

## Short Sellers and Financial Misconduct

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### ABSTRACT

We examine whether short sellers detect firms that misrepresent their financial statements, and whether their trading conveys external costs or benefits to other investors. Abnormal short interest increases steadily in the 19 months before the misrepresentation is publicly revealed, particularly when the misconduct is severe. Short selling is associated with a faster time-to-discovery, and it dampens the share price inflation that occurs when firms misstate their earnings. These results indicate that short sellers anticipate the eventual discovery and severity of financial misconduct. They also convey external benefits, helping to uncover misconduct and keeping prices closer to fundamental values.

SHORT SELLING IS A CONTROVERSIAL ACTIVITY. Detractors claim that short sellers undermine investors' confidence in financial markets and decrease market liquidity. For example, a short seller can spread false rumors about a firm in which he has a short position and profit from the resulting decline in the stock price.<sup>1</sup> Advocates, in contrast, argue that short selling facilitates market efficiency and the price discovery process. Investors who identify overpriced firms can sell short, thereby incorporating their unfavorable information into market prices. In his account of short selling in Allied Capital, Inc., hedge fund

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<sup>1</sup>There are many anecdotes about such strategies, which former SEC Chairman Christopher Cox called "distort and short" (see "What the SEC really did on short selling," *The Wall Street Journal*, July 24, 2008, A15). In 2000, for example, investor Mark Jakob turned a \$241,000 profit by shorting Emulex stock and spreading an Internet rumor that Emulex's CEO was stepping down amid an SEC investigation (see <http://www.sec.gov/litigation/litreleases/lr16747.htm> and <http://www.sec.gov/litigation/litreleases/lr16857.htm>). Leinweber and Madhavan (2001) report a case in which investors shorted Sea World stock and spread false rumors that Shamu, Sea World's main attraction, was ill. For other examples, see Alistair Barr, "Short sellers: The good, the bad and the ugly," *MarketWatch*, June 13, 2006.

manager David Einhorn argues that short sellers even help uncover financial reporting violations (Einhorn (2008)).<sup>2</sup>

In this paper, we investigate whether short sellers do in fact identify overpriced firms, and whether in the process they convey external benefits or harm upon other investors. To do so, we measure short selling in a set of firms that, ex post, clearly were overpriced: those that are disciplined by the SEC for financial misrepresentation. In our sample of 454 firms from 1988 through 2005, 96% have negative abnormal returns on the days their misconduct was publicly revealed, with an average 1-day stock price decline of 18.2%. These firms therefore provide a natural test of the view that short sellers can anticipate bad news.

The results of three tests indicate that short sellers are proficient at identifying financial misrepresentation before it becomes public. First, abnormal short interest rises significantly in the 19-month period before the misrepresentation is publicly revealed. Second, the amount of short selling is positively related to measures of misconduct severity, indicating that short sellers take larger positions when the misrepresentation is particularly egregious. And third, short interest-based indicators of financial misrepresentation in any given firm-month are significantly related to the actual presence of misrepresentation, as revealed in subsequent SEC documents.

We also investigate whether short selling has external effects on other investors. We do not find evidence that short selling imposes external harm by triggering a cascade of selling when the misconduct is publicly revealed. To the contrary, short selling conveys positive externalities to other investors, in two ways. First, the amount of prior short selling is positively related to how quickly the misconduct is publicly revealed. Our point estimates indicate that, among firms that are 12 months into their misrepresentation, those with abnormal short interest at the 75<sup>th</sup> percentile will be publicly revealed 8 months before firms at the 25<sup>th</sup> percentile.

Second, short selling dampens the amount by which prices are inflated while firms report incorrect financial statements. This improves price efficiency and decreases the transfer from uninformed investors who buy shares from insiders or the firm before the misconduct is revealed to the public. We estimate that this price impact translates into savings for uninformed investors of around 1.67% of the firm's market capitalization on average. Some of these savings are captured by short sellers, who earn profits that average 0.58% of equity value. Even net of such profits, the average net external benefit to uninformed investors equals 1.09% of the firm's equity value.<sup>3</sup>

These findings do not address whether short selling *in general* is informed and beneficial for other investors. For example, we cannot rule out the possibility that some short sellers are noise traders, or that some seek to manipulate prices through false rumors. But in our events—in which company managers

<sup>2</sup>Lamont (2004) and Jones and Lamont (2002) summarize the debate over whether short selling fosters market efficiency or facilitates harmful manipulation. See also Wilchins (2008).

<sup>3</sup>These point estimates correspond to our first measure of abnormal short interest, *ABSI*(1). Depending on the specific measure, our point estimates of the net external benefit range from 0.19% to 1.53% of equity value. See Section V.C and Table IX below.

produce falsified financial statements—short sellers play a significant role in identifying, uncovering, and mitigating the effects of financial misconduct.

This paper is organized as follows. In Section I, we review related research and argue that our sample and test design are uniquely well suited to examine whether short sellers anticipate and help uncover financial misconduct. Section II describes our data and measures of abnormal short interest. Section III reports on tests of short sellers' ability to anticipate financial misconduct, and Section IV examines short sellers' external effects on other investors. Section V concludes.

### **I. Related Research**

Our investigation is related to a large body of research that examines whether short sellers target overvalued stocks.<sup>4</sup> The results are somewhat mixed. Asquith and Meulbroek (1996) and Desai et al. (2002) find that stocks that are highly shorted in one month tend to underperform in the next month, and Diether, Lee, and Werner (2009) find that short sellers appear to take advantage of short-term overreaction in stock prices. Christophe, Ferri, and Angel (2004), Christophe, Ferri, and Hsieh (2009), and Liu, Ma, and Zhang (2008) find that short selling increases before negative earnings announcements, analyst downgrades, and mortgage loss-related write-downs. In contrast, Daske, Richardson, and Tuna (2005) do not find any predictive ability of short selling, and Henry and Koski (2010) find no evidence of informed short selling around SEO announcements.

Our empirical tests employ measures of abnormal short interest that condition on firm characteristics, and thus are related to inquiries into whether short sellers use information about firm fundamentals. Dechow et al. (2001), Asquith et al. (2005), and Duarte, Lou, and Sadka (2006) find that short interest is related to market capitalization, book-to-market, and momentum. Richardson (2003) fails to find evidence that short sellers target firms with high accruals. But Cao, Dhaliwal, and Kolasinski (2006) find that short sellers do target firms with high accruals after controlling for surprises in earnings announcements. We find that short interest is related to accruals, as well as market capitalization, book-to-market, momentum, insider selling, institutional ownership, and share turnover.

Three prior studies are most closely related to ours. Dechow, Sloan, and Sweeney (1996) report an increase in short interest in the 2 months before an SEC release in a sample of 27 Accounting and Auditing Enforcement Releases. Desai, Krishnamurthy, and Venkataraman (2006) and Efendi, Kinney, and Swanson (2006) examine short selling before the accounting restatements in a database compiled by the Government Accountability Office (GAO).<sup>5</sup> Our investigation differs from these papers in several ways. First, we introduce

<sup>4</sup>See Figlewski (1981), Asquith and Meulbroek (1996), Desai et al. (2002), and Asquith, Pathak, and Ritter (2005).

<sup>5</sup>For a description of the GAO restatement data, see <http://www.gao.gov/special.pubs/gao-06-1079sp/>.

several controls for the severity of the misconduct, allowing us to infer whether short selling affects stock prices directly, or whether it merely serves as a proxy for misconduct severity. Second, we examine whether short selling tends to concentrate in the misconduct firms. And third, we estimate the external effects on uninformed investors—including whether short selling helps expose financial misconduct and whether it dampens price inflation during the violation period. The Internet Appendix contains a tabular summary of the results that are new to this paper.<sup>6</sup>

The data we use also provide for more powerful tests than the GAO restatement data. Hennes, Leone, and Miller (2008) report that 76% of the restatements in the GAO database are simple errors rather than misrepresentation or fraud, a concern also expressed by Files, Swanson, and Tse (2009). This suggests that the GAO database contains a large number of misclassified events. Even when restatements do reflect financial misconduct, they can occur many months after the misconduct is public knowledge. In our sample, SEC inquiries into financial misconduct are resolved 41 months after the initial public revelation, on average. Using a restatement that is made during or after that 41-month period would misclassify when the misrepresentation was or was not public knowledge.

## II. Data and Short Interest Measures

### A. Financial Misrepresentation Data

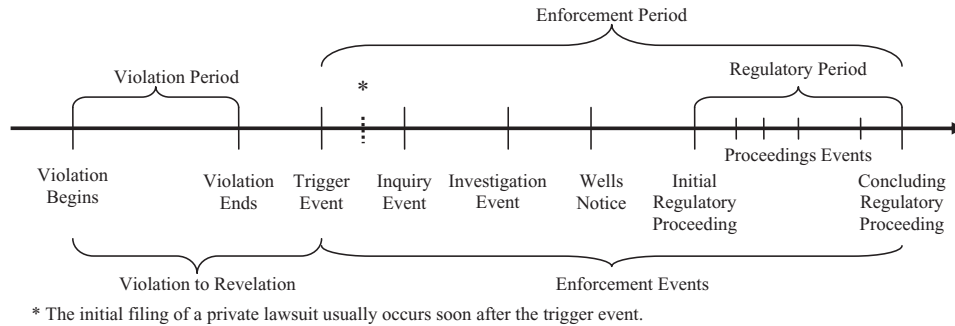
To avoid the data problems discussed above, we use the Karpoff, Lee, and Martin (2008a, 2008b) (hereafter KLM) database to identify all 632 SEC enforcement actions for financial misrepresentation initiated from 1988 through 2005.<sup>7</sup> These data identify the period during which the misrepresentation occurred and also the *trigger event*, which is the initial public revelation of the misconduct. This allows us to focus on short selling around the initial public revelation. Short interest data are available for 474 of the 632 firms, and 454 firms have sufficient data on CRSP to calculate returns on their revelation dates.

To illustrate the nature of our data and tests, it is useful to review the sequence of events that constitute an SEC enforcement action.<sup>8</sup> These events are summarized in Figure 1. Most enforcement actions follow a conspicuous *trigger*

<sup>6</sup>The Internet Appendix is available on *The Journal of Finance* website at <http://www.afajof.org/supplements.asp>.

<sup>7</sup>Karpoff et al. (2008a, p. 10) report that the database is collected from "... Lexis-Nexis' FED-SEC:SECRET library for information on SEC securities enforcement actions, the FEDSEC:CASES library for information on litigated enforcement actions, and the Academic Business News, General News, and Legal Cases libraries for news releases (frequently issued by defendant firms) about each enforcement action ... the SEC's website at <http://www.sec.gov>, which contains all SEC public releases relating to enforcement actions since September 19, 1995 ... the Department of Justice itself, which provided ... further data on enforcement outcomes [, and] the Department of Justice's Corporate Fraud Task Force website at <http://www.usdoj.gov>."

<sup>8</sup>The following two paragraphs follow Section III in Karpoff et al. (2008b).



**Figure 1. Timeline of a typical enforcement action.**

*event* that publicizes the potential misconduct and attracts the SEC's scrutiny. Common trigger events include self-disclosures of malfeasance, restatements, auditor departures, and unusual trading. Here are two examples of trigger events from our sample:

1. On November 21, 2000, Lucent Technologies Inc. announced that it had identified a revenue recognition issue in its already-reported fourth quarter report as the company was completing its financial statements for fiscal year 2000. The company also told investors not to rely on its first-quarter forecast of 2001. Share prices fell 16% on the announcement day.
2. On November 13, 2003, Virbac Corporation announced that it was delaying the filing of its third-quarter 2003 Form 10-Q. Share prices fell 22% on the announcement day.

Following a trigger event, the SEC gathers information through an informal inquiry that may develop into a formal investigation of financial misconduct. At this point the SEC may drop the case, in which case it does not appear in our sample. If the SEC proceeds, it typically sends a Wells Notice to prospective defendants, notifying them that it intends to begin enforcement proceedings. It then imposes administrative sanctions and/or seeks redress through civil actions. Some cases are referred to the Department of Justice and lead to criminal charges as well. The SEC releases its findings and penalties in its Administrative Proceedings and Litigation Releases, and every enforcement action in our sample has at least one such release. These releases provide detailed information on the period over which the misrepresentation occurred—which we label the violation period—as well as other information that we use in our empirical tests.

As reported in Table I, the events illustrated in Figure 1 typically take several years to play out. In our sample of enforcement events, the median length of the violation period is 24 months, and the median length from the beginning of the violation until its initial public revelation is 26 months. The period from the initial public revelation until the end of the enforcement action is an additional 41 months. Table I shows that the number of enforcement actions, the median

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