative, civil, and criminal penalties imposed through November 15, 2005, on firms that are implicated in the universe of enforcement actions for financial misrepresentation from 1978 through 2002.

We find that the SEC and DOJ brought a large number – 585 – of such enforcement actions. Fines or civil settlements are imposed on firms in 231 of these cases, and sometimes these penalties are large. But the largest monetary penalties are not imposed by regulators or courts. Rather, they are imposed by the market. On average, firms lose 41% of their market values when news of its misconduct is reported. We estimate that 24.5% of these losses reflect the market adjusting to a more accurate

[1] *Fortune* magazine, March 18, 2002 cover and accompanying story headline.
[2] *The N.Y. Times*, July 8, 2002.
[3] For example, see http://www.sec.gov/rules/proposed/34-48626.htm.

representation of the firm's financial situation. This is the adjustment to the value the firm would have obtained had it not cooked its books. Another 8.8% reflects the expectation of legal penalties. The remaining 66.6% is what Jarrell and Peltzman (1985) label lost reputation, that is, the decrease in the present value of the firm's cash flows as investors, customers, and suppliers are expected to change the terms of trade with which they do business with the firm. This implies that the reputational penalty exceeds the legal penalty by over seven and one-half times.

These findings have several implications for business and public policy. First, they provide an empirical measure of one cost of overvalued equity. Jensen (2005) argues that managers may engage in value-destroying activities to prop up overvalued shares. Our evidence indicates that one such activity – cooking the books – can be extremely costly. That is, firms lose real value when they are caught inflating their earnings.

A second implication of these results is that corporate directors could face increased personal liability for their firms' financial malfeasance. The current standard of care for directors of Delaware corporations was established in the 1995 *Caremark* case.[4] *Caremark* establishes personal liability for directors who fail to take proactive measures to assure their firm's compliance with the law. This standard is based on the fact that noncompliance exposes the firm's shareholders to potentially large legal penalties. But our evidence indicates that legal penalties are only a small portion of the overall cost. Thus, if the *Caremark* standard is applied to financial misconduct, directors could be held to extremely high standards of care to prevent financial misrepresentation in their firms.

These results also contribute to the debate over federal regulation of financial misconduct. On one hand, our results bolster criticisms of the Sarbanes-Oxley Act of 2002, which increased legal penalties for financial misconduct.[5] This is because we document large penalties for financial misrepresentation even under pre-Sarbanes-Oxley rules. Also, increases in legal penalties tend to crowd out reputational

[4] See 698 A.2d 959 (Court of Chancery of Delaware, *Caremark International Inc.* derivative litigation consolidated civil action no. 13670). For an analysis of the *Caremark* decision, see Elson and Gyves (2004).

[5] As an example of such criticism, Zingales (2004) argues that "there is very little in the Sarbanes-Oxley rules that would have contributed to avoiding such scandals as Enron, WorldCom and Tyco." Romano (2004) calls for Sarbanes-Oxley's "quack" corporate governance guidelines to be stripped of their mandatory force.

investments and increase total penalties (see Klein and Leffler (1981)). As Becker (1968) points out, large penalties can lead to over-deterrence and a consequent misallocation of resources. For example, even firms that do not violate financial reporting rules incur costs to comply with new rules and to avoid false accusations of wrongdoing. Consistent with such concerns, Engel, Hayes, and Wang (2004) report that the number of firms going private increased following passage of the Sarbanes-Oxley Act, and Leuz, Triantis, and Wang (2005) report a corresponding increase in the number of firms voluntarily delisting their shares.

On the other hand, our results reflect the penalties incurred by firms that are caught cooking their books. In Section II we provide a rough measure of the probability of detection. But in the absence of solid information about the apprehension rate – information that to our knowledge does not exist – we cannot make strong assertions about the optimal sizes of legal penalties for financial misrepresentation. Rather, we contend that it is a mistake to consider only prospective legal penalties in making business decisions or setting public policy. This is because most of the financial penalty for cooking the books comes from lost reputation.

Our paper is related to previous research on the share value impacts of news that firms were mentioned in Accounting and Auditing Enforcement Releases (AAERs), had to restate earnings, or were sued by investors.[6] It also is related to research on the legal penalties imposed on firms for various types of misconduct (see Cohen 1992). But to our knowledge this paper is the first large-sample examination of the market and legal penalties imposed on firms for financial reporting violations. This work also is related to previous attempts to measure the reputational penalties for such activities as product recalls (Jarrell and Peltzman 1985) or defense procurement fraud (Karpoff, Lee, and Vendryzk 1999). We use an empirical procedure similar to these papers to measure the reputational penalty for financial misrepresentation. But we adjust this procedure to provide an explicit measure of the loss in firm value

[6] See Feroz, Park, and Pastena (1991); Dechow, Hutton and, Sloan (1996); Gerety and Lehn (1997); Bonner, Palmrose, and Young (1998); Beneish (1999); Palmrose, Richardson, Scholz (2004); and Gande and Lewis (2005). By focusing exclusively on financial reporting violations, we seek to avoid the ambiguity of some prior samples. As an example, Gerety and Lehn (1997) examine 62 instances of "accounting fraud" from 1981-1987. But some of these cases do not involve fraud at all, while others are unrelated to financial misrepresentation.

that occurs when investors discover that the firm's financial statements previously were inflated. That is, we avoid overstating the reputation loss by taking into account how news of financial misconduct forces a revaluation closer to the level that would have obtained had the firm not cooked its books in the first place.

The large sample also allows us to examine the cross-sectional determinants of reputational penalties. Consistent with arguments made by Klein and Leffler (1981) and Landes and Posner (1987), the reputational penalty is positively related to measures of a firm's reliance on implicit contracts and repeat contracting. Weaker evidence indicates that the reputational penalty is larger for firms in financial distress or that rely on debt financing.

This paper is organized as follows. Section II describes the universe of enforcement actions for financial misrepresentation from 1978 through 2002, and section III describes the enforcement process. Section IV reports on the share value losses when firms are subject to enforcement actions. In sections V through VII we examine the portions of the loss that can be attributed to legal penalties, accounting write-offs, and the reputation loss, and in section VIII we examine the cross-section of reputation penalties. Section IX examines the robustness of our central results, and section X concludes.

II. Data Description

Our investigation is based on all enforcement actions initiated by the SEC and DOJ from 1978 through 2002 under the accounting provisions enacted by the 1977 Foreign Corrupt Practices Act (FCPA) and preceding the implementation of new powers granted by the Sarbanes-Oxley Act.[7] Before 1977, federal powers to prosecute financial misrepresentation relied primarily on the fraud statutes of the 1933

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[7] The 1977 Foreign Corrupt Practices Act introduced two new accounting provisions to the 1934 Securities Exchange Act. Section 13(b)(2)(A) (15 USC § 78m(b)(2)(A)), referred to as the books and records provision, requires companies subject to Exchange Act reporting requirements to keep books and records which reflect accurately corporate payments and transactions. Section 13(b)(2)(B) (15 USC § 78m(b)(2)(B)), known as the internal controls provision, requires firms to devise and maintain internal controls that assures management's control over company assets (see Maher 1981). Two rules were also added to the Code of Federal Regulations to aid in enforcement of the Acts' provisions: 13b2-1 (17 CFR 240 13b2-1) and 13b2-2 (17 CFR 240 13b2-2).

and 1934 Securities Acts. Enforcing these statutes proved difficult because they required proof of intent (*scienter*). A key innovation of the 1977 law is that it grants the power to prosecute financial misrepresentation without demonstrating intent. As a result, all enforcement actions since 1977 for financial misrepresentation include charges under the 1977 law's accounting provisions. Our resulting sample therefore is the universe of federal enforcement actions for books and records and internal controls misrepresentation. Other possible screens to identify financial misrepresentation include the release of an Accounting and Auditing Enforcement Release (AAER) (e.g., see Feroz, Park, and Pastena 1991, Bonner, Palmrose, and Young 1998) and private class action lawsuits (e.g., see Gande and Lewis 2005). Such screens, however, do not capture all federal enforcement actions for financial misrepresentation. Since May 1982, when the SEC began the AAER series, only 83.7% of the events in our sample have an AAER associated with them.[8]

Most (95%) of the enforcement actions in our sample incorporate other charges, including insider trading, civil and criminal fraud, racketeering, and tax evasion. We document all such charges, and also track all related class action and derivative lawsuits connected with each enforcement action.

The data come from the Lexis-Nexis FEDSEC:SECREL database library, which contains public releases on all SEC securities enforcement actions. Since September 19, 1995, these enforcement actions also have been posted on the SEC's website at http://www.sec.gov. The Department of Justice provided enforcement data that we supplemented by searching Lexis-Nexis' FEDSEC:CASES. Releases issued by the firm pertaining to the enforcement action and related class action and derivative lawsuits were gathered from Lexis-Nexis' Academic Business News, Legal Research, and General News categories.

The SEC and Department of Justice initiated a total of 585 enforcement actions from 1978 through 2002. Table 1 reports the sample distribution by the year of the first legal or administrative

[8] An AAER is a secondary classification of a Securities Act Release, Exchange Act Release, or Litigation Release. The Commission announced the AAER series "to enable interested persons to easily distinguish enforcement releases involving accountants from other Commission releases" (Accounting and Auditing Enforcement Release No. AAER-1, 1982 SEC LEXIS 2565, May 17, 1982). While an AAER identifies enforcement actions involving accountants, it will not distinguish an enforcement action when an accountant is not involved in a Commission enforcement action, nor will it distinguish enforcement actions by the Department of Justice. Many AAERs also involve enforcement actions that do not involve financial misrepresentation.

charges against the firm. The number of enforcement actions has grown with time, from an average of 7.6 per year from 1978-84, to 16.4 per year during 1985-93, and to 38.6 per year during 1994 to 2002. The 2002 spike in enforcement actions does not reflect the new prosecutorial powers bestowed by the July 30, 2002 ratification of the Sarbanes-Oxley act. We examined the records of all completed cases in the sample and determined that none have implemented Sarbanes-Oxley powers. The sample does include two open cases whose violation periods extend beyond Sarbanes-Oxley's ratification. It appears unlikely that the new powers will be invoked for either case, because the violation period overlaps the ratification date by only one day in one case and by one month in the other.

The sample consists of firms that were caught violating books and records or internal control provisions. We do not have information on the number of firms that violate these provisions and do not get caught. Nevertheless, to provide some reference, Table 1 reports the number of firms that are listed on the CRSP database for each year of the sample. On average, the annual number of enforcement actions represents 0.32% of all CRSP-listed firms.

Table 1 also reports on the yearly numbers of firms that restated their earnings or assets, as reported in Wu (2004). This is a useful comparison because all firms that are targeted for enforcement actions – and that survive the enforcement process – restate their earnings at least once. (In contrast, not all firms restating their earnings engage in financial misrepresentation.) On average, the annual number of enforcement actions represents 41% of the number of firms restating their financial statements. Ignoring the non-synchronicity between enforcement actions and restatements, this number implies that roughly 41% of firms that restate their earnings are subject to enforcement actions. If we use a restatement as a necessary and sufficient indicator of misconduct, this implies a steady-state apprehension rate of 41%. If, say, one-half of the restatements are for legitimate purposes, then our estimate of the apprehension rate for misconduct would be 82%.

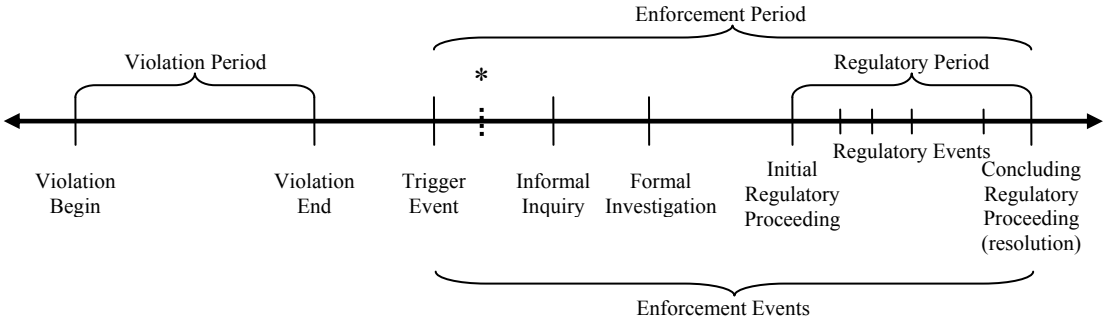
Table 2 groups the sample by industry and firm size. Manufacturing firms comprise 48% of the sample. An additional 19% are in the services industry and 10% in the finance, insurance and real estate followed by wholesale firms (6%), retail firms (5%), and finally transportation, communication, and utility service firms (4%).

The smallest decile of firms experienced the most (65) enforcement actions. However, there is no statistically discernable tendency for the enforcement actions to be concentrated in either large or small firms. The average market value of equity of firms in the smallest decile, is $3.4 million (median $2.4 million). For the 46 firms in the largest decile the average is $16.3 billion (median $5.8 billion).

III. The Enforcement Process

Figure 1 depicts the typical sequence of events surrounding a federal securities enforcement action.[9] Given our interest in the cost *to firms* of cooking the books, we adopt the term "action" to signify the full chain of releases that relate to the firm whose books are suspect. Enforcement actions commonly include a mixture of proceedings that may implicate the firm itself, other affiliated firms, or individuals associated with the firm. The SEC publicly discloses these proceedings by filing Administrative Releases or Litigation Releases.

Figure 1: Timeline of an Enforcement Action



* The initial filing of a private lawsuit usually occurs soon after the Trigger Event.

Most enforcement actions follow a conspicuous announcement related to the firm that draws the SEC's scrutiny. Most such events, labeled *trigger events*, are firm-initiated disclosures of potential problems. Common trigger events include self-disclosures of malfeasance, restatements, auditor departures, and unusual trading. Investigations by other federal agencies such as the Department of Defense and Environmental Protection Agency are another source of trigger events, along with delayed

[9] For more information, see the Securities and Exchange Commission (1973), or Lucas (1997).

SEC filings, management departures, whistleblower charges, and routine reviews by the SEC. Our collection process back-fills the trigger events based on references found in subsequent federal filings. Such filings identify specific trigger events and dates in 371, or 63.4%, of the enforcement actions.

Following a trigger event the SEC gathers information through an informal inquiry that, if warranted, grows to a formal investigation. During the investigation period the targeted firm may issue a press release indicating that it is the target of an SEC informal inquiry or formal investigation. We label such announcements *investigation events*. There are 278 such events in our sample – 80 informal inquiry announcements and 198 formal investigation announcements. Since some firms issue both types of announcements, the 278 investigation events cover 253 unique enforcement actions.

After an investigation, the SEC either drops the case or proceeds by sending the target a "Wells Notice," indicating its intent to initiate formal proceedings against the firm and/or selected individuals. Dropped cases are not reported and do not appear in the sample. If the SEC proceeds, it can issue administrative proceedings, file civil litigation charges, and/or refer the case to the DOJ for criminal prosecution. Some enforcement actions are resolved immediately upon the SEC's initial release of information about the case. But most actions unfold over multiple regulatory events. As indicated in Table 3, an average enforcement action involves 1.70 administrative releases, 2.06 filings of civil actions, and 0.56 filings of criminal charges. The total number of all administrative, civil, and criminal events is 2,532. Because some events occur on the same day, however, there are only 1,953 unique event days.

Also as indicated in Table 3, an average of 2.44 AAERs were issued per enforcement action. While 585 firms were targeted for cooked books in the sample, 199 additional affiliated companies (such as accounting firms and investment banks), and 2,381 individuals also were implicated. Administrative proceedings involved actions against 297 firms and 815 individuals. Civil proceedings named 429 firms and 1,730 individuals, and the Department of Justice brought 276 criminal proceedings implicating 41 firms and 558 individuals.

Table 4 documents the complex nature of these enforcement actions. There are two sections under which charges of financial misrepresentation can be brought. Section 13(b)(2)(A) (15 USC § 78m(b)(2)(A)) – the books and records provision – requires companies subject to Exchange Act reporting

requirements to keep books and records that reflect accurately corporate payments and transactions. Section 13(b)(2)(B) (15 USC § 78m(b)(2)(B)) – the internal controls provision – requires firms to create and maintain internal controls that assures management's control over company's assets. Most of the 585 enforcement actions (464) cite violations of both the books and records and the internal controls provisions.

These financial reporting violations often are invoked in conjunction with other charges: 454 of the enforcement actions include fraud charges brought under the 1933 Securities Act and the 1934 Securities Exchange Act. Fraud is often linked to financial reporting violations because failure to keep accurate books and records frequently coincides with intent to deceive or manipulate, thus triggering charges of fraud. The targeted firm, or at least one related individual, faced civil fraud charges in 305 actions, and 149 enforcement actions involved charges of criminal fraud. In 276 actions, fraud charges invoked sections 17(a) or (b) of the 1933 Securities Act, and in 450 actions, fraud charges invoked sections 10(a) or (b) of the 1934 Exchange Act.[10] Fraud charges under both the 1933 and 1934 Acts were invoked in 272 of the enforcement actions.

IV. Share Value Effects of Financial Misrepresentation Enforcement Actions

This section examines the valuation effects of financial reporting enforcement actions. In subsequent sections we use these results to investigate the composition of legal and reputational penalties imposed on firms for financial reporting violations.

IV.A. Event study results

Table 5 reports the abnormal returns associated with the events illustrated in Figure 1: the trigger, the investigation, and federal regulatory events. Investigation events are disclosures made by the firm, whereas regulatory events refer to actions taken by the SEC or Department of Justice. Abnormal

[10] Section 17 of the Securities Act prohibits fraudulent interstate transactions in connection with securities offerings. Section 10 of the Exchange Act prohibits the use of manipulative and deceptive devices to effect the purchase or sale in any security.

returns are calculated by subtracting the CRSP value-weighted index of all stocks from the raw return of the firm's equity. Parametric t-statistics for the mean abnormal returns are calculated from the cross-section standard error of abnormal returns. We also report median abnormal returns and significance levels using the Mann-Whitney test.

Some sample firms were never listed on CRSP and others delisted during their enforcement period. Therefore, the number of returns is not uniform across all event dates. For the 585 enforcement actions, the first row of Panel A shows that we identified 371 trigger events and CRSP returns data are available for 328 of these firms. Similarly, the first row of Panel B shows that we identified 278 investigation events and 230 have returns data available. Row four of Panel B shows that the 585 enforcement actions prompted 1,953 unique dates with regulatory events and that 586 of these events had returns data available.

The sharp decline in the proportion of events with available returns reflects the sample's high delisting rate. As might be expected, the delisted firms in our sample tend to have the poorest stock performance during the whole enforcement period. Since we focus solely on specific dates during the enforcement period, and can collect data for these dates only for firms that survive each type of announcement, the estimates in Table 5 almost certainly understate the total valuation losses for an average firm in the sample. This is the first in a series of conservative measurement biases that serve to bolster the conclusions we express in the paper.

As reported in Panel A, the mean abnormal one-day stock return for the 328 trigger events for which we have return data is -25.24%. Fully 98.5% of these abnormal returns are negative, and both the t-statistic and Mann-Whitney rank sum test statistic are significant at the 0.001 level. Thus, trigger announcements that attract federal enforcement actions are significant events for shareholders. This point can be illustrated with examples from our sample. First Merchants Acceptance Corp.'s shares fell 51% when irregularities in the company's financial statements were disclosed. The company fired the president, announced a pending restatement of the prior year's earnings, and initiated an internal investigation to determine the underlying cause of the accounting irregularities. Platinum Software's

shares fell 64% when it announced the departure of four top officers and its simultaneous need to restate previously issued financial results.

Like the examples above, more than half of all trigger events are accounting irregularities disclosed by the firm. But the market reacts similarly to trigger events whether or not they are this type of self-disclosure. Table 5 reports the abnormal returns associated with other common trigger events, including earnings restatements, auditor departures, and unusual trading activity. The abnormal return for each subgroup is significantly negative.

Panel B reports a mean abnormal return of -14.41% for all 230 investigation events with returns data. Most (97.4%) of these abnormal returns are negative, and both test statistics are highly significant at the 0.001 level. There is no discernable difference between the market's response to announcements by the targeted firm of informal inquiries versus formal investigations.

The mean abnormal return is -6.56% for the 586 regulatory events with returns data. Most (88.7%) of these abnormal returns also are negative, and both the t-statistic and Mann-Whitney rank sum test statistic are significant at the 0.001 level. The market reaction to the *initial* federal disclosure of an enforcement action (-9.60%) is significantly more negative than the reaction to a federal proceeding that resolves the enforcement action (-4.90%). (The p-value for the difference in means is .0001.)

As indicated in Figure 1, many enforcement actions are accompanied by class action lawsuits filed by investors. Most class actions are filed soon after their associated trigger announcements, but some are filed much later, even after the federal disclosure of a resolution. The mean abnormal return of the 272 class action announcements for which we have returns data is -7.00% (91.9% are negative). These results are similar to those reported by Gande and Lewis (2005), who also examine class action lawsuits. As might be expected, filing announcements result in significantly larger losses (-8.85%) than settlement announcements (-4.04%).

Panel C of Table 5 reports on the market reaction to the <u>initial</u> revelation of potential or actual federal involvement. Overall, the mean reaction to the initial announcement of federal involvement is -13.09%. Such announcements can come from the firm (investigation events), or from the initial proceeding in the enforcement action. The market reacts similarly to initial disclosures made by the firm

whether the disclosure is of an informal inquiry (-15.84%) or of a formal investigation (-13.20%). When the initial disclosure comes from the SEC or Department of Justice and the matter is not immediately resolved, the mean share value change is -14.99%. However, when the initial disclosure comes from the SEC or Department of Justice and the announcement indicates that the case has been resolved, the abnormal change in share value is only -6.71%. It seems likely that initial regulatory events that also resolve enforcement actions involve infractions that are less serious in scope, or that they leave investors less uncertain about future repercussions.

IV.B. The total valuation effect

The results in Table 5 indicate that large share value losses stem from public disclosures that trigger an investigation or reveal an investigation. Further share value loss occurs upon follow-up announcements that relate to the charges levied against the firm, and also upon the resolution of those charges.

To examine possible explanations for these declines in firm value, we begin by calculating the combined valuation impact for all enforcement events associated with a single enforcement action. For each enforcement action, j, the cumulative abnormal return (CAR_j) is defined as:

$$CAR_j = \sum_{e=1}^{n} AR_{je} ,$$

where AR_{je} is the abnormal return of common stock for enforcement action j on enforcement event date e. Here, e=1 is the initial event date of the enforcement action and e=n is the final event date.

Our rationale for this measure follows Bhagat and Romano (2002a,b). Enforcement events convey information to the market about the violation and its cost to the firm. The trigger event may reveal unfavorable information regarding the firm's earnings, asset values, and/or management and increases the likelihood the firm will become the target of an SEC or Department of Justice enforcement action. The investigation announcement generally confirms suspicions and frequently reveals additional information about the firm's past and future earnings, asset values, and management. Similarly,

additional information regarding the firm and the costs imposed on the firm are revealed during federal proceedings.

We aggregate the abnormal returns for specific announcement dates rather than over the entire enforcement period for two reasons. First, the average enforcement period exceeds 50 months. Focusing on identifiable event dates improves the signal-to-noise ratio of the measured abnormal returns. And second, including the full enforcement period would result in nearly 100% shareholder losses for many firms in the sample, as 34% of the firms file bankruptcy during the study period. Our approach therefore yields conservative estimates of the reputation loss. In tests not reported, alternative measures of the cumulative loss in share values yield larger estimates of the reputation loss than those reported here.

Returns data are available for at least one event date for 424 of the 585 sample firms. As reported in Table 6, the mean CAR_j for these 424 enforcement actions is -50.86%, and the median is -30.56%. We convert the valuation effect to dollars by multiplying each AR_{je} by the firm's market capitalization one day before the announcement date e, then summing over event dates e for each firm. In dollar terms, the mean dollar loss is $380.50 million and, aggregating over all firms, the total dollar loss is $161.33 billion.

Some tests that follow partition the total loss into components. Therefore, we depend on Compustat for data on the firms' write-offs. Compustat data are available for 384 of the 424 firms listed in Panel A of Table 6. As reported in Panel B, the mean CAR_j for these 384 firms is -38.06%, and the median is -29.61%. The mean dollar loss is $397.24 million and, aggregating over all firms, the total dollar loss is $152.54 billion.

Maksimovic and Titman (1991) point out that managers may commit fraud when their firms are in financial distress. This raises the possibility that the share value declines we measure are contaminated by news that some of the sample firms were not financially viable in the first place. Our empirical procedure largely avoids this problem by measuring abnormal returns only on dates related to specific enforcement activities, rather than over an extended holding period. But as a further sensitivity test, we re-estimate all of our results for the subsample of 194 firms that survive the enforcement process. As reported in Panel C, the CAR_j for these 194 firms is -34.43% and the median is -24.84%. Firms that survive are, in general, larger than their non-surviving counterparts. So the mean dollar loss of $591.75

million is larger than in Panel B. Summing over all 194 firms that survived their enforcement periods, the aggregate dollar loss attributable to news of financial misrepresentation is $114.80 billion.

V. Legal Penalties Imposed on Firms

Share values can decrease as investors anticipate that the targeted firm will receive non-monetary sanctions, or have to pay fines, penalties, and court settlements related to the charges of financial misconduct. To estimate the importance of such legal penalties, we collected data on all types of penalties imposed against firms by regulators or through class-action lawsuits, through November 15, 2005, when 550 of the 585 sample enforcement actions were complete.[11]

Table 7 summarizes both the non-monetary and monetary legal penalties. Panel A shows that non-monetary sanctions are common. A total of 801 non-monetary sanctions were assessed against the 585 targeted firms. Most (90.6%) of the 801 non-monetary actions were cease-and-desist orders or permanent injunctions – actions that appear to impose extremely small penalties.

Monetary penalties are less common. Only 47, or 8%, of the 585 firms were assessed monetary penalties by regulatory agencies. The mean fine is $106.98 million, but this drops to $59.8 million if we exclude a $2.28 billion fine levied against WorldCom Inc. in July 2003 for overstating its income by a cumulative amount of $7.2 billion. (The WorldCom Inc. fine subsequently was reduced by a bankruptcy court to $750 million.)

Monetary penalties result from shareholder class action suits nearly 5 times as often as from regulatory actions. In a total of 231 class action lawsuits, the mean settlement is $37.7 million, but this drops to $25.5 million if we exclude a $2.83 billion class action settlement against Cendant Corp. involving 12 years of systematic accounting manipulation.[12]

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[11] There is debate over whether legal penalties ever should be imposed on firms (i.e., shareholders), instead of solely on individual managers. Polinsky and Shavell (1993) and Arlen (1994) argue that it can be economically efficient to penalize shareholders for managers' actions if managers' activities are monitored through corporate oversight at lower cost than through direct government oversight. In this paper we take an agnostic view toward this debate, and instead focus on documenting the legal penalties, as a step toward inferring the sizes of the reputation penalties.

[12] See Litigation Release No. 16587 and AAER No. 1276 released June 14, 2000.

Thus, although legal penalties sometimes are large, on average they are far surpassed by the share value losses reported in Table 6. The mean legal penalty for all 585 firms, combining regulatory fines and class action settlements, is only $23.3 million per firm. The total value of all fines imposed by regulators is $5.028 billion. This represents only 3.1% of the $161.3 billion aggregate total dollar loss reported in Table 6, Panel A. Total class action settlements equal $8.697 billion, or 5.4% of the aggregate total dollar loss. Together, these legal penalties equal only 8.5% of the total dollar loss associated with the enforcement actions.

VI. The accounting write-off effect

In addition to the prospect of legal penalties, a firm's value can decline as investors realize that they have been misled into capitalizing inflated earnings and asset values. We label this the *accounting write-off effect*.

To illustrate the importance of the accounting write-off effect, consider a hypothetical example of an all-equity firm that has book value of assets equal to $100 and a market-to-book ratio of 1.5. The market value of the firm's assets, and its shares, is $150. Assume the company then issues a misleading financial statement that overstates its asset values by $10. If the firm's market-to-book ratio stays the same, its share values will increase temporarily by ($10 x 1.5) to $165. But when the financial misrepresentation is discovered, the book value will be restated back to $100. If there are no legal penalties or reputation losses, the share value will fall back to $150. That is, the shares will drop in value from their inflated value of $165 to their "correct" value of $150.

This $15 drop in value is what we seek to capture with our measure of the accounting write-off effect. We estimate the effect by measuring the book value of assets that each firm writes off during each year of its enforcement period, from the trigger date through the resolution proceeding, and selecting the largest single year write-off. We reason that the largest write-off is most likely to be the one associated with the firm's correction of previously misleading financial statements. The book value of the asset write-off is calculated as the sum of accounting changes (Compustat item 183), net charge offs (item

349), and special items (item 17). When net charge offs include the monetary penalties imposed by regulators, or through civil lawsuits, we subtract these amounts to avoid double counting.

To convert the book value of the write-off to a market value estimate, we multiply it by the median market-to-book ratio for all firms listed in Compustat with the same two-digit SIC code for the year corresponding to the write-off. This recognizes that the correspondence between book values and market values vary across industries. Industry median market-to-book ratios in our sample range from 0.85 (for SIC 25 in 1980) to 3.82 (for SIC 73 in 1999). For the full sample, the mean market-to-book multiple used in our estimates is 1.35, and the median is 1.68. Using other approaches yields similar overall results. For example, the estimates of the accounting write-off effect are similar if we use the same market-wide average of the market-to-book ratio for all firms in the sample.

Information on the size of the accounting write-off effect is reported in Table 8. Panel A contains information from the 384 firms with return data on CRSP and accounting data on Compustat. These are the same firms described in Table 6, Panel B. Missing values for any of the items used to measure the book value of asset write-downs (Compustat items 17, 183, or 349) are set equal to zero. The mean asset write-down during these firms' enforcement periods is $71.99 million, and cumulating over all 384 firms, the aggregate value of the asset write-downs is $27.6 billion. Multiplying each firm's write-down by its industry median market to book ratio, the mean accounting write-off effect is $97.43 million. Summing across firms, we estimate an aggregate write-off effect $37.4 billion, implying the extent to which these firms' market values were inflated by the financial deception..

In Panel B, the write-off effect is calculated for the 194 firms with returns available in CRSP through the entire enforcement period. The mean value of the accounting write-off effect for these firms is $112.72 million, and the aggregate write-off effect is $21.87 billion.

To our knowledge, this is the first attempt to measure the extent to which the market values of individual firms were inflated because of their deceptive financial reports. Many write-offs are for legitimate purposes that are unrelated to the financial deception, for example, restructuring charges and losses on sales of subsidiaries. So the estimates in Table 7 most likely overstate the accounting

corrections that result from the enforcement actions. Nonetheless, the accounting write-off effect still explains only a small portion of these firms' total share value losses.

VII. The reputation loss

VII.A. The size of the reputation loss

As discussed by Klein and Leffler (1981) and Jarrell and Peltzman (1985), the revelation of misconduct can have real effects on the firm's costs and operations. We refer to the present value of such effects as the firm's reputation loss. Reputation can be lost if customers change the terms on which they are willing to do business with the firm, perhaps because of an increased probability of cheating or the perception that the firm cannot support warranties or supply compatible parts in the future. Diminished reputation can reflect an increase in the firm's cost of capital or trade credit, as input suppliers change the terms on which they do business with the firm. In addition, the firm can suffer real losses as managers are required to divert resources to the investigation and away from company business. The revelation of financial reporting problems could also force the firm to implement new monitoring and control policies, increasing the cost of operations. We group all such real effects on firm value into the reputation effect.

Because reputational capital is not directly measurable, we refine the residual approach of Jarrell and Peltzman (1985). After estimating the total loss in share values, we subtract all fines, class action settlements, and our multiple-adjusted estimate of the accounting write-off effect. Using a rational expectations assumption, the sizes of the actual legal penalties and write-offs are unbiased estimates of investors' expectations of these amounts when news of the financial misconduct becomes public. By the same rational expectations assumption, the remaining unexplained portion of the overall loss in share values reflects investors' expectations of the additional losses in firm value from impaired operations or higher financing costs. It is our estimate of the reputation loss.

Table 9 summarizes the results of this estimation procedure. Panel A reports results including all 384 sample firms with return and Compustat data. As reported in Table 6, the aggregate loss in share values for these 384 firms is $152.539 billion. The *fine effect* reflects the portion of share value loss

attributable to investors' expectations of future monetary sanctions against the firm. The aggregate amount of all monetary fines, including penalties and disgorgement eventually levied against the 384 firms in Panel A because of the enforcement actions is $5.012 billion, or 3.29% of the aggregate share value loss. The aggregate class action award for these 384 firms is $8.590.89 billion, or 5.53% of the aggregate share value loss. Thus, 8.82% of the aggregate share value loss for these 384 firms can be attributed to investors' expectations of legal penalties, including fines and class action lawsuits. The accounting write-off effect equals $37.413 billion, or 24.53% of the share value loss. Combining this 24.53% with the 8.82% of the aggregate share value loss attributed to legal penalties means that one-third of the aggregate loss is attributable to legal penalties and accounting write-offs. This leaves two-thirds, or $101.522 billion, of the aggregate share value loss, as our estimate of the reputation loss. As significant as the legal penalties can be, they are dwarfed by the reputation loss. Using means, the reputation loss constitutes 66.56% of the share value loss. Using medians, the reputation loss constitutes 92.09% of the total dollar loss.

Despite the high proportion of these reputation loss estimates, they most likely underestimate the true magnitude of such losses. Of the 384 firms in panel A, 190 firms failed or delisted during their enforcement period. For these firms, our dollar loss estimate is understated because we cannot observe returns for enforcement events when the firm was not trading.

Table 9 panel B partitions the effects for the 194 firms that survived their enforcement periods. In aggregate, fines comprise $1.908 billion or 1.66% of the total dollar loss, class action lawsuits comprise $7.377 billion or 6.43% of the total, and the accounting write-off effect comprises $21.867 billion or 19.05% of the total. The share value loss attributed to lost reputation is $83.647 billion, or 72.86% of the total. Using medians, the reputation loss constitutes 89.06% of the total dollar loss.

VII.B. Discussion

Our results show that reputation helps discipline financial misrepresentations – indeed, the evidence indicates that market-imposed reputation losses are of *primary* importance. One way to illustrate the importance of the reputation loss is to consider the average impact on a firm that inflates its

market value by $1 through deceptive financial reporting practices. When the deception is uncovered, the point estimates from Panel A of Table 9 indicate that the firm loses this dollar, *plus* an additional $3.08 in expected legal penalties and lost reputation. (This is obtained by noting that the accounting write-off effect equals 24.53% of the total dollar loss. If the accounting write off is $1.00, the total dollar loss is $1.00 ÷ .2453 = $4.08.) Of the additional loss, only $0.36 represents the expectation of legal penalties. The remaining $2.71 is the present value of the expected higher financing and contracting costs, or reduced cash flows, that result from the firm's misconduct. This is an empirical estimate of one portion of Jensen's (2005) agency cost of overvalued equity, namely, the reputational cost of cooking the books (and being apprehended).

Prior research indicates that reputation losses are important for some other types of corporate misconduct, including false advertising (Peltzman 1981), product recalls (Jarrell and Peltzman 1985), air safety disasters (Mitchell and Maloney 1989), frauds of private parties (Karpoff and Lott 1993, Alexander 1999), investigations of IPO underwriters (Beatty, Bunsis, and Hand 1998), and defense procurement fraud (Karpoff, Lee, and Vendrzyk 1999). But our evidence indicates that reputation losses for financial misrepresentation are unusually large. This is despite the fact that we examine a large and comprehensive sample, have complete data on the associated legal penalties, and control for the accounting write-off effect. We infer that financial misrepresentation is a particularly costly activity because financial transparency is a particularly valuable asset. That is, a firm's sales and contracting costs are particularly sensitive to financial misrepresentation because it undermines the firm's credibility with customers, suppliers, and investors. Such a large reputational effect is illustrated anecdotally by the rapid meltdown of the Enron Corp. after revelation of financial problems in October 2001 (for a discussion, see Palepu and Healy 2003). Our evidence indicates that large reputation losses for financial misrepresentation are the rule rather than the exception.

VIII. Cross-sectional differences in firms' reputation losses

This section examines possible determinants of the reputation loss. We employ two measures of the loss:

(1) the reputation loss expressed as a percentage of the total dollar loss, and

(2) the natural logarithm of the dollar amount of the reputation loss.

Some of the individual measures of reputation loss are negative. To avoid illogically treating these cases as reputation-enhancing events, these reputation losses are set to zero. As a result, we estimate Tobit regressions with left censoring set at zero.

Klein and Leffler (1981) and Landes and Posner (1987) propose that reputation is likely to be most important among businesses where explicit contracts are costly to write and enforce. This suggests that firms with R&D expenditures, large intangible assets, or growth opportunities are susceptible to larger reputation losses from financial misconduct than their counterparts who rely less on implicit contracts and reputation. We therefore include the following three regressors in the cross-sectional tests:

- Research and development (R&D), a binary variable equaling one for firms with R&D expenses (Compustat item #46);
- Intangible assets, a binary variable equaling one if the ratio of the firm's intangible assets (item #33) to total assets (item #6) exceeds 25%; and
- Market-to-book ratio, which equals total assets (item #6) minus stockholders' equity (item #216) plus the market value of equity (item #25 times item #199), all divided by total assets.

All three of these variables are expected to be positively related to the size of the reputation loss.

Klein and Leffler (1981) and Landes and Posner (1987) also argue that reputational capital is particularly high for firms that rely heavily on repeat contracting. As a proxy variable for the importance of repeat contracting, we use free cash flow, measured as the sum of income before extraordinary items (item #18) and depreciation and amortization (item #14) divided by total assets (item #6). Our reasoning is that firms with high free cash flow generate substantial sales from mature products and repeat purchases.

Titman (1984) argues that financial distress can undermine a firm's incentives to honor implicit contracts and decrease individuals' willingness to conduct business with the firm. Maksimovic and Titman (1991) extend this analysis to show that debt can erode incentives to maintain reputation even in

the absence of financial distress. This argument implies that financial distress, or even the heavy use of debt, can affect the reputation loss. The direction of effect, however, is ambiguous. On one hand, firms in financial distress or with substantial debt may have little reputational capital at stake, implying a small loss when financial misrepresentation is discovered. On the other hand, such firms may lose substantial reputational capital when financial misrepresentation is discovered. To the extent that these firms rely heavily on outside capital, they also may face higher financing costs if their financial statements are discovered to be inaccurate. To test for the net effect of financial distress and debt on the reputation loss, we use the following two measures:

- Financial distress, a binary variable equaling one for firms that filed bankruptcy during the violation or enforcement period; and
- Leverage, defined as the ratio of total liabilities (item #181) to total assets (item #6).

In addition, we include several control variables to measure the size and age of the firm, the severity of the misrepresentation, and whether the regulatory action was completed or remains pending. These include:

- firm size, measured as the natural logarithm of the market value of common equity at the close of trade one day before the firm's first enforcement event;
- firm age, measured as the natural logarithm of the number of months it was listed on CRSP at the firm's first enforcement event;
- a binary variable equaling one if the company's chairman, CEO, or president is named in the enforcement action;
- a binary variable equaling one if the enforcement action includes fraud charges against the firm or any of its agents;
- a binary variable equaling one if the firm is named in the enforcement action;
- the natural logarithm of one plus the monetary penalties imposed on individuals through regulatory sanctions or private class action lawsuits;
- the length of the enforcement period in days;

- the stock price run-up during the period in which the firm misrepresented its financial information; and
- a dummy variable equaling one if the enforcement action remains pending as of November 15, 2005.

Table 10 reports the results of these cross-sectional tests. The dependent variable in Model 1 is the reputational penalty expressed as a fraction of the total loss in share value, and the dependent variable in Model 2 is the natural log of the dollar value of the reputation loss. The Chi-squared goodness of fit test indicates that a significant portion of the cross-sectional variation is captured in both models. In addition, several of the individual coefficients are statistically significant. For example, in Model 1, the reputation loss is positively related to R&D expenditure, the intangible assets dummy, and free cash flow. This implies that the reputation loss increases with a firm's reliance on implicit and repeat contracting. The coefficients for the financial distress dummy and leverage ratio also are positive and significant at the 5% level, indicating that the reputation loss is larger for firms with substantial debt. This may reflect these firms' higher cost of financing once their financial statements have been shown to be misleading.

Among the control variables, the coefficients for the amount of individual penalties and the stock price run-up during the violation period are positive and significant at the 5% level. This suggests that the reputation loss increases with these measures of the severity of the misrepresentation.

The results are similar in Model 2, although only R&D expenditure, free cash flow, and the leverage ratio are significant at the 10% level. The coefficient on firm size is positive and significant, indicating that the absolute size of the reputation loss increases with firm size.

IX. Robustness checks

We conducted several sensitivity tests to probe the robustness of these results. For example, we recalculated the accounting write-off effect by assuming that the market-to-book ratio is the same for all firms, and by including all write-offs for the full length of the firm's enforcement period. The principal

finding, however – that the reputational penalty for cooking the books is very large – is not sensitive to the specific test design.

If anything, our empirical procedures tend to understate the magnitude of the reputation loss. For example, in calculating the size of the legal penalties, we ignore the fact that the after-tax costs of many fines and penalties are lower than their nominal amounts. We do not discount the nominal penalty figures despite an average interval between the initial and concluding regulatory announcements of more than two years. And, while our data track the actual legal penalties assessed, the legal penalties eventually paid are often reduced through subsequent proceedings or bankruptcy. Any of these adjustments would reduce our estimate of the fine and class action effects, thereby increasing the estimate of the reputation loss.

We also understate the size of the share value losses associated with violations for cooking the books. Many firms delist during the enforcement process. We measure share value losses, however, only on the dates of specific enforcement activities and only when returns data are available. Given our findings that nearly all regulatory events have negative share value impacts, it is highly likely that the valuation impacts of the announcements we do not measure are negative. Likewise, 55 of the 585 enforcement actions in our sample were unresolved as of December 31, 2004, which is the last date in the 2004 CRSP data. Through November 15, 2005, these unresolved actions were the subjects of 146 proceedings events. Preliminary estimates indicate that the share value losses for the subset of these 146 events on which returns data are available were negative and large in magnitude.

It is possible that firms that delist were financially unviable in the first place, in which case our estimates may attribute too much of the share value losses to lost reputation. We tested this conjecture by restricting the sample to firms that survive the enforcement process. It turns out, however, that the size of the reputation loss is even larger, on average, among the surviving firms. This result further supports the argument that we underestimate the share value losses for firms that delist during their enforcement periods.

X. Conclusions

Scandals involving Enron, WorldCom, and other corporations have helped create a widespread presumption that penalties for financial misrepresentation are *de minimus*. To examine this presumption we examine the penalties imposed on firms for all 585 enforcement actions initiated by the SEC and DOJ for financial misrepresentation from 1978 through 2002, and which we track through November 15, 2005. At first glance, the presumption that penalties are small appears warranted. Only 47 firms have been fined directly by regulators, with a median fine of $890,000. Thirty-five firms had ten-day trading suspensions imposed on their stock, and 40 corporations had their registrations revoked. A larger number of firms, 231, were subject to class-action lawsuits. But the average settlement amount for these lawsuits is only $37.7 million.

The legal penalties, however, turn out to be only a small part of the total losses experienced by these firms. The initial announcement of an enforcement action by federal regulators is associated with a 13.09% average decline in the firm's market value. This is on top of a 25.24% decrease from an earlier announcement that triggered the investigation. Legal penalties and class action settlements explain a small portion – an average of 8.8% – of this loss in market value. Another portion of the loss in share values is due to asset write-downs when these firms correct misrepresentations in their financial statements. Our best estimate of the average size of this accounting write-off effect equals 24.5% of the loss in share value. This implies that most of the market value loss – two-thirds – is due to investors' expectations of impaired operations, lower future earnings, and/or higher financing costs. We call this residual the reputation loss.

Stated differently, for every misrepresented dollar on a firm's books, the firm loses that dollar when it is caught, *plus 36¢ in fines and class action settlements and $2.71 in lost reputation.* For firms that survive the enforcement process as independent entities, the lost reputation is even greater at $3.83.

These results support the argument that financial reporting violations carry large market penalties because they change the terms of contract with which customers, suppliers, and investors are willing to trade with the firm. Consistent with this argument, we find that, in the cross-section, the reputation loss is positively related to the firm's reliance on implicit contracts and repeat contracting in its operations.

Weaker results suggest that the reputation loss also is larger for firms in financial distress or with substantial debt.

These results raise a number of questions for future research. First, we have focused on the penalties imposed on firm shareholders rather than individual managers. We have not examined how individual and firm penalties combine to penalize financial misconduct. Nor do we address the debate over whether penalties optimally should be assessed upon firms or individuals, or on some combination of both. Our results also raise the question of whether the reputation losses we document subsequently show up as lower earnings or higher financing costs for the firms involved. Along these lines, Murphy, Shrieves, and Tibbs (2005) report that reputation losses for other types of corporate misconduct reflect both a decrease in subsequent earnings and an increase in the cost of capital. Finally, we do not measure the reputational penalties faced by individual managers and directors for financial misconduct. Some prior work suggests that such penalties for other types of misconduct may be small (e.g., see Agrawal, Jaffe, and Karpoff (1999) and Beneish (1999)), but more recent work by Desai, Hogan, and Wilkins (2004), Fich and Shivdisani (2005), and Helland (2006) suggests that the individual reputational penalties for corporate misconduct may be significant.

Overall, our evidence indicates that penalties for cooking the books historically have been substantial, even before the implementation of Sarbanes-Oxley provisions. A focus on purely legal penalties would miss this point, since most of the penalty comes from lost reputation. Such reputational costs have been all but ignored in SEC deliberations over penalties for financial misconduct (e.g., see Drawbaugh 2005) and monitoring guidelines established by such bodies as the Public Company Accounting Oversight Board (PCAOB). Yet optimal penalty theory, as in Becker (1968), implies that ignoring reputation losses can lead to suboptimal, and even perverse, legal penalties.

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Table 1. SEC and Department of Justice Enforcement Actions, 1978-2002

Annual distribution of SEC and Department of Justice enforcement actions for financial misrepresentation under 15 USC §§ 78m(b)(2) and (5), and 17 CFR 240 13b2-1 and 13b2-2. This represents the universe of enforcement actions for books and records and internal controls financial reporting violations. The column labeled "CRSP Firms" reports the total number of firms listed on NYSE/AMEX/NASDAQ in CRSP. "Firms with Restatements" reports the number of accounting restatements reported by Wu (2004).

Year	Enforcement Actions	CRSP Firms	% of CRSP Firms	Firms with Restatements	% of Restatements
1978	2	4,822	0.04%	2	100.00%
1979	4	4,782	0.08%	1	400.00%
1980	4	4,925	0.08%	5	80.00%
1981	10	5,328	0.19%	3	333.33%
1982	8	5,459	0.15%	6	133.33%
1983	12	6,055	0.20%	14	85.71%
1984	13	6,269	0.21%	41	31.71%
1985	17	6,258	0.27%	27	62.96%
1986	16	6,548	0.24%	30	53.33%
1987	35	7,108	0.49%	26	134.62%
1988	20	6,917	0.29%	32	62.50%
1989	19	6,748	0.28%	34	55.88%
1990	20	6,675	0.30%	32	62.50%
1991	17	6,736	0.25%	48	35.42%
1992	20	6,870	0.29%	50	40.00%
1993	21	7,600	0.28%	32	65.63%
1994	35	8,128	0.43%	56	62.50%
1995	33	8,348	0.40%	47	70.21%
1996	54	8,960	0.60%	58	93.10%
1997	38	9,041	0.42%	59	64.41%
1998	23	8,634	0.27%	96	23.96%
1999	31	8,300	0.37%	204	15.20%
2000	34	8,102	0.42%	153	22.22%
2001	39	7,410	0.53%	153	25.49%
2002	60	6,994	0.86%	224[†]	26.79%
Total	585			1,433	40.82%

[†] Estimate based upon 112 restatements through June 30, 2002.

Table 2: Distribution of Enforcement Actions by Industry and Firm Size

Distribution of the 585 firms targeted for financial reporting enforcement actions brought under the Securities Exchange Act's books and records and internal controls provisions (15 U.S.C. §§ 78m(b)(2) and (5), and 17 C.F.R. 240 13b2-1 and 13b2-2) from 1978 - 2002, partitioned by the SIC-based industry and size decile of the firm at which the violation occurred. SIC codes are taken first from COMPUSTAT if available then from CRSP in the fiscal year at the end of the violation period identified in SEC proceedings. Size deciles are created using all firms in the CRSP database.

2-digit SIC Brackets	Industry	Total Firms	Sized-Based Deciles										Not Listed[†]
			Larger Firms									Smaller Firms	
			10	9	8	7	6	5	4	3	2	1	
01-09	Agriculture, Forestry & Fishing	1	-	-	1	-	-	-	-	-	-	-	-
10-14	Mining	17	1	-	-	2	1	2	1	2	3	3	2
15-17	Construction	11	-	-	1	2	1	4	-	-	1	2	-
20-39	Manufacturing	283	14	9	15	32	16	21	26	32	19	26	73
40-49	Transportation, Communication, Utility Services	24	5	3	1	3	1	3	2	2	-	3	1
50-51	Wholesale Trade	36	2	1	3	3	2	3	2	5	6	7	2
52-59	Retail Trade	31	3	1	4	-	6	3	4	2	4	4	-
60-67	Finance, Insurance, & Real Estate	59	12	8	6	5	7	1	1	3	3	13	-
70-89	Services	113	9	10	8	14	12	9	9	11	16	7	8
	Unclassified	10	-	-	-	-	-	-	-	-	-	-	10
	Total	585	46	32	39	61	46	46	45	57	52	65	96

[†] Not listed in the CRSP database.

Table 3: Regulatory Events Stemming from Enforcement Actions

Description of the regulatory events for the 585 financial reporting enforcement actions under the Securities Exchange Act's books and records and internal controls provisions (15 U.S.C. §§ 78m(b)(2) and (5), and 17 C.F.R. 240 13b2-1 and 13b2-2). Administrative proceedings events refer to SEC actions through powers granted in the 1933 and 1934 Securities Acts. Civil charge events refer to SEC filing of charges in federal district courts, and criminal charge events refer to DOJ filings of criminal charges in federal district or state courts. An AAER (Accounting and Auditing Enforcement Release) is issued whenever the SEC takes action involving accountants. Many administrative proceedings, civil charge, and criminal charge events occur on the same days, so the 2,532 events occurred on 1,953 unique dates.

	N	Per Enforcement Action
Enforcement actions	585	
Administrative proceedings events	996	1.70
Civil charge events	1,208	2.06
Criminal charge events	328	0.56
Total regulatory events	2,532	4.33
AAERs issued	1,426	2.44
Other affiliated companies implicated	199	0.34
Individuals named	2,381	4.07
Respondents		
SEC Administrative proceedings:		
Company	297	0.51
Individual	815	1.39
SEC Litigation proceedings:		
Company	429	0.73
Individual	1,730	2.96
DOJ Criminal proceedings:	276	0.47
Company	41	0.07
Individual defendants	558	0.95

Table 4: Types of Charges in Financial Reporting Enforcement Actions

Incidence of the specific charges brought in the 585 enforcement actions for financial misrepresentation and accompanying fraud charges. Books and records charges are brought under powers enumerated in 15 USC §§ 78m(b)(2)(A) and 17 CFR 240 13b2-1. Internal controls charges are brought under 15 USC §§ 78m(b)(2)(B) and 17 CFR 240 13b2-2. Fraud charges are brought under 15 USC §§ 77q of the 1933 Securities Act and 15 USC §§ 78j the 1934 Securities Exchange Act.

Description	**Count**
Financial reporting provision cited:	
Books & records charges (no internal controls)	100
Internal controls charges (no books & records)	21
Both internal controls and books & records charges	464
Enforcement action categories:	
No fraud charges included	131
Fraud charges included	454
Civil fraud	*305*
Criminal fraud	*149*
Types of fraud charges brought under:	
1933 Securities Act	276
1934 Securities Exchange Act	450
• 1933 Securities Act *only*	4
• 1934 Securities Exchange Act *only*	178
• Both Securities Acts	272

Table 5: Abnormal Returns for Enforcement Related Announcements

Average one-day market-adjusted returns for enforcement actions brought for financial misrepresentation. Announcement events are grouped by announcement type with abnormal returns calculated using the value-weight CRSP index. Trigger events are identified in the federal proceedings. Informal inquiries are announcements made by a firm that a federal agency has requested information. Formal investigation announcements reveal that the firm has been notified that it is the target of a federal investigation of securities violations. Regulatory events are official administrative or litigation releases by the SEC or Department of Justice. Resolution disclosures are releases that resolve the enforcement action. Class actions are separate announcements that refer to parallel private lawsuits. #Ann reports the number of unique announcement dates for each category; #w/data is the number of announcement dates with returns data available on CRSP. % Neg is the percentage of negative abnormal returns. P > |t| are p-values for parametric t-tests and P > |s| are p-values for the rank sum test.

Type of Announcement	#Ann	#w/data	% Neg	Mean	P > |t|	Median	P > |s|
Panel A (trigger events)							
All trigger events	371	328	98.5%	**-25.24%**	<.001	-17.57%	<.001
Self-disclosures of accounting irregularity	194	179	98.3%	**-25.52%**	<.001	-20.33%	<.001
Restatements	53	47	100.0%	**-23.88%**	<.001	-14.52%	<.001
Auditor departures	33	23	100.0%	**-34.24%**	<.001	-17.20%	<.001
Unusual trading	6	5	100.0%	**-41.20%**	0.074	-33.17%	0.063
Other†	85	74	97.3%	**-21.57%**	<.001	-11.90%	<.001
Panel B (Combined initial and subsequent announcements of regulatory involvement)							
Investigation Events (announced by the firm)	278	230	97.4%	**-14.41%**	<.001	-9.65%	<.001
Informal inquiries	80	73	100.0%	**-15.84%**	<.001	-8.80%	<.001
Formal investigations	198	157	96.2%	**-13.74%**	<.001	-10.65%	<.001
All Regulatory Events	1,953	586	88.7%	**-6.56%**	<.001	-2.76%	<.001
Initial disclosures††	585	256	90.6%	**-9.60%**	<.001	-3.43%	<.001
Resolution disclosures††	525	194	85.1%	**-4.90%**	<.001	-2.31%	<.001
Resolution disclosure = initial disclosure	162	87	85.1%	**-5.79%**	0.002	-2.06%	<.001
Resolution disclosure ≠ initial disclosure	363	107	85.1%	**-4.18%**	<.001	-2.35%	<.001
Class Action Events	354	272	91.9%	**-7.00%**	<.001	-4.14%	<.001
Filings††	200	167	94.0%	**-8.85%**	<.001	-5.27%	<.001
Settlements††	154	105	88.6%	**-4.04%**	<.001	-2.69%	<.001
Panel C (*Initial* announcements of regulatory involvement only)							
All initial announcements	585	323	96.0%	**-13.09%**	<.001	-6.70%	<.001
Initial announcement *made by the firm* (Investigation Events):							
Informal inquiries	80	73	100.0%	**-15.84%**	<.001	-8.80%	<.001
Formal investigations	173	133	96.2%	**-13.20%**	<.001	-9.61%	<.001
Initial announcement *made through a federal regulatory event:*							
Initial disclosure = resolution disclosure††	107	53	88.7%	**-6.71%**	0.023	-2.06%	<.001
Initial disclosure ≠ resolution disclosure††	225	64	96.9%	**-14.99%**	0.002	-4.88%	<.001

† Includes other federal investigations, delayed SEC filings, management departures, whistleblowers, periodic reviews, false information, specific accounting issues and bribery.

†† Pairwise tests of equality indicate significant difference between the means of -6.71 and -14.99.

Table 6: Cumulative Abnormal Returns and Total Dollar Losses

Size of the valuation effect for firms undergoing federal enforcement actions for financial misrepresentation (charges under 15 USC§§ 78m(b)(2), (5), and 17 CFR 240 13b2-1 and 13b2-2). Panel A includes all firms with return data on the 2004 CRSP database for at least one enforcement event date. Panel B includes the subset of the firms in Panel A which also have data available from Compustat. And Panel C includes only those firms in Panel B that survived the enforcement process as independent entities. Cumulative abnormal returns are calculated over all days for which the target firm was subject to a regulatory event. To transform the abnormal returns into dollar terms, each abnormal return is multiplied by the firm's market capitalization one day before the event day. The Total Dollar Loss is the sum of all dollar losses summed over all event days for a given firm.

Panel A: 424 Firms with Available Returns Data			
	Mean	Median	Aggregate
Cumulative Abnormal Return	-50.86%	-30.56%	
Total Dollar Loss ($ millions)	380.50	20.16	161,330.84
Panel B: 384 Firms Listed in CRSP and Compustat			
	Mean	Median	Aggregate
Cumulative Abnormal Return	-38.06%	-29.61%	
Total Dollar Loss ($ millions)	397.24	21.49	152,539.00
Panel C: 194 Firms that Survived through Enforcement Period			
	Mean	Median	Aggregate
Cumulative Abnormal Return	-34.43%	-24.84%	
Total Dollar Loss ($ millions)	591.75	34.21	114,799.40

Table 7: Legal Sanctions for Financial Reporting Violations

Penalties imposed through federal sanctions and private civil class action settlements relating to 585 enforcement actions for financial misrepresentation brought under 15 USC §§ 78m(b)(2), (5), and 17 CFR 240 13b2-1 and 13b2-2. Administrative sanctions refer to cease-and-desist and remedial actions ordered by the SEC. Injunctive sanctions refer to court ordered permanent injunctions against future violations. Trading suspensions are 10-day trading suspensions ordered by the SEC, and registration revocations refer to the permanent termination of registration as a publicly traded company. Monetary penalties include fines, disgorgement and other forms of restitution. Class action lawsuits are shareholder lawsuits against the firm, officers, directors and other related parties, as a result of the financial reporting related charges named in federal enforcement actions. Shareholder derivative lawsuits are brought on behalf of the firm against the officers and directors with settlements paid to the firm. Any amounts paid to firms as a result of derivative actions are netted out in the "Monetary Penalties" numbers. Only partial sanction and penalty information is presented for 35 actions whose proceedings were ongoing as of November 15, 2005.

Panel A: Non-Monetary Sanctions		
Administrative and Civil Sanctions		
Number of SEC administrative sanctions (cease and desist orders)		297
Number of injunctive sanctions issued by civil courts		429
Trading suspensions		35
Registration revocations		40
Total number of non-monetary sanctions		801
Number of firms indicted on criminal charges		25
Panel B: Monetary Penalties		
Number of fines imposed on firms	N	47
Penalties ($millions)	Total	5,028.16
	Mean	106.98
	Median	0.89
	Min	0.00
	Max	2,277.00†
Panel C: Class Action/Derivative Lawsuits		
Number of class action/derivative lawsuits	N	231
Payments ($millions)	Total	8,697.07
	Mean	37.65
	Median	0.80
	Min	0.00
	Max	2,830.00††

† A $2.28B penalty assessed against WorldCom although a lesser amount was actually paid in bankruptcy.
†† Class action settlement of $2.83B paid by Cendant Corp followed by AOL/Time Warner with $2.41B.

Table 8: Summary of the Accounting Write-Off Effect

The mean and total values of the accounting write-off effect for firms undergoing federal enforcement actions for financial misrepresentation (i.e., violations of 15 USC§§ 78m(b)(2), (5), and 17 CFR 240 13b2-1 and 13b2-2). The book value of write-offs is determined from COMPUSTAT by taking the year with the largest accounting adjustments defined as (negative one times) the sum of special items, accounting charges, and charge offs (Items 17, 183, and 349) during the enforcement period. The accounting write-off effect is calculated by multiplying by each firm's book value of write-offs by its industry median market-to-book assets ratio using two-digit SIC codes. Panel A includes firms listed on both CRSP and COMPUSTAT. Panel B includes only firms that remained listed on CRSP and Compustat at the resolution of the enforcement action or as of November 15, 2005 for firms whose enforcement actions have not been concluded. Dollar amounts are in millions of dollars.

Panel A: 384 Firms Listed in CRSP and Compustat

	Mean	Median	Aggregate
Book value of write-offs ($ millions)	71.99	1.01	27,643.95
Weighted-average industry median market-to-book	1.35	1.68	
Accounting write-off effect ($ millions)	97.43	1.70	37,413.32

Panel B: 194 Firms that Survived through Enforcement Period

	Mean	Median	Aggregate
Book value of write-offs ($ millions)	89.60	2.09	17,382.68
Weighted-average industry median market-to-book	1.23	1.79	
Accounting write-off effect ($ millions)	112.72	3.74	21,867.42

Table 9: Sources of Firms' Losses for Financial Reporting Violations

Sources of the total impact on share values for firms undergoing federal enforcement actions for financial misrepresentation (i.e., violations of 15 USC§§ 78m(b)(2), (5), and 17 CFR 240 13b2-1 and 13b2-2). The Total Dollar Loss is the estimated change in market capitalization due to announcements related to the financial misconduct and related enforcement activities. Panel A includes firms listed on CRSP and COMPUSTAT. Panel B includes only firms that remained listed on CRSP and Compustat at the resolution of the enforcement action or as of November 15, 2005 for firms whose enforcement action has not been concluded. The Total Dollar Loss is partitioned into portions that can be attributed to fines, class action settlements, the accounting write-off effect, and the reputation loss. The accounting write-off effect is calculated by adding special items, accounting charges, and charge offs (Items 17, 183, and 349) from COMPUSTAT, then multiplying by the industry median market-to-book assets ratio using two-digit SIC codes. The Reputation Loss is the residual of the Total Dollar Loss that remains after removing the fine, class action, and accounting write-off effects.

Panel A: 384 Firms Listed in CRSP and Compustat

	Aggregate ($ millions)	Mean	Median
Total Dollar Loss ($ millions)	152,539.00	97.24	21.49
		% of Total Dollar Loss:	
Partitioned into:		*Based on means*	*Based on medians*
Legal Penalties			
Fine Effect	5,012.47	3.29%	0%
Class Action Effect	8,590.89	5.53%	0%
Accounting Write-off Effect	37,413.32	24.53%	7.91%
Reputation Loss	101,522.30	66.56%	92.09%

Panel B: 194 Firms that Survived through Enforcement Period

	Aggregate ($ millions)	Mean	Median
Total Dollar Loss ($ millions)	114,799.40	591.75	34.20
		% of Total Dollar Loss:	
Partitioned into:		*Based on means*	*Based on medians*
Legal Penalties			
Fine Effect	1,908.28	1.66%	0%
Class Action Effect	7,376.82	6.43%	0%
Accounting Write-off Effect	21,867.42	19.05%	10.94%
Reputation Loss	83,646.85	72.86%	89.06%

Table 10: Determinants of the Reputation Effect

Cross-sectional Tobit regressions to estimate the determinants of the reputation loss for firms undergoing federal enforcement actions for financial misrepresentation (i.e., violations of 15 USC§§ 78m(b)(2), (5), and 17 CFR 240 13b2-1 and 13b2-2). In model 1 the dependent variable is the firm's Reputation Loss divided by its Total Dollar Loss (both terms are defined in Table 9). In Model 2 the dependent variable is the natural logarithm of the Reputation Loss (in $ millions). The sample includes all 384 sample firms listed on CRSP and COMPUSTAT. p-values are in parentheses.

	Model 1	**Model 2**
Variables	**Reputation %**	**Ln(Reputation $)**
Contracting Environment		
R&D flag	**0.2502**	**2.2121**
(R&D > 0)	**(0.071)**	**(0.021)**
High intangible assets flag	**0.4261**	1.3955
(intangibles / assets > .25)	**(0.063)**	(0.379)
Log of market-to-book ratio	0.0929	0.4387
	(0.352)	(0.527)
Free cash flow	**0.3594**	**2.0066**
(NI + depreciation / assets)	**(0.014)**	**(0.046)**
Financial condition		
Financial distress flag	**0.3110**	0.3393
(bankruptcy)	**(0.045)**	(0.751)
Leverage ratio	**0.2578**	**1.4584**
(liabilities / assets)	**(0.035)**	**(0.082)**
Control variables		
Log of market capitalization	-0.0389	**0.8817**
	(0.284)	**(0.000)**
Log of firm age	-0.1005	**-1.2708**
(years)	(0.146)	**(0.008)**
Top executive named flag	0.0287	1.5101
(CHM, CEO or PRES)	(0.863)	(0.187)
Fraud flag	-0.0878	1.1494
	(0.614)	(0.336)
Company named in action flag	0.2262	0.8133
	(0.139)	(0.439)
Log of individual penalties	**0.0207**	0.0979
	(0.041)	(0.160)
# Days in enforcement period	-0.0001	-0.0005
	(0.136)	(0.321)
Violation period cumulative	**0.1182**	0.4643
abnormal return	**(0.009)**	(0.140)
Incomplete enforcement action	0.2858	-1.0911
flag	(0.237)	(0.512)
Constant	1.1674	-7.5804
	(0.151)	(0.175)
Sigma	1.1623	8.1267
	(0.000)	(0.000)
N	384	384
# left censored	78	78
Log likelihood	-545.32	-1169.89
χ^2	**40.28**	**8.54**
Prob > χ^2	**(0.000)**	**(0.000)**