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Governance and Performance Changes after Accusations of Corporate Fraud

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Using a sample of companies charged with government, financial reporting, or stakeholder fraud or regulatory violation in the United States during the 1978–2001 period, this study found that after the accusation of fraud, companies increased the proportion of outsider directors on their boards of directors and on the monitoring committees of the boards. Furthermore, the results show comparable long-run stock price and operating performance between companies charged with fraud and a matching sample of companies not accused of fraud. Collectively, these results suggest that improvements in internal control systems following accusations of fraud help repair a company's damaged reputation and reinstate confidence in the company.

The commission of corporate fraud can be rightly ascribed to a failure of the company's internal control systems, which are established and structured to detect and rectify deviations costly to the interests of the company's shareholders. Jensen (1993) pointed out that "problems with corporate control systems start with the board of directors" because the board stands at the "apex" of the system and has "final responsibility for the functioning of the firm" (p. 862).

Several studies have found that the composition of a company's board of directors influences the effectiveness of the company's internal control system. For example, Weisbach (1988) determined that the likelihood of a management change after a period of poor corporate performance is positively related to the proportion of outsiders on the board of directors. Brickley and James (1987) documented an inverse relationship between managerial perquisite ("perk") consumption and the percentage of outsiders on the board. With regard to corporate fraud, Dechow, Sloan, and Sweeney (1996) documented that companies committing financial statement fraud are likely to have boards dominated by inside directors. Beasley (1996) found that the like-

lihood of financial statement fraud is negatively related to the presence of independent outside directors on the board. Uzun, Szewczyk, and Varma (2004) reported that a greater proportion of independent outside directors on the board is associated with a lower likelihood of a broad range of corporate frauds. Both Beasley and Uzun et al. presented evidence that the likelihood of corporate fraud is also negatively influenced by the degree of independence in the composition of some of the board's oversight committees. The association found between corporate fraud and board structure supports the reasoning underlying the Sarbanes-Oxley Act of 2002 and the NYSE and NASDAQ rules requiring companies to have a majority of independent directors on their boards.

Karpoff and Lott (1993) found that announcements of actual or alleged frauds are associated with significant costs that must be borne by the company's shareholders. Such costs include regulatory and court-imposed penalties and penalties imposed by the product and capital markets as a consequence of loss of reputation. Reputational costs associated with fraud arise from loss of business and/or a fall in the company's stock price because of expectations that the company will commit further fraud. Given the well-documented costs incurred by companies accused of corporate fraud, one would expect that these companies would enhance their internal control systems to lower the probability of future fraud. Such enhancements at the board level could also help repair the company's reputation and restore confidence in the company.

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In the study reported here, we examined whether the costs of corporate fraud produce alterations in the accused company's internal control system as evidenced by changes in the structure of the board of directors and its oversight committees. Specifically, we examined whether the proportion of outside directors—as well as the independence of the board's committees—increases after the revelation or allegation of fraud. Our investigation was motivated partly by the scant attention that changes in board structure after the accusation or revelation of fraud have received from academics. In a study of companies that were accused of a broad variety of frauds, Agrawal, Jaffe, and Karpoff (1999) examined performance and director turnover after the accusation, but they were unable to investigate changes in board structure because their data source (*Standard & Poor's Register of Corporations*) does not report such important director characteristics as director independence and committee membership. In contrast, we obtained our governance data from proxy statements that provided rich detail on the companies' boards.

In a study similar to ours, Farber (2005) investigated changes in board structure after financial reporting fraud. We examined companies that were accused of a broader range of frauds than in the Farber study, including fraud of stakeholders, fraud of the government, financial reporting fraud, and regulatory violations. In addition, we compared the impact of court-imposed costs with the impact of market-based reputational costs in inducing positive changes in corporate boards.

We also compared the long-term financial and operating performance of "fraud companies" with the performance of a matched sample of comparable "no-fraud" companies. On the one hand, if the cost of fraud induces fraud companies to bring their internal control systems to the level of no-fraud companies, we expected to find comparable long-run performance between fraud companies and their no-fraud counterparts. On the other hand, if market participants perceive changes in board structures at companies accused of committing fraud simply as "window-dressing" arrangements or if reputation once lost cannot be easily regained, we expected fraud companies to underperform the matched companies over the long run.

Fraud-Company Database

We constructed a database of companies accused in the United States of committing fraud from press announcements of corporate frauds appearing in the "Crime-White Collar Crime" or "Fraud" listings in the general news section of the *Wall Street*

Journal Index during the period 1978 through 2001. We used articles in the *Wall Street Journal (WSJ)* to determine when the frauds were first publicly announced. Our sample includes 276 accusations of corporate fraud that met the definitions of the following four types of fraud established by Karpoff and Lott: fraud of stakeholders, fraud of the government, financial reporting fraud, and regulatory violation.

- *Fraud of stakeholders.* This type of fraud occurs when the company cheats or is accused of cheating on implicit or explicit contracts with suppliers, employees, franchisees, or customers other than the government. The following are examples: Niagara Mohawk Power Corporation was accused of defrauding its employees, who said that the company misled them about early-retirement plans and convinced them to accept inferior plans in 1993 (*WSJ* 29 December 1999). Sloans Supermarkets was charged by U.S. federal prosecutors with defrauding manufacturers of more than \$3.5 million by engaging in a coupon scam (*WSJ* 15 March 1993).
- *Fraud of government.* This type of fraud occurs when a company cheats (or is accused of cheating) on implicit or explicit contracts with a government agency. Well-known examples include CVS Corporation, which was accused of deceiving government health insurance programs by submitting false prescription claims (*WSJ* 29 August 2001); Laboratory Corporation of America Holdings, the largest clinical laboratory company in the world, which was accused of charging Medicare for unneeded blood tests (*WSJ* 21 November 1996); Frequency Electronics, accused in 1993 of overcharging the U.S. Department of Defense on six contracts (*WSJ* 19 November 1993); and Genisco Technology Corporation, indicted for defrauding the government by supplying pressure devices that were not properly tested (*WSJ* 25 March 1988).
- *Financial reporting fraud.* This type of fraud takes place when agents of a company misrepresent (or are accused of misrepresenting) the company's financial condition. For example, Rent-Way was investigated for fabricating entries in its financial statements that increased the company's earnings for its 2000 fiscal year by about \$30 million (*WSJ* 1 November 2000). In 2000, MicroStrategy was accused of prematurely booking its revenues to avoid reporting losses (*WSJ* 24 May 2000). Mercury Finance Company was charged with fabricating entries in its financial statements to overstate earnings in 1996 by more than 100 percent (*WSJ* 30 January

1997). In another well-known case, Crazy Eddie and its founder were sued in 1990 for overstating the company's earnings and selling shares at inflated prices (*WSJ* 24 January 1990).

- *Regulatory violation.* The last type of corporate fraud involves violation of regulations enforced by federal agencies. In our sample, we considered the following illegal activities to be regulatory violations: bribery or illegal payments, employee discrimination, environmental pollution, antitrust law violation, price fixing, and false advertising. For example, Tyson Foods was indicted for violating the 1907 Meat Inspection Act and the gratuity and fraud statutes (*WSJ* 19 January 1998). In 1995, Archer Daniels Midland Company was investigated by the government for conspiring with its competitors to fix prices (*WSJ* 26 September 1995).

Changes in Corporate Governance

To examine changes in corporate governance following accusations of fraud, we constructed an industry- and size-matched control sample of com-

panies that were not accused of committing fraud. We used the CRSP database to generate a list of all companies that shared each fraud company's two-digit SIC code. From that list, we selected the no-fraud company whose market value of equity was closest to that of the fraud company on the last day of the month preceding the announcement of corporate fraud.

For both samples, we collected data on the boards of directors and other governance attributes from proxy statements. This procedure resulted in a sample of 133 pairs of fraud and no-fraud companies matched by industry and size for which we were able to obtain proxy statements. The final sample consisted of 24 pairs of frauds of stakeholders, 38 pairs of frauds of government, 28 pairs of financial reporting fraud, and 43 pairs of regulatory violation.

Table 1 presents differences in characteristics of the boards and board committees for fraud companies between Year 0 (the year in which the alleged fraud was detected) and Year 3. In the three years following the detection of fraud, our results show that fraud companies significantly reduced the percentage of inside directors and increased the

Table 1. Statistical Description of Boards and Board Committees for Fraud Companies, 1978–2001

Characteristic	Year 0	Year 3	<i>p</i> -Value
<i>Board composition</i>			
Inside directors (% of total number of directors)	30%	23%	0.00***
Outside directors (% of total number of directors)	70	77	0.00***
Independent directors (% of outside directors)	82	83	0.92
Gray directors (% of outside directors)	18	17	0.92
Dual CEO/board chair (% of sample)	86	79	0.04**
<i>Audit committee</i>			
Outside directors (% of committee members)	96%	98%	0.14
Independent directors (% of outside members)	82	91	0.00***
Gray directors (% of outside members)	18	9	0.00***
<i>Compensation committee</i>			
Outside directors (% of committee members)	93%	94%	0.94
Independent directors (% of outside members)	81	87	0.06*
Gray directors (% of outside members)	19	13	0.06*
<i>Nominating committee</i>			
Outside directors (% of committee members)	82%	90%	0.24
Independent directors (% of outside members)	79	90	0.02**
Gray directors (% of outside members)	21	10	0.02**

Notes: Mean values are reported for the variables. Reported *p*-values are based on mean differences using a *t*-test.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

percentage of outside directors on their boards. Moreover, these companies increased the percentage of independent outside directors (outside directors who have no affiliation with the company other than being on the board) among outside directors and reduced the percentage of "gray" directors (outside directors who have some non-board affiliation with the company) among outside directors, but these changes are not statistically significant. Furthermore, a higher percentage of fraud companies separated the jobs of CEO and board chair over the three years after the alleged frauds in Year 0. Over the three years after the commission or accusation of fraud, companies also significantly increased the percentage of independent outside directors and reduced the percentage of gray directors on their boards' audit, compensation, and nominating committees.

Overall, the evidence in Table 1 demonstrates that fraud companies changed the composition of their boards and the board committees following fraud. Specifically, they increased the percentage of outside directors on their boards and increased the independent membership on the boards' committees.

Table 2 compares the characteristics of boards and committees for fraud companies with those of

the matched sample of no-fraud companies in Year 0 and Year 3. The matched control companies were assumed to have adequate internal control systems in Year 0. Note that in Year 0, the fraud companies had systematic and statistically significantly higher percentages of inside directors and lower percentages of outside (and independent) directors relative to their no-fraud counterparts. Additionally, the committee memberships of fraud companies had lower percentages of outside directors and lower percentages of independent outside directors than the no-fraud companies. By Year 3, however, fraud companies no longer exhibited these differences in the structure of their boards, audit committees, and nominating committees. The percentage of outside directors on the compensation committees of fraud companies remained somewhat lower than that for no-fraud companies, but the difference in the percentage of independent outside directors had become insignificant.

Collectively, the evidence in Table 1 and Table 2 indicates that the costs of fraud are sufficiently high to induce companies accused of fraud to make changes at the highest levels of their internal control systems. The evidence also suggests that these changes are intended to enhance monitoring

Table 2. Statistical Description of Boards and Board Committees for Fraud and No-Fraud Companies, 1978–2001

Characteristic	Year 0			Year 3		
	Fraud	No Fraud	<i>p</i> -Value	Fraud	No Fraud	<i>p</i> -Value
<i>Board composition</i>						
Inside directors (% of total number of directors)	30%	24%	0.00***	23%	22%	0.36
Outside directors (% of total number of directors)	70	76	0.00***	77	79	0.36
Independent directors (% of outside directors)	82	91	0.00***	83	84	0.41
Gray directors (% of outside directors)	18	9	0.00***	17	16	0.41
Dual CEO/board chair (% of sample)	86	80	0.22	79	82	0.40
<i>Audit committee</i>						
Outside directors (% of committee members)	96%	99%	0.08*	98%	98%	0.93
Independent directors (% of outside members)	82	95	0.00***	91	90	0.30
Gray directors (% of outside members)	18	5	0.00***	9	10	0.30
<i>Compensation committee</i>						
Outside directors (% of committee members)	93%	96%	0.03**	94%	97%	0.03**
Independent directors (% of outside members)	81	97	0.00***	87	90	0.31
Gray directors (% of outside members)	19	3	0.00***	13	10	0.31
<i>Nominating committee</i>						
Outside directors (% of committee members)	82%	90%	0.03**	90%	88%	0.97
Independent directors (% of outside members)	79	97	0.00***	90	86	0.90
Gray directors (% of outside members)	21	3	0.00***	10	14	0.90

Notes: Mean values are reported for the variables. Reported *p*-values are based on mean differences using a *t*-test.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

to reduce the likelihood of future fraud. Indeed, the fraud companies changed the structure of their boards and committees to resemble those of their no-fraud counterparts. The increase in percentage of outside directors also supports the argument that the companies were making reputation-building changes to the board because the increase in outside membership allowed the company to bring in new outside directors with reputational capital of high value.

Next, we examine whether reputational costs imposed by the product and capital markets are sufficiently high to effectively discipline wayward companies and achieve a market-based regulation of corporate board structure. In 1991, the U.S. Sentencing Commission instituted corporate sentencing guidelines that substantially changed judicial sentencing practices for fraud and raised court-imposed costs more than 20-fold (Karpoff and Lott; Alexander 1999). To the extent that court-imposed costs and market-imposed costs are not perfect substitutes, total costs associated with revelation or allegation of corporate fraud should have increased

after the new guidelines. We took advantage of this development to explore whether reputational cost alone will induce changes in board structure. Karpoff and Lott found that prior to 1991, the reputational cost of fraud constituted most of the cost imposed on companies from revelation or accusation of fraud; court-imposed costs were small and not meaningful. Alexander found additional evidence of reputational cost: Customers terminated or suspended dealings with the offending company in a significant percentage of the contract-related frauds she examined.

Table 3 shows our findings for changes in board and committee structures for companies accused of fraud prior to November 1991 and after November 1991. If market-imposed reputational costs alone are insufficient to produce changes in the board of directors, we expected to find that board changes occurred primarily in the period following the 1991 sentencing guidelines. As shown in Table 3, however, the changes to boards were comparable in the two periods—with fraud companies significantly increasing the percentage of outside directors on the board.

Table 3. Statistical Description of Boards and Board Committees for Fraud Companies before November 1991 and after November 1991, 1978–2001

Characteristic	Pre–Nov 1991			Post–Nov 1991		
	Year 0	Year 3	<i>p</i> -Value	Year 0	Year 3	<i>p</i> -Value
<i>Board composition</i>						
Inside directors (% of total number of directors)	31%	25%	0.00***	28%	20%	0.00***
Outside directors (% of total number of directors)	69	75	0.00***	72	80	0.00***
Independent directors (% of outside directors)	81	81	0.82	84	86	0.62
Gray directors (% of outside directors)	19	19	0.82	16	14	0.62
Dual CEO/board chair (% of sample)	84	77	0.13	91	81	0.21
<i>Audit committee</i>						
Outside directors (% of committee members)	96%	99%	0.11	96%	98%	0.77
Independent directors (% of outside members)	81	90	0.00***	84	93	0.00***
Gray directors (% of outside members)	19	10	0.00***	16	7	0.00***
<i>Compensation committee</i>						
Outside directors (% of committee members)	92%	93%	0.89	94%	95%	0.95
Independent directors (% of outside members)	79	83	0.50	86	94	0.02**
Gray directors (% of outside members)	21	17	0.50	14	6	0.02**
<i>Nominating committee</i>						
Outside directors (% of committee members)	80%	88%	0.25	84%	93%	0.65
Independent directors (% of outside members)	76	88	0.10*	84	94	0.13
Gray directors (% of outside members)	24	12	0.10**	16	6	0.13

Notes: Mean values are reported for the variables. Reported *p*-values are based on mean differences using a *t*-test.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

We observed comparable changes in the structure of the audit committees also for the two periods. Although we found some differences in the results for the subperiods for the compensation and nomination committees, these differences, taken together, do not suggest a meaningfully different response to allegations or incidence of corporate fraud before November 1991 and after November 1991. On the compensation committees, the percentage of independent outside directors increased in both periods; the change is statistically significant, however, only in the post-November 1991 period. The percentage of independent directors on the nominating committees increased in both periods, but the increase is statistically significant only in the pre-November 1991 period.

Overall, the evidence in Table 3 suggests that, with respect to inducing meaningful changes in the corporate boards of fraud companies, the increase in court-imposed costs resulting from the 1991 sentencing guidelines was superfluous because market-imposed costs were sufficient to induce positive changes in board structure.

Changes in Performance

The previous section dealt with changes companies made to the boards of directors following a wake-up call via accusation or conviction of fraud. In this section, we examine the market's reaction to fraud announcements and postfraud stock performance. We also examine whether fraud companies were able to improve their postfraud operating performance over time.

Short-Term Returns. To establish the market's immediate reaction to a fraud accusation, we estimated two-day (Day -1 and Day 0 relative to the fraud announcement day) cumulative abnormal returns for the 276 announcements of fraud in our sample. To estimate the abnormal returns, we used a market model with model parameters esti-

mated over a 120-day period ending 30 days before the announcement day. We relied on the *WSJ* to determine when the alleged frauds were first publicly announced (Day 0).

Table 4 presents the results for the full sample and for subsamples classified by type of fraud. Consistent with earlier studies, we found that the market reacts negatively to the announcements of corporate fraud.¹ The mean (-5.01 percent) and median (-1.98 percent) two-day cumulative abnormal returns for the full corporate fraud sample are significant at the 1 percent level. The mean and median market reactions to announcements for all four types of fraud are also negative and significant at the 1 percent level.

Long-Term Abnormal Stock Returns. To assess long-term stock performance, we estimated buy-and-hold abnormal returns adjusted for size, prior return, and market-to-book ratio (M/B). The buy-and-hold return measured the return to an investor who invested the same amount in each sample company and sold short the same amount of the matching sample.

To create the matching sample, we used the following procedure. For each month, we formed 20 size (market value of equity) portfolios from the CRSP database with an equal number of companies in each portfolio. Next, for each size portfolio, we formed five portfolios based on the size of the prior-six-month raw stock returns, with an equal number of companies in each portfolio. The cross section of size and prior-return portfolios formed 100 portfolios. For each fraud company, we assigned its corresponding size and prior-return portfolio, and from the assigned portfolio, we assigned to the matched sample the company with the M/B closest to the fraud company's M/B. Fraud sample companies were excluded from the matched sample for the five years before and the five years following the event.

Table 4. Two-Day Cumulative Abnormal Returns Following Corporate Fraud Announcements, 1978–2001

Statistic	Full Sample	Stakeholder Fraud	Government Fraud	Regulatory Violation	Financial Fraud
Mean (%)	-5.01***	-3.44***	-4.98***	-4.50***	-7.81***
<i>t</i> -Statistic	(-6.54)	(-3.32)	(-4.83)	(-3.42)	(-2.94)
Median (%)	-1.98***	-1.09***	-2.02***	-1.87***	-4.65***
<i>p</i> -Value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Statistical significance of the means was evaluated by cross-sectional *t*-statistics; statistical significance of the medians was determined by the Wilcoxon signed-rank test *p*-values.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

We obtained the market value of equity at the beginning of the fraud announcement month and the M/B at the end of the fiscal year that ended before the fraud announcement. Following Loughran and Ritter (1997), we estimated the M/B as number of shares (Research Insight item #54) multiplied by price (#199) divided by book value of equity (#60). Prior return was estimated for the six-month period ending before the announcement month.

To estimate buy-and-hold abnormal returns, first, we calculated the buy-and-hold return, BHR , for each company i in the fraud and matched samples during the period from a to b as follows:

$$BHR_{i,a,b} = \left[\prod_{t=a}^b (1 + R_{i,t}) \right] - 1,$$

where $R_{i,t}$ is the monthly return on common shares of company i in month t .

Abnormal return was calculated as the difference between the fraud company buy-and-hold returns and the matched company buy-and-hold returns. If a fraud company or a matched company

was delisted from CRSP before the end of the estimation period, we used the abnormal return for the longest holding period available as in Hertzler, Lemmon, Linck, and Rees (2002). To evaluate the statistical significance of buy-and-hold abnormal returns, we used conventional t -statistics and bootstrapped p -values. We followed the bootstrapping procedure in Lyon, Barber, and Tsai (1999), except that the control-company approach eliminates skewness bias and we did not adjust for skewness (see Barber and Lyon 1997; Lyon et al.).

Table 5 presents the long-term stock performance in the form of one- to five-year buy-and-hold abnormal returns estimated relative to the returns of size-, prior-return-, and M/B-matched companies. For the full fraud sample shown in Panel A, the cross-sectional t -statistics and bootstrapped p -values indicate that one- to five-year buy-and-hold abnormal returns are statistically insignificant, indicating no abnormal performance following corporate fraud events. Panels B through E of Table 5 show that we also did not find reliable evidence of abnormal postevent performance for the subsamples grouped by fraud type. Out of the

Table 5. Buy-and-Hold Long-Term Abnormal Returns Following Corporate Fraud, 1978–2001

Statistic	1 Year	2 Years	3 Years	4 Years	5 Years
<i>A. Full sample</i>					
Mean (%)	-2.95	-2.35	-5.25	-15.30	-20.82
t -Statistic	(-0.65)	(-0.33)	(-0.64)	(-1.51)	(-1.46)
p -Value	0.551	0.739	0.541	0.150	0.170
<i>B. Financial fraud</i>					
Mean (%)	-3.81	-1.92	-14.73	-42.29*	-57.77
t -Statistic	(-0.34)	(-0.11)	(-0.72)	(-1.69)	(-1.18)
p -Value	0.766	0.913	0.499	0.158	0.368
<i>C. Government fraud</i>					
Mean (%)	-4.47	-0.87	-6.51	-8.40	-19.56
t -Statistic	(-0.59)	(-0.07)	(-0.45)	(-0.57)	(-1.01)
p -Value	0.605	0.968	0.732	0.598	0.357
<i>D. Regulation violation</i>					
Mean (%)	-1.06	-1.12	-4.73	-5.50	3.29
t -Statistic	(-0.13)	(-0.11)	(-0.40)	(-0.34)	(0.16)
p -Value	0.885	0.910	0.686	0.736	0.877
<i>E. Stakeholder fraud</i>					
Mean (%)	-3.12	-6.57	5.25	-11.86	-22.43
t -Statistic	(-0.30)	(-0.34)	(0.24)	(-0.42)	(-0.89)
p -Value	0.784	0.777	0.850	0.732	0.443

Note: t -Statistics reported in the parentheses are cross-sectional t -statistics, and p -values are bootstrapped p -values.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

20 *t*-statistics estimated for the four subsamples and the five periods, only 1 suggests statistical significance (at the 10 percent level). Furthermore, none of the 20 bootstrapped *p*-values estimated suggests statistical significance even at the 10 percent level. Because one could expect 1 abnormal return to be statistically significant as a result of randomness when 20 abnormal returns are estimated, we conclude that our results suggest no abnormal long-term postevent stock performance for all types of fraud.

Collectively, the results in this section suggest that changes in corporate governance of companies accused of committing fraud are not viewed simply as window-dressing arrangements. Also, the results are not supportive of the hypothesis that reputation once lost cannot be easily regained. Rather, the results suggest that market participants view changes in the internal control systems following accusation of fraud as positive developments.

An alternative explanation for the lack of evidence of poor long-term stock performance is that fraud has a negative long-term impact on a company's operating performance. According to this view, the market fully incorporates information available at the time of the fraud announcement,

which leads to a significant loss in value at the time of announcement but no subsequent abnormal stock performance. This story would predict long-term deterioration in operating performance. We examine this possibility in the next section.

Operating Performance. To examine the impact of corporate fraud on a company's operating performance, we followed the methodology in Loughran and Ritter. We estimated return on assets (defined as net income divided by total assets), operating income to total assets, capital and R&D expense to total assets, and M/B. In addition, we estimated sales to total assets and advertising expense to total assets. Following Loughran and Ritter's study, we estimated the adjusted medians of these operating variables. For the adjustment, each variable was calculated as the difference between the variable values for the fraud sample company and a no-fraud company matched by industry, total assets, and operating income.

Panel A of **Table 6** presents the median values of the operating variables for the three years before the corporate fraud year to the five years after the corporate fraud year. No clear trends are observable for any of the examined variables. Panel B of

Table 6. Change in Operating Characteristics of Fraud Companies, 1978–2001

Fiscal Year Relative to Event	Return on Assets	Operating Income/ Assets	Sales/ Assets	Advertising Expense/ Assets	Capital and R&D Expense/ Assets	M/B
<i>A. Medians</i>						
-3	4.73%	14.53%	109.82%	2.14%	9.73%	1.50
-2	4.40	13.56	108.56	2.07	9.33	1.50
-1	3.15	12.18	108.52	2.07	7.90	1.53
0	2.33	11.25	111.47	2.43	7.52	1.41
1	2.82	11.89	106.16	2.11	7.38	1.49
2	2.95	12.20	106.63	2.44	6.52	1.42
3	2.57	12.05	108.74	2.31	6.68	1.51
4	3.15	13.03	112.18	2.49	7.04	1.39
5	2.66	12.42	107.30	2.15	7.40	1.44
<i>B. Adjusted medians</i>						
-3	0.05%	0.65%	2.30%	-0.53%	1.13%*	0.03
-2	-0.50	0.26	1.09	0.22	0.96**	-0.08
-1	-0.34*	0.07	2.61	0.20	0.20	-0.04
0	-0.79***	-0.02	3.09	-0.12	0.77	-0.05
1	-0.48	-0.24	1.60	0.06	-0.35	0.04
2	-0.73	-0.47	0.50	0.34	-0.30	0.04
3	-0.42	0.42	3.71	0.03	-0.11	0.04
4	0.17	0.92***	5.97	-0.10	0.52	0.01
5	-0.57*	0.05	4.21	-0.26	0.45	-0.01

Note: To estimate the statistical significance of adjusted medians, we used the Wilcoxon signed-rank (two-tailed) test.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

Table 6 presents the adjusted median values for the same operating variables. We found that companies that committed corporate fraud had lower return on assets in the year before the fraud event (significant at the 10 percent level) and in the fraud event year (significant at the 1 percent level); fraud companies did not, however, significantly underperform the matched companies in the four years following the fraud year. In Year 5, the adjusted median return on assets is negative and statistically significant at the 10 percent level, but the cause is unlikely to be the corporate fraud in Year 0 because the adjusted median returns on assets are not significant in Years 1–4.

Panel B of Table 6 shows that the ratios of operating income to total assets and sales to total assets did not deteriorate after the fraud year. A possible explanation for a lack of deterioration in sales is that the companies recovered their reputations by spending more on public relations and advertising. Because Research Insight does not report spending on public relations, we examined only advertising expenses before and following the corporate fraud events. We did not find evidence, however, that our sample companies spent more money on advertising than matched companies. Capital and R&D expenses and M/Bs also are not significantly different for the fraud sample and matched companies after the fraud events.

These findings indicate that allegations of fraud do not have a significant long-term effect on the accused company's operating performance. This result suggests that internal changes following accusations of fraud mend damage to the company's reputation that otherwise might adversely affect the company's operating performance. Presumably, just as companies accused of fraud make changes to their internal control systems at the corporate board level, they also make changes to internal controls at lower levels. These changes are the ones that are likely to have an immediate impact on operating performance.

Consistent with this explanation, Alexander found that about half of the suspended business dealings in her sample of companies accused of corporate crime were restored on or before the plea or settlement date. As an explanation, she noted that offending companies may conduct negotiations with customers over relationship-related investments the company will undertake to guarantee against future fraud. Companies may also transfer or terminate certain employees and managers and/or increase spending on customer relations in an attempt to repair their reputations. They may also hire outsiders with good reputations and place them in prominent positions in the internal control systems that are not necessarily at the board level.

Conclusion

Our results show that companies increase the percentage of outside directors on the board following accusations of corporate fraud. In addition, they increase the proportion of independent outside directors on the board's oversight committees (audit, compensation, and nomination). Finally, our results indicate that long-run stock price performance of fraud companies is comparable to that of matched no-fraud companies, indicating that enhancements in internal control systems following accusations of fraud help mend tarnished reputations and bring back confidence in the company.

Our results have important legal implications for civil and criminal penalties imposed on companies charged with corporate fraud. Examining changes in corporate board structures before and following the 1991 changes to sentencing guidelines, which substantially raised court-imposed costs, we found that market-imposed reputational costs are sufficient to induce positive changes in the board of directors. This finding has important implications for the ongoing debate on the appropriate size of penalties imposed on companies because our evidence suggests that civil and criminal penalties can be set at low levels.²

The evidence we have presented also has important implications for recent reforms to reduce the occurrence of corporate fraud, including Sarbanes–Oxley and reforms initiated by the NYSE and NASDAQ. Sarbanes–Oxley and the NYSE and NASDAQ reforms impose several governance provisions on publicly traded companies in the United States; a significant stipulation is to increase the number of independent directors. Our study reinforces the reasoning underlying these stipulations. Indeed, our results suggest that the markets induce fraud companies to alter their board structures. Specifically, when fraud is revealed, wayward companies respond to the market-imposed costs and change their board structures to reduce the likelihood of fraud to a level similar to that of no-fraud companies. But this market-imposed transformation of board structure is largely reactive in nature. Sarbanes–Oxley and the NYSE and NASDAQ rules achieve the same by being proactive.

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This article qualifies for 1 PD credit.

Notes

1. For example, Strachan, Smith, and Beedles (1983); Davidson and Worrell (1988); Skantz, Cloninger, and Strickland (1990); Karpoff and Lott; Long and Rao (1995); Bhagat, Bizjak, and Coles (1998); Alexander.
2. See "SEC Stakes Out Middle Ground on Fines Policy" (2006).

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