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The Reputational Penalty for Aggressive Accounting: Earnings Restatements and Management Turnover

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ABSTRACT: In this paper we investigate the reputational penalties to managers of firms announcing earnings restatements. More specifically, we examine management turnover and the subsequent employment of displaced managers at firms announcing earnings restatements during 1997 or 1998. In contrast to prior research (Beneish 1999; Agrawal et al. 1999), which does not find increased turnover following GAAP violations or revelation of corporate fraud, we find that 60 percent of restating firms experience a turnover of at least one top manager within 24 months of the restatement compared to 35 percent among age-, size-, and industry-matched firms. Moreover, the subsequent employment prospects of the displaced managers of restatement firms are poorer than those of the displaced managers of control firms. Our results hold after controlling for firm performance, bankruptcy, and other determinants of management turnover, and suggest that both corporate boards and the external labor market impose significant penalties on managers for violating GAAP. Also, in light of resource constraints at the SEC, our findings are encouraging as they suggest that private penalties for GAAP violations are severe and may serve as partial substitutes for public enforcement of GAAP violations.

Keywords: *restatements; reputational penalty; management turnover; aggressive accounting.*

Data Availability: *The data used in this study are available from public sources identified in the text.*

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I. INTRODUCTION

In recent years the incidence of earnings restatements and financial reporting fraud has increased dramatically (GAO-03-138, U.S. Government Accounting Office [GAO] 2002a; Wu 2002). The erosion in the quality of earnings and financial reporting as evidenced by the proliferation of earnings restatements has caused concern among academics, practitioners, and regulators alike. Of particular concern is the extent to which managers' actions can be adequately monitored, given (1) the widely held belief that internal control mechanisms do not discipline firm managers effectively (Jensen 1993) and (2) the fact that the SEC has significant resource limitations that prohibit it from adequately investigating all alleged GAAP violations (GAO-02-302, GAO 2002b).¹ In short, these factors in combination with the dearth of evidence from prior research about adverse consequences to managers for violating GAAP (Beneish 1999) and committing other types of corporate fraud (Agrawal et al. 1999) have led to a popular perception that managers often "get away" with earnings manipulation (Abelson 1996).

In this paper, we investigate the reputational penalties to the managers of firms that restated their earnings in 1997 or 1998. Our measure of reputational penalty is management turnover and subsequent *ex post* settling up in the managerial labor market. Such an analysis is important because high management turnover coupled with a low rehire rate could influence managerial actions and incentives, *ex ante*. That is, if the managerial labor market imposes significant costs on the displaced managers in the form of a loss in income, power, prestige, and/or reputation following a restatement, then such an *ex post* settling up can provide incentives for managers to avoid manipulating earnings. Stated differently, the penalties implicit in the managerial labor market may help to reduce the regulatory costs associated with monitoring and enforcing strict adherence to GAAP.

While previous research has provided strong evidence on the incentives that exist for firms to engage in earnings manipulation (e.g., Kedia 2003; Erickson et al. 2003; Richardson et al. 2003; Beneish 1999; Dechow et al. 1996), the evidence on the consequences of earnings manipulation for managers is weak. In a sample of 64 GAAP violators that were targeted by the SEC for enforcement actions between 1987 and 1993, Beneish (1999) does not find a significant difference in the managerial turnover rate between sample firms and size-, age-, and industry-matched control firms. Similarly, Agrawal et al.'s (1999) investigation of the consequences of corporate fraud (which includes financial reporting fraud) does not document a significant association between fraud and subsequent managerial turnover over the period 1981–1992. Findings such as these contribute to the belief that management does not suffer consequences following the revelation of fraud; that is, the monitoring mechanisms do not impose sufficient discipline on managers.

In this paper, we re-examine the consequences to managers for committing GAAP violations. Our analysis is important for at least two reasons. First, there were significant changes in both internal and external monitoring mechanisms in the U.S. during the 1990s (Holmstrom and Kaplan 2001). For example, the influence of institutional owners increased dramatically, as their ownership of U.S. companies nearly doubled from 1980 to 1996 (Gompers and Metric 2001). There was also a large increase in shareholder activism in the 1990s (Gillan and Starks 2000), along with a trend toward smaller, more independent corporate boards (Yermack 1996). Consistent with these changes, Huson et al. (2001) show

¹ The report issued by the GAO (GAO 2002b) finds that the SEC's workload as measured by open and pending cases has increased 65 percent and 77 percent, respectively, from 1991 to 2000, while the staff-years dedicated to these investigations have increased only 16 percent. Because the SEC is unable to address every violation, it prioritizes the cases it will pursue (Feroz et al. 1991).

that the frequency of forced turnovers has increased during the 1971–1994 period and was highest over the 1989–1994 period. Similarly, a recent Booz Allen Hamilton study suggests that this trend has continued, as the rate of CEO dismissals in the largest 2,500 public companies increased by 170 percent from 1995 to 2003 (Lucier et al. 2004). Although the data point to an increase in the frequency of forced turnovers in the 1990s, the empirical evidence on the relation between performance and forced turnover has remained relatively stable over time (Huson et al. 2001). In spite of this fact, it is difficult to ignore the significant changes in the internal and external monitoring mechanisms that have occurred over the last few years. Given that our sample covers a later time period (1997–98) relative to prior studies, we are able to test whether the recent increased focus on corporate governance results in boards being more likely to punish top management when aggressive accounting or fraud is revealed.

The second reason that our study is important relates to the power of tests in previous research. Prior studies have provided evidence consistent with *ex post* settling up in the labor market for directors of firms committing GAAP violations (Gerety and Lehn 1997; Srinivasan 2005) with no corresponding evidence for top managers of firms in similar situations. The fact that there seem to be significant consequences for individuals who are only tangentially involved in a firm's daily operations (i.e., directors) but no such consequences for those who are directly responsible for whatever GAAP violations arise (i.e., top managers) is somewhat surprising. One potential reason for the lack of evidence is that the samples employed in management turnover studies tend to be rather small. For example, although the initial sample of Agrawal et al. (1999) consists of 103 firms, data restrictions reduce their usable sample to between 50 and 74. Moreover, given that they examine a general set of corporate fraud, their sample of accounting fraud incidents is even smaller. Similarly, Beneish's (1999) sample size is 64 firms, of which 29 firms file for bankruptcy within four years of the issuance of an Accounting and Auditing Enforcement Release (AAER). Thus, his sample size for the analysis of employment losses for nonbankrupt firms is only 35, limiting the inferences that may be drawn from his findings. This is not to say that previous research on the relationship between accounting problems and managerial turnover is flawed. However, because we are able to investigate this relationship in a period from which many more observations can be drawn (due to the increasing number of accounting violations over time), our tests are more powerful than those employed by previous researchers.

In contrast to Beneish (1999) and Agrawal et al. (1999), our results show that earnings restatements are very costly for the managers of restating firms. We examine a sample of 146 firms that announced restatements in 1997 or 1998.² We end our sample in 1998 to permit a sufficiently long window to track both the turnover and the subsequent employment. We find that at least one senior manager (Chairman, CEO, or President) loses his/her job within 24 months of the announcement of the restatement in 60 percent of the firms. The corresponding rate of turnover among industry-, size-, and age-matched control firms is 35 percent. The significant difference in turnover persists even after controlling for other factors associated with management turnover, such as performance, bankruptcy, and governance characteristics. Moreover, our analysis shows that the prospects of subsequent employment are significantly poorer for displaced managers of sample firms relative to their displaced counterparts at control firms. Even among managers who get rehired at one of

² Our sample period precedes Enron's and other high-profile restatement announcements. Thus, the reputational penalties in the time period we examine may be understated relative to the recent time period as anecdotal evidence seems to indicate that Boards are under greater pressure to respond to aggressive accounting behavior.

the top three positions at a public firm, our results suggest that in contrast to the control firm managers, the sample firm managers suffer deterioration in the quality of new employment relative to their previous employment. Given that the mean age of managers in our sample is less than 50, these results suggest that, on average, managers of restatement firms suffer significant losses in reputation and very likely personal wealth.

The fact that there are significant negative personal consequences for failing to adhere to GAAP or for aggressive interpretation of GAAP mitigates some of the widespread concern that insufficient disciplinary mechanisms have allowed managers to get away with earnings manipulation. Our findings show that once earnings manipulation is discovered, a majority of the managers face discipline from the board and from the external labor market. We maintain that an increased awareness of the penalties imposed, coupled with recent regulatory and legal actions, have the potential to influence managerial actions *ex ante*, thereby reducing the incidence of aggressive accounting or outright fraud.

The remainder of the paper is organized as follows. Section II discusses prior literature on management incentives, internal control systems, and management turnover. Section III discusses the sample of restatement firms and control firms and provides descriptive statistics on operating performance and governance characteristics prior to the restatement announcement for both groups. Section IV reports univariate and multivariate analyses of management turnover and rehire rates for restatement and control firms. Section V provides concluding remarks.

II. MANAGEMENT INCENTIVES, INTERNAL CONTROL, AND TURNOVER

Recent press reports suggest that incentive structures—in particular equity-based compensation plans including stock and option grants—that were originally viewed as a way to align managements' incentives with those of shareholders may actually prompt managers to use aggressive accounting or outright fraud to inflate stock prices (Byrne 2002). Studies have documented a greater incidence of insider selling (Beneish 1999) and stock option grants and exercises before the announcement of GAAP violations or restatements (Kedia 2003). Erickson et al. (2003) and Richardson et al. (2003) also show that stock-based compensation comprises a much larger fraction of CEO pay at restating firms relative to control firms. Murphy (1999) provides evidence that the use of stock option compensation has increased dramatically during the 1990s, suggesting that incentives to misstate earnings have increased (see also, Efendi et al. 2004; Bartov and Mohanram 2005). In addition to personal incentives, capital market incentives such as the need to maintain positive earnings surprises and the need for external financing are also greater for firms restating their earnings and/or violating GAAP (Richardson et al. 2003; Dechow et al. 1996).

What seems to have been lacking at firms such as these is an effective system of internal control, including corporate governance mechanisms designed to detect fraud, curtail aggressive accounting, and discipline managers who engage in such activities. However, it is not obvious that the optimal level of earnings management or even fraud necessarily be zero nor that every revelation of earnings management or fraud should be followed by management turnover. It is extremely costly both for a firm to design an internal control mechanism that eliminates such behavior and to replace a top manager (Agrawal et al. 1999). If, however, the revelation of fraud or aggressive accounting results in a large decline in firm value (say, due to a large penalty imposed by the capital market), then it may benefit the firm to effect the change. This would explain why boards are prone to replacing managers following poor performance or financial distress (Coughlan and Schmidt 1985; Warner et al. 1988; Weisbach 1988; Gilson 1989; Gilson and Vetsuypens 1993). Also, a large decline in market value upon the announcement of the restatement suggests that the market

is imposing significant reputational penalties on the firm (Jarrell and Peltzman 1985). In such circumstances, it may be optimal to effect a managerial change to restore investors' faith in the firm and try to recover the firm's reputation.

Given the large negative share price reaction to announcements of restatements documented in recent studies, one might expect to observe a high turnover rate following the revelation of aggressive accounting or fraud, at least in cases where the GAAP violation was severe.³ However, as stated earlier, prior evidence of management turnover following GAAP violations is weak (Beneish 1999; Agrawal et al. 1999). One exception to these findings is a study by Gerety and Lehn (1997) over an earlier time period showing that *directors* of firms charged by the SEC for accounting-related violations incur significant reputational penalties. In a sample of 62 firms charged by the SEC over the period 1981–1987, Gerety and Lehn (1997) show that following the SEC charges, there was a significant decline in the number of outside board seats held by the directors of the offending firms relative to size- and industry-matched control firms.⁴

The fact that prior studies on management turnover have not found a high turnover rate associated with the revelation of GAAP violations is somewhat surprising. However, the lack of results to date may be due to the fact that heightened shareholder activism and a strong focus on corporate governance are relatively recent trends. Holmstrom and Kaplan (2001) suggest that in the 1980s, an active takeover market played an important role in disciplining poor performers as the internal control mechanisms at U.S. firms were relatively weak. With the decline of the disciplinary takeover market, alternative governance mechanisms evolved during the 1990s to offset the decline in the active takeover market. For example, the evidence summarized in Holmstrom and Kaplan (2001) suggests that there have been significant improvements in the internal control mechanisms of U.S. firms. Moreover, increased shareholder activism and closer monitoring by institutional shareholders have improved external controls as well. It is plausible that such changes may impact a firm's propensity to discipline managers following the revelation of a GAAP violation. Another possibility for the lack of evidence on significant adverse consequences to managers of firms with GAAP violations could be that prior studies potentially lacked the statistical power necessary to detect any such consequences.

Overall, the evidence suggests that there were significant positive changes made to both internal and external monitoring mechanisms during the 1990s. However, incentives to manage earnings also increased significantly during this time period, resulting in the continued existence of aggressive accounting procedures (in spite of the increased emphasis on governance and controls). We do expect that the recent improvements in corporate governance might result in an increased propensity for boards to discipline managers in the late 1990s, relative to the time periods examined in prior studies. This notion forms the basis for our study.

³ Feroz et al. (1991) report a mean two-day announcement period abnormal return of –13 percent for a sample of 58 firms that were targeted by the SEC for enforcement action. Palmrose et al. (2004) report a mean two-day announcement period abnormal return of –9.2 percent for a sample of 403 restatements announcements from 1995 to 1999. Similar results are reported by Anderson and Yohn (2002), Richardson et al. (2003), Wu (2002), and Hribar and Jenkins (2004).

⁴ Using a recent sample of earnings restatement firms (1997–2000), Srinivasan (2005) finds that board turnover increases significantly following restatements and that board members experience a significant loss in outside directorships.

III. DATA AND VARIABLE DEFINITIONS

Selection of Sample and Control firms

Our sample is obtained from the report submitted by the U.S. General Accounting Office (GAO) to the Chairman of the United States Senate Committee on Banking, Housing and Urban Affairs in October 2002 (GAO-03-138, GAO 2002a). The report focuses on earnings restatements and identifies 845 firms (919 announcements) that have restated their earnings from January 1, 1997 to June 30, 2002. The sample was constructed from a search of Lexis-Nexis using variations of the word “restate” and identifies firms that announced nonroutine, material restatements of previously issued financial statements. The report identifies events involving “accounting irregularities, including so-called ‘aggressive’ accounting practices, intentional and unintentional misuse of facts applied to financial statements, oversight or misinterpretation of accounting rules, and fraud.” The report also identifies the reason for the restatements (e.g., revenue recognition or restatement of previously recorded In-Process R&D [IPR&D] charges) as well as the party that prompted the restatement, if known (i.e., the firm, auditor, or the SEC).

Our initial sample consists of 194 events announced by 187 firms identified by the General Accounting Office (GAO) for the years 1997 and 1998. Because our primary interest lies in documenting managerial turnover and the subsequent hiring of the displaced managers in comparable positions at other firms, we end our sample in 1998 to permit a sufficiently long post-restatement period to track the managers who have been displaced. As detailed in Panel A of Table 1, from the initial sample of 194 we eliminated all firms that are not on the CRSP database as well as firms that do not have a CRSP share code of 10 or 11 (typically foreign firms). This reduced the sample to 169 restatement observations.

To examine reputational penalties, it would be helpful to separate forced departures from voluntary departures; however, this is often difficult to determine due to the nature of the news articles, if any, announcing the departure.⁵ Thus, in order to provide a benchmark for the management turnover analysis, we selected a control firm for each sample firm based on industry, age, and size. Prior research suggests that the SEC’s decision to scrutinize a firm’s financial statements is based on its age; that is, the SEC is more likely to scrutinize young growth firms (Feroz et al. 1991; Beasley 1996; Beneish 1997, 1999). Also, young firms are more likely to be in need of external financing, which may give them an added motivation to manipulate earnings. Requiring that an industry-, age-, and size-matched control firm be available for each sample firm reduced our final sample to 146 sample firms and 146 control firms (details are reported in Panel A of Table 1).

Management Turnover

We identified the managers of the restatement and control firms pre- and post-restatement from the proxy statements issued by the firms. If the proxy was not available, then we searched 10-Ks and 8-Ks. We define management turnover as the turnover of a person or persons holding titles of Chairman, CEO, and/or President. A firm is said to have

⁵ This is especially true for our sample as the firms are quite small and, as a result, news coverage is not detailed enough to ascertain whether some of these departures are voluntary. Nonetheless, we did try to identify circumstances surrounding the departure of the managers. For the sample firms (112 departures), 59 managers either resigned or were terminated (10) by the board. Eleven of the managers apparently retired and one manager departed due to a merger. For 43 departures, there was no specific mention of the reason for the departure. For the control firms (63 departures), seven managers resigned (no terminations), three retired, one left due to a merger, and for the remaining 52 departures there was no specific reason that was given. We repeated the analysis in Table 3 after removing the 14 turnovers that were retirements (11 for sample firms and 3 for control firms), and the results are similar.

TABLE 1
Composition of Sample

Panel A: Restrictions Leading to Final Sample

<u>Restriction</u>	<u>Sample Firms</u>
1. Initial Sample	194
2. Firms on CRSP	180
3. Firms having CRSP share codes of 10 or 11	169
4. Difference between sample firm and control firm age is one year or less and ratio of sample firm to control firm market capitalization is between 75 percent and 125 percent	125
5. Difference between sample firm and control firm age is two years or less and ratio of sample firm to control firm market capitalization is between 50 percent and 150 percent (Relaxed Restriction 4)	151
6. Sufficient post-restatement data available for turnover analysis for both control and sample firm	146
Final Sample	146

Panel B: Industry Composition

<u>Two-Digit SIC Code</u>	<u>Turnover Firms^a</u>	<u>No Turnover Firms</u>	<u>Total</u>
28—Chemicals	1	6	7
35—Industrial Machinery	7	6	13
36—Electrical Equipment	10	7	17
38—Measuring Instruments	7	2	9
48—Communications	5	2	7
67—Investment Offices	3	5	8
73—Business Services	24	13	37
80—Health Services	5	1	6
All Others (<5 per industry)	<u>25</u>	<u>17</u>	<u>42</u>
Total	87	59	146

^a Turnover firms are those that experience turnover in at least one of the three positions of Chairman, CEO, or President within 24 months of the restatement announcement.

turnover if an individual(s) holding the title of either Chairman, CEO, or President leaves the company within 24 months of the restatement announcement.⁶ Our classification of turnover is conservative for a number of reasons. If the manager is of age 65 or above at the time of restatement and leaves the company within 24 months of restatement, then we do not classify that firm as a turnover case.⁷ Also, if the company merges or is acquired within 24 months and as long as the manager does not leave the company prior to the

⁶ Thus, if a person occupied the position of Chairman and CEO prior to the restatement but following the restatement retains the title of only Chairman, this is not considered a turnover. We replicate the analysis using an alternative definition where we focus on turnover in positions (not people) and find similar results.

⁷ To ensure that our findings are not sensitive to this age cut-off, we replicated the main results using an alternative age cut-off of 60. Using this alternative age cut-off, we find that 53 percent of the sample firms experience a turnover, compared to only 31 percent of the control firms. In untabulated regressions that replicate the three models presented in Panel B of Table 3 with the age 60 cut-off, the p-value for *RESTATE* is consistently below 0.05. Thus, our results and inferences are robust to this alternative specification.

merger, we do not consider it as a turnover, even though prior research suggests that an acquisition significantly increases the likelihood of managerial turnover (Agrawal and Walkling 1994; Martin and McConnell 1991). In addition, we use a shorter window of 24 months following the restatement as opposed to the four-year period used by Beneish (1999) for two reasons. First, we believe it is difficult to attribute turnover to an earnings restatement if the turnover does not occur within a relatively short period following the restatement announcement. Second, firms that have restated earnings perform poorly following the restatement, on average, and prior evidence suggests that poor performance leads to management turnover. A shorter window therefore reduces the confounding effect of performance on turnover (of course, we control for pre- and post-restatement performance in our regressions). Finally, it is possible that a turnover may occur prior to the first announcement of any possible restatement, but actually be related to the eventual restatement. Such cases, if they exist, would understate the turnover rate associated with the restatements in our study.

Summary Statistics

In Panel B of Table 1 and in Table 2 we report various summary statistics for the sample and control firms. Panel B of Table 1 details the industry composition of the restatement firms. The industry that is most heavily represented (25 percent of sample observations) is Business Services. Restatements are also relatively common among firms involved in the production of electrical equipment and industrial machinery, with 12 percent and 9 percent of the sample, respectively, coming from these two industries.

In Table 2 we present a variety of performance- and governance-related measures for our sample and control firms. All of the performance and governance variables are measured in the year prior to the announcement of the restatement. Similar to Kinney and McDaniel (1989), we find that restatement firms are smaller, less profitable, and more leveraged than their industry peers. The mean market value of equity of the firms in the restatement sample is \$871.41 million, which corresponds to a mean size decile rank of 2.75, based on the universe of NYSE firms. The mean (median) age of the restatement firms is 91.53 (49) months. As expected given our selection criteria, the control firms match the sample firms closely on size and age.

Operating performance statistics indicate that sample firms perform poorly in the year prior to the announcement of the restatement, relative to the control firms. The median ROA in the year prior to the announcement is 3.2 percent versus 12.1 percent for the control firms. Stock market performance of the sample firms is also poor prior to the announcement of the restatement. Average market-adjusted returns from month -12 to -1 relative to the announcement month are -25 percent. This is consistent with Beneish's (1999) observation of negative stock market performance prior to revelation of a GAAP violation. The restatement firms continue to perform poorly after the restatement, on average, as indicated by market-adjusted returns of -19.2 percent in months $+1$ to $+12$.

We also examine the accruals of the sample firms relative to those of the control firms, initially measured in year -1 relative to the restatement announcement. Following Richardson et al. (2003), we examine two measures of accruals: operating accruals, defined as earnings minus cash flow from operations (earnings $-$ CFO); and total accruals, defined as earnings $-$ CFO $-$ cash flow from investing accruals (CFI). The mean (median) operating accruals-to-average assets ratio for the sample firms is -9.2 percent (-6.8 percent). The corresponding mean (median) for the control firms is -3.1 percent (-3.6 percent). Both differences are marginally significant. Total accruals are not significantly different across the sample and the control firms. When we measure accruals in the fiscal

TABLE 2
Selected Summary Statistics for Sample and Control Firms

Panel A: Financial Data

Variable	n	Restatement Firms		Control Firms		t-stat p-value for Difference	Wilcoxon p-value for Difference
		Mean	Median	Mean	Median		
Market Value of Equity	146	871.407	98.034	714.770	89.803	0.607	0.764
FF MVE Decile Rank	146	2.747	1.000	2.637	1.000	0.695	0.804
Firm Age (months)	146	91.534	49.000	86.116	43.500	0.722	0.851
Book-to-Market Ratio	94	0.505	0.337	0.585	0.479	0.403	0.019
FF BTM Decile Rank	94	4.021	3.000	4.984	5.000	0.030	0.019
Debt/Assets (yr-1)	113	0.240	0.201	0.195	0.144	0.109	0.074
Total Assets (yr-1)	114	1189.701	89.024	984.257	100.840	0.696	0.639
Return on Assets (yr-1)	107	-0.055	0.032	0.027	0.121	0.062	0.004
Raw Return, months -12 to -1	144	-0.115	-0.245	0.109	0.070	0.002	0.001
Mkt-Adj Return, months -12 to -1	144	-0.253	-0.361	-0.029	-0.034	0.001	0.001
Raw Return, months +1 to +12	136	-0.095	-0.235	0.045	-0.100	0.110	0.079
Mkt-Adj Return, months +1 to +12	136	-0.192	-0.307	-0.061	-0.136	0.117	0.060
Operating Accruals/Assets (yr-1)	103	-0.092	-0.068	-0.031	-0.036	0.057	0.077
Total Accruals/Assets (yr-1)	103	0.071	0.052	0.076	0.032	0.899	0.786

Panel B: Governance Data

Age of CEO	125	48.8	49.0	50.4	51.0	0.134	0.159
Tenure of CEO	129	6.5	4.0	6.6	5.0	0.967	0.484
Age of Chairman	112	51.7	52.0	53.1	53.0	0.337	0.293
Tenure of Chairman	116	6.9	5.0	7.4	5.5	0.499	0.380
Age of President	118	48.3	49.0	48.8	49.0	0.639	0.592
Tenure of President	122	5.8	4.0	5.3	4.0	0.491	0.912
Chm/CEO	140	60.7	1.0	62.1	1.0	0.806	0.807
% Insider Ownership	113	26.6	19.5	24.5	17.2	0.498	0.918
5% and Greater Blockholders	112	18.0	14.3	22.1	17.9	0.117	0.123
% Outside Directors on the Board	112	60.7	62.5	71.1	75.0	0.001	0.001

(continued on next page)

TABLE 2 (Continued)

The table reports various summary statistics for the sample of restatement firms and their age-, size-, and industry-matched control firms. All accounting data are taken from the fiscal year-end immediately prior to the restatement announcement.

Market value of equity is calculated as of 20 trading days preceding the restatement announcement; Decile breakpoints for size and book-to-market ratio are based on the universe of NYSE/AMEX firms; Firm Age is calculated as the number of months from the CRSP BEGDAT to the restatement announcement; Book-to-Market ratio is calculated as book value of equity, excluding negative book value firms (Compustat item 60) divided by market value of equity as of the year-end preceding the restatement announcement; Debt/Assets = (Compustat Item 9 + Compustat Item 34)/Compustat Item 6; Total assets (Compustat item 6) are as of the fiscal year-end immediately preceding the restatement; Return on Assets = Compustat Item 13/[(Compustat Item 6 in year t + Compustat Item 6 in year $t-1$)/2]; Raw returns, -12 to -1 are buy-and-hold returns over months -12 to -1 relative to the restatement announcement; Market-adjusted returns, -12 to -1 are relative to the CRSP equally weighted index; Operating Accruals/Assets = (Compustat Item 123—Compustat Item 308)/[(Compustat Item 6 in year t + Compustat Item 6 in year $t-1$)/2]; Total Accruals/Assets = (Compustat Item 123—Compustat Item 308 – Compustat Item 311)/[(Compustat Item 6 in year t + Compustat Item 6 in year $t-1$)/2]; Age and Tenure variables are taken from the proxy statement preceding the restatement announcement; Chm/CEO = 1 if the same person holds the title of Chairman and CEO, and 0 otherwise; Insider ownership, blockholder ownership, and board composition data are taken from proxy statements in the year prior to the restatement announcement.

All nonemployee directors are considered outside directors.

The varying number of observations is due to missing data for either sample or control firms. We require both the sample firm and the control firm to have data for each line item, such that only complete pairs are included in the analysis.

year that is eventually restated, the differences are not significant. These results are not completely surprising, however, given that the restatement firms are very poor performers prior to the restatement.

Turning to the governance-related statistics reported in Panel B of Table 2, we find that the average age of the CEO among sample (control) firms is 48.8 (50.4) years and the average CEO tenure is 6.5 (6.6) years, both of which are not significantly different. The sample and control firms also match very closely on the age and tenure characteristics of the President and Chairman. The incidence of CEOs also holding the title of Chairman is similar across sample and control firms (61 percent of the sample firms and 62 percent of the control firms have the same person holding both titles), suggesting that the extent of entrenchment of top management does not appear to be different across sample and control firms. Neither percentage of shares held by insiders nor blockholder ownership is significantly different across sample and control firms. Sample firms do, however, have significantly less independent boards, with only 60.7 percent outside directors as compared to 71.1 percent for control firms. This result is similar to Farber (2005), but different from Agrawal and Chadha (2002). Overall, the governance statistics suggest that the sample and control firms match closely on most dimensions, with the exception of the proportion of outside directors.

IV. RESULTS

Market Reaction to the Announcement of Restatements

The market's perception of the severity of the restatement could be an important factor for the corporate board in determining whether management should be disciplined. To test this perception, we calculate (but do not tabulate) abnormal returns for the sample of restatement and control firms having sufficient returns data during the announcement period (day -1 to day $+1$). Our discussion of these results is brief as several other papers have examined announcement period returns in detail (e.g., Palmrose et al. 2004; Wu 2002; Anderson and Yohn 2002). The mean three-day market-adjusted (CRSP equal-weighted index) abnormal return for our sample of restatement firms is -11.07 percent, which is similar in magnitude to returns documented in prior research on earnings restatements. The magnitude of the price response suggests that the market is surprised by the announcement, that the restatement represents a significant event for the company, and that the market imposes a significant penalty on firms committing GAAP violations.

Also consistent with prior studies, restatements resulting from improper revenue recognition are the most common (37 percent) and generate the largest negative reaction (-14.89 percent). The announcement-period reaction to restatements resulting from improper cost recognition is also large, at -10.51 percent. Restatements resulting from all other reasons, including improper valuation and allocation of amounts of In-Process R&D, improper asset write-offs, inventory valuation, restructuring charges, and others generate an abnormal return of -7.98 percent. When we partition based on the party initiating the restatement, we find the average reaction to the 62 company-prompted restatements is -11.33 percent, while the average reaction to the 22 auditor-prompted restatements is the strongest at -15.21 percent. The average abnormal return associated with all other prompters, including those that were not identified, is -9.34 percent.

Management Turnover Analysis

Rates of Management Turnover

Panel A of Table 3 reports the incidence of management turnover among sample and control firms. In 87 out of 146 sample firms (59.6 percent), at least one person holding the

TABLE 3
Management Turnover Analysis

Panel A: Management Turnover for Sample and Control Firms

<u>Partition</u>	<u>n</u>	<u>Sample Firms with Turnover</u>	<u>Control Firms with Turnover</u>	<u>χ^2 Statistic</u>	<u>p-value</u>
All Pairs	146	87 (59.6%)	51 (34.9%)	17.81	<0.01
Excluding Bankrupt Pairs	127	74 (58.3%)	43 (33.9%)	15.23	<0.01
Excluding AAER Pairs	111	57 (51.4%)	39 (35.1%)	5.95	0.01
Excluding Bankrupt Pairs and AAER Pairs	97	49 (50.5%)	35 (36.1%)	4.12	0.04

Panel B: Logistic Regression—Dependent Variable is Management Turnover (0,1)

<u>Variable</u>	<u>Coeff</u>	<u>p-value</u>	<u>Coeff</u>	<u>p-value</u>	<u>Coeff</u>	<u>p-value</u>
Intercept	-0.08	0.73	-0.26	0.37	0.50	0.28
RESTATE	0.73	<0.01	0.66	0.04	0.76	0.03
CHM/CEO	-0.79	<0.01	-0.74	0.02	-0.84	0.02
STKPERF1	-0.57	0.02	-0.63	0.02	-0.47	0.12
STKPERF2	-0.53	<0.01	-0.41	0.09	-0.42	0.11
ROA	—	—	-1.60	<0.01	-1.25	0.02
BLKOWN	—	—	—	—	-0.02	0.09
INSOWN	—	—	—	—	-0.02	0.03
Pseudo R ²	0.096		0.126		0.132	
# of Observations	268		202		170	

**Panel C: Logistic Regression—Dependent Variable is Management Turnover (0,1) for CEO
Turnover Only**

Intercept	2.35	0.08	2.07	0.14	3.76	0.04
RESTATE	1.03	<0.01	0.97	0.02	1.20	0.02
CHM/CEO	-0.88	0.02	-0.91	0.04	-1.26	0.03
STKPERF1	-0.82	0.02	-0.68	0.09	-0.45	0.33
STKPERF2	-0.71	0.02	-0.96	0.02	-0.70	0.13
CEOAGE	-0.05	0.07	-0.05	0.05	-0.08	0.03
FIRMSIZE	-0.19	0.40	-0.09	0.50	-0.20	0.11
CEOAGE*FIRMSIZE	<0.01	0.40	<0.01	0.51	<0.01	0.09
TENURE	-0.38	0.12	-0.07	0.83	0.09	0.82
ROA	—	—	-1.35	0.03	-1.36	0.04
BLKOWN	—	—	—	—	-0.02	0.12
INSOWN	—	—	—	—	-0.02	0.12
Pseudo R ²	0.201		0.219		0.229	
# of Observations	188		146		122	

(continued on next page)

TABLE 3 (Continued)

Panel A reports management turnover for the sample and control firms over the period of 24 months following the restatement announcement. Management turnover is defined as the change in any individual holding the title of Chairman, CEO, and/or President within 24 months of the restatement. The control firms are selected based on age, size, and industry.

Panels B and C variable definitions are as follows:

RESTATE = 1 if the firm is a restatement firm, and 0 if the firm is a control firm;

CHM/CEO = 1 if the same person held the title of both Chairman and CEO, and 0 otherwise;

STKPERF1 (STKPERF2) = raw buy-and-hold returns over months -12 to -1 ($+1$ to $+12$) relative to the restatement announcement;

CEOAGE = age of CEO at time of the restatement;

FIRMSIZE = market value of equity one month prior to restatement;

TENURE = 0, 1, or 2 if the number of years as officer prior to turnover is in the bottom quartile, between the bottom and top quartile, or in the top quartile of the distribution, respectively;

ROA = Return on Assets, as defined in Table 2 and is for the fiscal year prior to the restatement announcement;

BLKOWN = the 5 percent and greater blockholder percentage prior to the restatement announcement; and

INSOWN = the insider ownership percentage prior to the restatement announcement.

We require the sample firm and the control firm to have data for each variable, such that only complete pairs are included in the analysis.

title of either Chairman, CEO, or President left the company within 24 months of the announcement of the restatement. Over the same time period the corresponding turnover for the control firms is 51 (34.9 percent). This difference in turnover between sample and control firms is statistically significant (p -value < 0.01). Thus, managers of restating firms are significantly more likely to lose their jobs than their counterparts at control firms that did not restate their earnings. In the 87 restatement firms that experienced a turnover, 112 individuals were displaced (an average of 1.29 individuals per firm for those firms experiencing turnover). The corresponding number of individuals displaced at the 51 control firms experiencing turnover is 63 (an average of 1.24 per turnover firm).

Sensitivity of Findings to Bankruptcies and AAERs

In this section we investigate the sensitivity of our results to removing the firms that filed for bankruptcy or that were the subject of Accounting and Auditing Enforcement Releases (AAERs). Prior studies have shown significantly higher management turnover for bankrupt firms as compared to firms that are not facing bankruptcy (Beneish 1999; Gilson and Vetsuypens 1993; Gilson 1989). In our study, there is a greater frequency of bankruptcy filings for sample firms as compared to the control firms (15 out of 146 sample firms filed for bankruptcy within 24 months of the announcement of the restatement, whereas only 4 control firms filed for bankruptcy). To abstract away from the bankruptcy effect, we replicate the turnover analysis in Panel A of Table 3 after removing the 19 pairs where either the sample or control firm filed for bankruptcy. The results of the turnover analysis for nonbankrupt pairs, also presented in Panel A of Table 3, are similar to the full sample results. Specifically, the number of nonbankrupt sample firms experiencing turnover is 74 out of 127 (58.3 percent), while the corresponding number for control firms is only 43 out of 127 (33.9 percent). The difference between sample and control firm turnover is again significant at the 1 percent level.

We also investigate the frequency with which sample and control firms were the subjects of AAERs during our sample period, as executives are often barred from serving as officers of public companies as the result of an enforcement release. We gather data on

AAERs from the list of Litigation Releases and Administrative Proceedings at the SEC's website (<http://www.sec.gov>) and find that 34 sample firms and one control firm were the subjects of enforcement actions between 1997 and 2002.⁸ Panel A of Table 3 shows that even after these 35 pairs are removed from the analysis, the rate of management turnover among sample firms is still significantly higher (p-value = 0.01) than that of control firms.⁹ Furthermore, when we remove the union of all bankrupt firm and AAER firm pairs, a significant difference (p-value = 0.04) remains between the turnover rates of sample and control firms.

Logistic Regression Analysis

The univariate comparisons presented in Panel A of Table 3 show that the rate of management turnover at the sample firms is significantly higher than the rate of turnover at control firms. However, given that various other factors also affect the likelihood of management turnover, we now relate the restatement to the likelihood of turnover in a multivariate regression framework. We also present, in a later section, the results of a differences-in-differences design where we include turnover for sample and control firms prior to the restatement announcements to ensure that unspecified firm-specific differences are not driving the results.

Prior literature has shown that poor performance increases the likelihood of managerial turnover (Warner et al. 1988; and many others). We use the firm's stock return prior to the announcement of the restatement (month -12 to -1) as our measure of prior performance (*STKPERF1*). We also use the firm's *ROA* in the year preceding the announcement of the restatement as an additional measure of prior performance, as Engel et al. (2003) find that both market-based and accounting-based measures of performance are important in explaining CEO turnover.¹⁰ Also, because we examine management turnover in the two years following the announcement of the restatement, it is possible that post-restatement performance may influence turnover as well. Thus, we control for post-restatement performance (*STKPERF2*) using a firm's stock return over the 12 months following the announcement of the restatement (month +1 to +12).

In addition to the performance-based controls, we also control for managerial entrenchment using two proxies. Our first proxy for entrenchment defines cases where the same person holds the titles of CEO and Chairman (*CHM/CEO* = 1). Prior research (Beasley 1996; Dechow et al. 1996; among others) has used this variable as a measure of the CEO's

⁸ The relatively low frequency of AAERs for our sample firms suggests that the SEC is indeed unable or unwilling to go after every violator, as suggested by Feroz et al. (1991). Moreover, there is a significant time lag between the announcement of the restatement and the issuance of an AAER. In our sample, we find that the mean (median) lag between the restatement announcement and the issuance of the first AAER is 35 (33) months.

⁹ Out of the 34 sample firms that were the subject of an AAER, 30 of these have turnover in at least one of the top three positions (i.e., coded as a turnover firm in this study). Thus, 30 of the 87 (34 percent) restatement firms experiencing turnover were the subject of an AAER, yet we still find a significant difference in turnover after removing these observations.

¹⁰ We also estimate the logistic regression model including leverage (the debt-to-assets ratio in Table 2), given that there is a marginally significant difference for this variable between sample and control firms. Leverage is not significant in the model and the other results in Table 3 remained unchanged. Similarly, when we replace *ROA* with the one-year change in *ROA*, the coefficient for change in *ROA* is insignificant but the other coefficients remain statistically significant.

influence on the board.¹¹ The second proxy is the level of insider ownership (*INSOWN*). Finally, firms with higher levels of block-ownership are likely to be better monitored (Shleifer and Vishny 1986), so we include the level of 5 percent block ownership (*BLKOWN*) as a control variable in the regression analysis.¹²

We estimate a logistic regression model where the dependent variable equals 1 if the firm experienced turnover in at least one of the top three positions within 24 months of the restatement announcement. The results of our initial model are reported in Panel B of Table 3. We first discuss the results without including *ROA* and the ownership control variables because we lose a number of observations in these models due to missing accounting and ownership data. The pseudo- R^2 of the first model is 9.6 percent and the percent concordant observations is 70.4 percent. A naïve model could predict 46 percent as a total of 124 out of the 268 firms had a turnover, so the model has strong predictive ability. Consistent with prior research, the results show that both pre and post stock market performance, namely *STKPERF1* and *STKPERF2*, are negatively and significantly related to the likelihood of turnover. The coefficient on the *CHM/CEO* variable is negative and significant as well (-0.79 , p -value < 0.01), suggesting that the unitary structure reduces the likelihood of managerial turnover. This result is consistent with arguments in Jensen (1993) that corporate boards will be less likely to remove an individual quickly if the same individual holds the titles of CEO and Chairman. The coefficient on the restatement variable is positive (0.73) and significant (p value < 0.01), suggesting that even after controlling for performance and managerial entrenchment, restatements are positively and significantly related to managerial turnover.

When we add *ROA* to the model, we find that it is also significantly and negatively related to the likelihood of turnover.¹³ At the mean values for the prior return, post return, *ROA*, and *CHM/CEO* variables, the probability of a turnover increases from 33 percent for a non-restating firm to 49 percent for a restating firm. The regression results are robust to including the block-ownership and insider ownership control variables, as can be seen in the rightmost two columns of Panel A of Table 3. The coefficient on *RESTATE* remains positive and significant. As expected, the coefficient on the inside ownership is negative and significant suggesting that, *ceteris paribus*, an insider with higher ownership is more difficult to remove. However, the coefficient on block-ownership, somewhat surprisingly is negative, though not significant.¹⁴ In total, our findings suggest that an earnings restatement

¹¹ An alternative interpretation of the ramifications of the same individual holding both titles is advanced by Brickley et al. (1997). They suggest that the unitary structure of having the same person holding both titles also has several benefits and is not necessarily indicative of entrenchment or high levels of agency costs. They argue that the optimal structure for the firm depends on the economic circumstances facing the firm. The sample and control firms in this study likely face a similar economic environment, given that control firms are selected based on industry, size and age.

¹² We do not include a variable for CEO age or an indicator variable for CEOs over the age 64 as in Engel et al. (2003) and Murphy and Zimmerman (1993) for two reasons. First, our dependent variable is at the firm level rather than the individual executive level. Second, to be conservative, we have coded the cases where the CEO was over age 64 and left the company within 24 months of the restatement as no turnover cases.

¹³ The percent concordant observations for this model is 73.3 percent. To assess the classification rates at various cut-off points, we begin with the cut-off probability value that minimizes the sum of a type I and a type II error. At this probability value of 0.39, the percentage of turnovers correctly classified is 76.77 percent, while the percentage of nonturnovers correctly classified is 62.93 percent. The naïve model would predict 57.4 percent of nonturnovers correctly. Thus, the model has acceptable discrimination ability.

¹⁴ Following Weisbach (1988), we also interacted block-ownership with performance variables to test if the sensitivity of performance to turnover is increasing in the level of block-ownership. None of the coefficients on the interaction variables are significant.

is a strong predictor of top management turnover, even after controlling for several factors that are known determinants of changes in management.¹⁵

An Analysis of CEO Turnover

In Panel C of Table 3, we report results for models where only firms having cases of CEO turnover are classified as turnover firms. We do this for two reasons. First, focusing on just the CEO allows us to introduce the age and the tenure of the CEO as control variables in the turnover regression. Prior research suggests that CEO age is an important determinant of CEO turnover and that its importance increases with firm size (Murphy 1999). Also, a CEO with longer tenure is likely to be more difficult to replace. Second, Agrawal et al. (1999) analyze CEO turnover separately and do not find that the revelation of corporate fraud increases the likelihood of CEO turnover. Thus, a separate analysis of CEO turnover permits a comparison of our results with theirs.

We find that 51 percent of the restatement firms replaced their CEO within two years of the restatement, compared to only 23 percent of the control firms. This univariate difference is significant at the 1 percent level. Focusing on the regression results presented in Panel C of Table 3, we find that an earnings restatement significantly increases the likelihood of CEO turnover after controlling for other determinants of CEO turnover. Not surprisingly, we also find that performance is negatively related to the likelihood of turnover. CEO age is negatively related to the likelihood of turnover, consistent with findings in Murphy (1999). Murphy (1999) also finds that the importance of age in explaining turnover increases with firm size, so we also include an interaction between CEO age and firm size, although the coefficient is not significant. We include CEO tenure in the regressions as a control variable, but the coefficient, though negative, is not significant in the presence of CEO age. The relationships between the other control variables and turnover are similar to those that are reported for the full sample. Thus, overall, the results from our CEO-turnover-only analysis are very similar to the results comprising the turnover of all three top executives.

Management Turnover Using an Alternative Approach

To the extent that there are some idiosyncratic differences in restatement firms and control firms that are not controlled for in the multivariate analysis, the results may be driven by these omitted and unobserved firm-specific differences. An alternative approach that mitigates this concern is a difference-in-differences approach, where we examine the turnover rate of the sample firms and the control firms in the pre-restatement period as well as the post-restatement period. Specifically, we compute the turnover rate for all firms in the 24 months prior to the restatement date and then compare the pre-restatement turnover rate to the turnover rate over the 24 months following the restatement. With this approach, we are effectively using a firm as its own control in addition to controlling for other known factors.

Table 4 shows that in the 24 months prior to the announcement of the restatement, 31 sample firms (21 percent) experienced a turnover. Over the same period, 30 control firms (21 percent) experienced a turnover. The difference is not significant (p -value = 0.89), suggesting that prior to the restatement, both the sample and control firms had similar turnover rates. In the 24-month post-restatement period, the turnover rate for control firms

¹⁵ As a sensitivity test, we repeated all analyses after removing the 19 pairs of firms that filed for bankruptcy within 24 months of the restatement announcement (15 sample firms and 4 control firms filed for bankruptcy). We also removed all firms that were the subject of AAERs between 1997 and 2002. The results from the alternative models are similar and, hence, the inference from these models remains the same.

TABLE 4
Management Turnover Analysis: Pre- versus Post-Period

Panel A: Management Turnover for Sample and Control Firms

<u>Partition</u>	<u>n</u>	<u>Sample Firms with Turnover</u>	<u>Control Firms with Turnover</u>	<u>χ^2 Statistic</u>	<u>p-value</u>
Pre-Restatement Period	146	31 (21%)	30 (21%)	0.02	0.89
Post-Restatement Period	146	87 (60%)	51 (35%)	17.81	<0.01

Panel B: Logistic Regression—Dependent Variable is Management Turnover (0,1)

<u>Variable</u>	<u>Coeff</u>	<u>p-value</u>	<u>Coeff</u>	<u>p-value</u>	<u>Coeff</u>	<u>p-value</u>
Intercept	-0.90	<0.01	-0.41	0.23	-0.03	0.94
RESTATE	0.01	0.96	0.08	0.85	-0.29	0.54
RESTATE*AFTER	1.75	<0.01	1.03	<0.01	0.93	0.03
CONTROL*AFTER	0.73	<0.01	0.27	0.47	0.06	0.88
CHM/CEO	-0.78	<0.01	-0.87	<0.01	-0.99	<0.01
STKPERF1	—	—	0.04	0.71	-0.37	0.07
STKPERF2	—	—	-0.47	0.01	-0.45	0.03
ROA	—	—	-1.48	<0.01	-1.90	<0.01
BLKOWN	—	—	—	—	<0.01	0.56
INSOWN	—	—	—	—	<-0.01	0.75
Pseudo-R ²	0.108		0.135		0.146	
Number of Observations	584		374		324	

Panel A reports management turnover for the sample and control firms over the period of 24 months prior to the announcement of a restatement in the pre-restatement period and 24 months following the announcement of a restatement in the post-restatement period. Management turnover is defined as the change in any individual holding the title of Chairman, CEO, and/or President. The control firms are selected based on industry, age, and size.

Panel B variable definitions are as follows:

RESTATE = as defined previously;

AFTER = 1 for post-restatement periods, and 0 for pre-restatement periods;

CONTROL = 1 if the firm is a control firm, and 0 if the firm is a restatement firm;

CHM/CEO = as defined previously and is measured in year -3 for the pre-restatement period and immediately prior to the restatement for the post-restatement period;

STKPERF1 (*STKPERF2*) = the raw buy-and-hold return from month -36 to -25 (-24 to -13) for the pre-restatement period and from month -12 to -1 (+1 to +12) for the post-restatement period;

ROA = equal to *ROA* in year -3 for the pre-restatement period and in year -1 for the post-restatement period; and

BLKOWN (*INSOWN*) = 5 percent and greater blockholder ownership (inside ownership) in year -3 for the pre-restatement period and in the year prior to the restatement for the post-restatement period.

jumps to 35 percent; however, the turnover rate for the sample firms almost triples to 60 percent. The increases in turnover rates in the post-restatement period for both the sample firms and control firms are significant. However, the increase in the turnover rate for the sample firms is significantly greater than the increase in the turnover rate for the control firms (p-value < 0.01).

In addition to the univariate analysis we also incorporate the difference-in-differences approach in a multivariate analysis. In this analysis we use two interaction terms—

*RESTATE*AFTER* and *CONTROL*AFTER*—where *AFTER* = 1 in the post-restatement period and 0 in the pre-restatement period. We first report results excluding accounting and market performance variables as we lose observations by requiring these variables to be present in both the pre and post periods. Results for this reduced model, reported in the first two columns of Panel B of Table 4, show that the coefficients on both *RESTATE*AFTER* (1.75, p-value < 0.01) and *CONTROL*AFTER* (0.73, p-value = 0.02) are positive and statistically significant, indicating an increase in the rate of turnover for both sample and control firms following the restatement. However, the coefficient for *RESTATE*AFTER* is significantly larger (p-value < 0.01) than the coefficient for *CONTROL*AFTER*, indicating that the incidence of management turnover in the post-restatement period is higher among restatement firms than it is among control firms. The unitary structure of the same individual occupying the positions of Chairman and CEO continues to be negative and significant in this alternative specification as well.

In the second model reported in Panel B of Table 4, we control for the impact of firm performance on both pre- and post-restatement turnover using the accounting as well as the stock market measures of firm performance. Specifically, *STKPERF1* (*STKPERF2*) is measured over months -36 to -25 (-24 to -13) for the pre-restatement turnovers and over months -12 to -1 ($+1$ to $+12$) for the post-restatement turnovers. Performance measures over two years are included to control for performance during our turnover measurement window to mitigate concerns that the turnover could be due to poor performance during the turnover measurement window rather than the restatement event. We also use *ROA* of the firm to control for the effect of accounting performance on turnover. For the pre-restatement turnovers, *ROA* is measured at the end of the fiscal year ending immediately prior to month -24 relative to the restatement announcement (year -3). For the post-restatement turnovers, *ROA* is measured at the end of the fiscal year immediately prior to the announcement of the restatement (year -1). We do not include *ROA* over year -2 or year $+1$ as the correlation between the *ROA* measured over two consecutive years is very high.¹⁶

Similar to the results presented earlier in Table 3, results reported in Panel B of Table 4 show that firm performance (accounting and stock market) does significantly influence management turnover. Specifically, turnover is less likely for firms having higher levels of profitability and superior stock market performance. With respect to the influence of restatements on turnover in the presence of performance controls, *RESTATE*AFTER* is positive (1.03) and statistically significant (p-value < 0.01) indicating increased turnover in the post-restatement period. For a restatement firm, the probability of a turnover increases from 30 percent in the pre-restatement period to 55 percent in the post-restatement period (at the mean values for the prior return, post return, *ROA*, and *CHM/CEO* variables). On the other hand, *CONTROL*AFTER* is not significantly different from zero (0.27, p-value = 0.47) once we control for performance. The probability of a turnover for a control firm in the post-restatement period, again at the mean values for the prior return, post return, *ROA*, and *CHM/CEO* variable, is 28 percent as compared to the 55 percent for a restatement firm. Panel B of Table 4 shows that similar findings obtain when we include controls for ownership structure as well. Thus, even though turnover did increase for the control firms in the post-restatement period, this increase can be attributed to poor performance. Poor performance does not, however, fully explain the increased turnover for restatement firms.

¹⁶ Our results and inferences do not change if we include *ROA* over two consecutive years in the pre- and the post-period.

Further Disentangling the Impact of Performance and Restatement on Turnover

The univariate comparisons in Table 2 indicate that restatement firms have performed poorly prior to the restatement, as compared to the control firms, on average. This raises a concern that it is poor performance and not the restatement, per se, that may be driving the increased turnover following the restatement announcement. In the regressions presented in Tables 3 and 4, we have controlled for both stock market and accounting measures of firm performance preceding and during our turnover measurement windows in the pre and post periods. Also, because the window over which we measure turnover is relatively short (two years), the likelihood that performance is driving our results is reduced. This differs from Agrawal et al. (1999) and Beneish (1999) who measure turnover over longer periods—three years and four years, respectively—which increases the likelihood that post-event performance may be influencing the rate of turnover.

To further establish that the impact of a restatement on management turnover is incremental to the impact of firm performance on turnover, we partition our sample of restatement firms by the party prompting the restatement. By partitioning the sample, we can compare within the restatement firms where we might expect turnover rates to vary, but we do not, *ex ante*, expect performance to vary. If the company voluntarily acknowledges its error and prompts a restatement, then it is also probably more likely to take action against top management. In a related vein, restatements that are prompted by firms' auditors are likely to be more severe (as is evidenced by the fact that auditor-prompted restatements are associated with the most negative announcement-period returns).¹⁷ In both situations—i.e., company- and auditor-prompted restatements—we expect turnover to be higher than in all other cases, but we do not have any reason to expect that accounting or stock market performance would vary.

The results reported in Panel A of Table 5 show that 68 percent of company- and auditor-prompted restatements result in a turnover. On the other hand, only 48 percent of the restatements prompted by the SEC or other parties result in a turnover. The difference between the turnover rates for company- and auditor-prompted restatements relative to restatements prompted by other parties is statistically significant (p-value = 0.02). On the other hand, the stock market and accounting measures of firm performance (either in the year before or the year after the restatement) are not significantly different across the company- and auditor-prompted restatements relative to other restatements. For example, mean *ROA* for company- and auditor-prompted restatement firms is -6.3 percent in the fiscal year prior to the restatement. The corresponding *ROA* for other restatement firms is -3.6 percent (p-value for the difference = 0.65). Similarly, there is no significant difference in the stock market performance of the company- and auditor-prompted restatement firms relative to the rest of the sample, either in the year before or the year after the restatement. Taken together, these findings suggest that the impact of a restatement on management turnover is incremental to the impact of firm performance on turnover.

In Panel B of Table 5, we show that our results hold even if we re-estimate the multivariate turnover model similar to that presented in Panel B of Table 4 that includes the performance and governance controls. Specifically, we estimate a multivariate turnover model using the specification reported in Panel B of Table 4 with the addition of a binary

¹⁷ We also examine the magnitude of the restatements and find that the total amount (i.e., the sum of annual and quarterly adjustments) is largest for company- and auditor-prompted restatements. The median company-prompted restatement is 22 cents per share and the median auditor-prompted restatement is 20 cents per share. The median per-share amount for all other prompters is 17 cents.

TABLE 5
Auditor- and Company-Prompted Restatement Analysis

Panel A: Performance and Turnover by Prompter

Measure	Auditor- and Company-Prompted Restatements	All Other Restatements	Test Statistic	p-value
ROA	-0.063	-0.036	0.45	0.65
3-day Return	-0.124	-0.087	1.04	0.30
Management Turnover	57 of 84 (68%)	30 of 62 (48%)	5.62	0.02

Panel B: Logistic Regression—Dependent Variable is Management Turnover (0,1)

Variable	Coeff	p-value	Coeff	p-value
Intercept	-0.90	<0.01	-0.02	0.97
<i>RESTATE</i>	-0.43	0.21	-0.69	0.19
<i>RESTATE*AFTER</i>	1.80	<0.01	0.94	0.03
<i>CONTROL*AFTER</i>	0.73	<0.01	0.07	0.86
<i>CHM/CEO</i>	-0.78	<0.01	-0.99	<0.01
<i>AUDCOMPPROMPTER</i>	0.71	<0.01	0.78	0.04
<i>STKPERF1</i>	—	—	-0.35	0.08
<i>STKPERF2</i>	—	—	-0.40	0.05
<i>ROA</i>	—	—	-1.95	<0.01
<i>BLKOWN</i>	—	—	<0.01	0.57
<i>INSOWN</i>	—	—	<-0.01	0.62
Pseudo-R ²	0.117		0.156	
Number of Observations	584		324	

Panel A reports performance and management turnover for the sample firms, partitioned by the party prompting the restatement. Management turnover in Panel A is measured over the 24 months following the announcement of the restatement. Management turnover is defined as the change in any individual holding the title of Chairman, CEO, and/or President. ROA is measured as of the year preceding the restatement announcement and 3-Day Return is the three-day share price response to the restatement announcement.

Management turnover in Panel B is measured over the period of 24 months prior to the announcement of a restatement in the pre-restatement period and 24 months following the announcement of a restatement in the post-restatement period.

AUDCOMPPROMPTER = 1 for firms having restatements prompted by the company or the auditor, and 0 for all other restatements (and for control firms).

The remaining Panel B variables are the same as in Table 4.

variable (*AUDCOMPPROMPTER*) that takes the value of 1 for firms having company- or auditor-prompted restatements, and 0 for other restatement firms as well as the control firms. In this specification *AUDCOMPPROMPTER* is positive and significant (p-value = 0.04), confirming that company- and auditor-prompted restatements are associated with higher levels of turnover. However, note that *RESTATE*AFTER* retains its significance as well (p-value = 0.03), showing that management turnover in the aftermath of an earnings restatement is significantly higher even after controlling for firm performance, ownership structure, and the party prompting the restatement.

Thus, overall, our results strongly suggest that restatements significantly increase the likelihood of management turnover and that the impact of restatement is incremental to the impact of performance on turnover. Even so, it is likely that an important motivation for

firms to engage in earnings manipulation may be to mask poor performance, with those getting caught being those that could not hide the poor performance any longer. Under these circumstances, it may be difficult to fully disentangle the two effects. We acknowledge this limitation of our study.

Subsequent Employment for Displaced Managers

Our analysis of management turnover suggests that the managers of restatement firms are disciplined by the board, as evidenced by increased turnover following the restatement. However, for such discipline to be effective, it is necessary that the managerial labor market also views the departure as informative and imposes further discipline in the form of *ex post* settling up. The models of adverse selection in the labor market argue that firms will try to prevent a turnover of high-ability workers; therefore, the fact that a turnover has occurred may imply that the displaced individual may have lower ability (Greenwald 1986). This suggests that in addition to facing discipline from internal sources (resulting in turnover), managers also face discipline from external sources such as the managerial labor market (in form of *ex post* settling up). Fama (1980) argues that such an *ex post* settling up in the labor market has the potential to discipline managers and influence managerial behavior, *ex ante*.

Prior research that has examined top management turnover following bankruptcy and cash tender offers provides evidence consistent with *ex post* settling up in the labor market for top managers (Gilson 1989; Agrawal and Walkling 1994). A recent article in the *Economist* also seems to suggest that the labor market imposes significant costs on the displaced managers, as evidenced by the following excerpt:

A sacked CEO, says Tom Neff, chairman of Spencer Stuart and doyen of America's recruiters of chief executives, "may be literally unemployable." He is extremely unlikely ever to run another public company, although he may be able to "hang on to a board or two" as a non-executive, or to gain a seat on the board of a couple of unimportant companies. Hardly anyone returns from the dead. (The *Economist* 2003, 13)

In order to test whether *ex post* settling up exists for the managers of restatement firms, we tracked each of the displaced managers of the sample and control firms using various sources. In essence, we are interested in determining what career paths these managers took following their displacement. Were they able to obtain comparable jobs at public companies? Were they able to obtain any similar jobs at all (in public or private companies)? Was the future career path different for managers of sample firms relative to control firms?

We used multiple sources to track each of the 112 displaced sample firm managers and 63 displaced control firm managers. First, we performed a Google search for each individual, followed by a Factiva search of all major U.S. newspapers and periodicals. We then searched for each person in four databases that provide information on executives and directors. The four databases that we used were Hoover Online, Board Analysts, Forbes.com's Peopletracker, and Standard & Poor's Net Advantage. While there was a significant overlap in these data sources, we nonetheless attempted to verify the new employment using the various filings of the new employer.

The results of our subsequent employment analysis are presented in the Post-Period Turnover columns of Table 6, Panel A. We use three measures of subsequent employment. In the first measure (*REHIRE1*), we examine whether the displaced managers obtained subsequent employment at another public firm as either President, CEO, or Chairman. In the second measure, we expand the definition to include employment at either a private

TABLE 6
Rehire Analysis

Panel A: Subsequent Employment for Sample and Control Firm Managers

	Pre-Period Turnover		χ^2 p-value	Post-Period Turnover		χ^2 p-value
	Sample	Control		Sample	Control	
Total Managers Displaced	40	38	—	112	63	—
Comparable Employment at Public Firm (<i>REHIRE1</i>)	11 (27.5%)	12 (31.6%)	0.69	17 (14.9%)	13 (20.6%)	0.36
Hired at Public/Private Firm (<i>REHIRE2</i>)	19 (47.5%)	14 (36.7%)	0.34	32 (28.6%)	31 (49.2%)	<0.01
Hired at Public/Private Firm/ Directorships (<i>REHIRE3</i>)	22 (55.0%)	20 (52.6%)	0.83	37 (33.0%)	38 (60.3%)	<0.01
Not rehired or unable to trace the individual	18 (45%)	18 (47.4%)		75 (67%)	25 (39.7%)	

Panel B: Logistic Regression for Turnover Firms

Variable	Dep. Variable is <i>REHIRE1</i>		Dep. Variable is <i>REHIRE2</i>		Dep. Variable is <i>REHIRE3</i>	
	Coeff	p-value	Coeff	p-value	Coeff	p-value
Intercept	0.95	0.53	2.22	0.11	2.10	0.12
<i>RESTATE</i>	0.42	0.59	1.00	0.19	0.36	0.66
<i>RESTATE*AFTER</i>	-1.62	0.02	-1.73	<0.01	-2.06	<0.01
<i>CONTROL*AFTER</i>	-1.02	0.11	0.16	0.79	-0.44	0.47
<i>STKPERF1</i>	-0.37	0.21	-0.09	0.51	-0.10	0.48
<i>STKPERF2</i>	-0.03	0.91	0.39	0.10	0.47	0.05
<i>AGE</i>	-0.02	0.39	-0.04	0.11	-0.02	0.48
<i>FIRMSIZE</i>	0.16	0.24	0.23	0.22	0.20	0.15
<i>AGE*FIRMSIZE</i>	<-0.01	0.25	<-0.01	0.20	<-0.01	0.17
<i>TENURE</i>	-0.36	0.16	-0.53	0.02	-0.56	<0.01
Pseudo-R ²	0.077		0.116		0.132	
Number of Observations	190		190		190	

Panel C: Analysis of Wealth Effects for Managers Rehired in Comparable Positions at Public Firms (*REHIRE1*)

	Sample Firms	Control Firms
Median (<i>NEWSIZE/OLDSIZE</i>)	0.70 (n = 17)	1.90 (n = 13)
Median (<i>NEWSALARY/OLDSALARY</i>)	0.95 (n = 10)	0.67 (n = 6)
Percent of observations where <i>NEWSIZE</i> < <i>OLDSIZE</i>	64.71% (n = 17)	46.15% (n = 13)
Percent of observations where <i>NEWSALARY</i> < <i>OLDSALARY</i>	64.71% (n = 17)	83.33% (n = 6)

(continued on next page)

TABLE 6 (Continued)

Panel A reports management turnover for sample and control firms over the period of 24 months before and after the restatement announcement. Management turnover is defined as the change in any individual holding the title of Chairman, CEO, and/or President within 24 months of the restatement. Control firms are selected based on industry, age, and size.

Panel B variable definitions are as follows:

AGE = age of displaced manager at the time of the restatement;

FIRMSIZE = market value of equity one month prior to restatement; and

TENURE = 0, 1, or 2 if the number of years as officer prior to turnover is in the bottom quartile, between the bottom and top quartile, or in the top quartile of the distribution, respectively.

RESTATE, *CONTROL*, *STKPERF1*, and *STKPERF2* are as defined in Table 4.

Panel C compares size and salary for the new employer relative to the old employer (the restating firm or control firm). We use total assets to measure size, and we adjust both the size and salary measures for inflation. The number of observations in the salary comparisons is less due to missing salary information or zero salaries (e.g., for non-executive Chairmen).

firm or at any capacity at a public firm (*REHIRE2*). *REHIRE2* is a cumulative measure as it includes all managers who find subsequent employment at a public firm as either the president, CEO, or Chairman (*REHIRE1*) as well as those individuals who find employment at a private firm or at any capacity at a public firm. Our third measure (*REHIRE3*) includes individuals who are employed as nonemployee directors at public firms. Similar to *REHIRE2*, *REHIRE3* is also a cumulative measure.

We find that only 17 out of 112 (15 percent) managers of the sample firms were rehired at comparable positions afterward. This rehire rate is similar to the 12.5 percent rehire rate reported by Fee and Hadlock (2004) for S&P 500 executives who departed their firms around a scandal and were able to obtain a job with an executive rank at another public firm. The corresponding rate for the managers of the control firms in our sample is 21 percent (13 out of 63), but the difference relative to sample firms is not significant. When we look at a broader definition of rehire (*REHIRE2*), however, we find that an additional 15 sample firm managers were employed either at private firms or at public companies in various capacities (except the top three positions). For the control firms, the corresponding number is 18. Thus, for *REHIRE2*, we find that 32 (17 + 15) of the 112 displaced managers of the sample firms (29 percent) are able to find some form of employment at private or public firms following their departure. The corresponding number for the control firms is 31 (13 + 18) of 63 (49 percent), which is significantly different from the rate for sample firms (p-value = 0.01).

Finally, when we expand the definition of rehire further (*REHIRE3*) we find that an additional five of the displaced sample firm managers and seven control firm managers show up only as nonemployee directors of companies. Thus, the total number of sample firm managers coded as *REHIRE3* is 37 (17 + 15 + 5) and for the control firms is 38 (13 + 18 + 7), such that the *REHIRE3* rate for the sample firms is 33 percent (37 out of 112) and the corresponding rate for the control firms is 60 percent (38 out of 63). This difference is significant at the 1 percent level. It is also important to note that the Pre-Period Turnover columns of Table 6, Panel A show no significant pre-restatement differences between sample and control firms in any of the three rehire measures. Overall, then, the results from Panel A of Table 6 show (1) that the future employment prospects for the sample firm managers are significantly worse than those of the control firm managers and (2) that the sample firm managers' prospects only worsened materially after their firms disclosed accounting restatements. In addition to these reputational penalties, four of the sample firm managers are either under investigation or indicted or were sentenced to prison.

It is likely that variables such as firm performance, manager age, and tenure on the job affect a displaced manager's ability to secure comparable employment at another firm. Thus, in Panel B of Table 6 we present the association between rehiring and restatement after controlling for these and other factors. Furthermore, because it is possible that some unobserved firm-specific differences may affect the rehire rates across the sample and control firms, we use a difference-in-differences model that is identical in spirit to the model presented in Table 4. We estimate separate multivariate models for each of the three definitions of *REHIRE*.

The results of the univariate tests presented in Panel A of Table 6 are further confirmed by our multivariate analysis. Panel B of Table 6 shows that the rehire rate of sample firm managers declines significantly following the restatement after controlling for various other factors that may affect the likelihood of subsequent employment. Specifically, the results show that the coefficient on *RESTATE*AFTER* is negative and significant for each of the three definitions of *REHIRE*, indicating that a restatement adversely affects the future employment prospects of displaced sample firm managers. In addition to the restatement, tenure of the manager at his/her last job appears to negatively affect the likelihood of subsequent employment, consistent with findings in Fee and Hadlock (2004). One interpretation of the negative association between tenure and the rehire rate is that a firm's willingness to part with a manager who has substantial firm-specific capital is viewed as a negative signal by potential future employers. Another possibility is that managers who have longer tenure are presumed to have been more directly responsible for the conditions giving rise to the restatement, in which case it is more likely that they would be viewed as "damaged goods" in the labor market. Overall, the results point to a significant reputational penalty imposed by the managerial labor market on the managers of restating firms.

An Analysis of Wealth Effects for Displaced Managers

In the analysis presented above, our measure of the labor market penalty for the managers of restating firms was in terms of the reduced likelihood of subsequent employment. To further buttress our argument that a restatement results in an *ex post* settling up in the managerial labor market, we report some statistics on the quality of employment for those managers who were able to secure subsequent comparable employment in Panel C of Table 6. The results in Fee and Hadlock (2004) suggest that the quality of subsequent employment for displaced managers as measured by the relative size of the former and future employers as well as the relative salary at the former and future employers is poor, and that the quality of subsequent employment is particularly poor for involuntary departures. To provide some evidence on the quality of subsequent employment for displaced managers in our study, we undertake a similar analysis. Since we require salary data to conduct this analysis, we restrict this analysis to those managers who were rehired as either the president, CEO, or Chairman at another public firm (*REHIRE1*). However, our discussion of the quality of subsequent employment is brief as not only is our sample size much smaller than Fee and Hadlock (2004), but also the firms in our sample are rather small (Fee and Hadlock's sample consists of firms in the S&P 500 Index) which makes it very difficult to obtain detailed data on management compensation.

Following Fee and Hadlock (2004), our first proxy for the quality of subsequent employment is the ratio of firm size (total assets) of the new employer relative to that of the old employer for *REHIRE1* managers. Given that compensation is significantly related to firm size (Murphy 1999), this measure is a reasonable proxy for the quality of new employment. The statistics reported in Panel C of Table 6 show that for the 17 managers of the sample firms who were subsequently rehired at one of three top positions, the median

ratio of new employer firm size to old employer firm size is 0.70, while the corresponding ratio for the 13 control firm managers is 1.90. This suggests that for the managers of sample firms who are rehired, the relative quality of the new employment appears to be poor.

Our second proxy for the quality of subsequent employment is the ratio of the salary at the new employer to the salary at the previous employer. Given that salary data are not available for all managers, the sample size for this analysis is smaller. For the sample firms, the salary ratio is computed for only 10 out of 17 managers. Two of the managers served only as Chairman and did not draw a salary at the restatement firm and five managers receive a salary of *zero* at their new employer (one of them is a non-executive Chairman). Similarly, we exclude three control firm managers for whom we were unable to find compensation data in their new jobs and three more are excluded as they served as non-executive Chairman in their previous job. The median value of this ratio for the 10 sample managers with available data is 0.95, compared to 0.67 for the seven control firm managers. Although the ratio is higher for sample firm managers, the fact that five of the rehired managers receive a salary of zero is indicative of the quality of the new employment. Moreover, we find that the median total cash compensation for the sample firm managers drops from \$187,341 in their previous job to \$141,346 (not adjusted for inflation) in their new job. For the control firm managers, their median total cash compensation increases from \$234,557 in their previous job to \$588,394 in their new job. The results of this analysis also suggest that the quality of the new employment for sample firm managers is poor, both relative to their previous jobs and relative to the quality of new jobs for the control firm managers.

Overall, the results of the above analysis, though noisy, suggest that the restatement firm managers who do manage to find new jobs tend to experience deterioration in job quality. Furthermore, our analysis likely understates the true extent of the quality loss, given that we are unable to gather data for managers who are rehired at lower-ranking positions in public firms or at smaller private firms. These results in general provide corroborative evidence of *ex post* settling up or reputational penalties in the labor market for displaced managers.

Post-Restatement Changes in Governance

The results in the previous sections show that, on average, boards of restating firms act in a decisive manner following the revelation of earnings restatement by removing the top managers at a majority of the firms. However, it is likely that in addition to removing top management, the board and the company also take other actions to improve the governance of the company and thereby try to restore the confidence of investors and other stakeholders. A recent paper by Farber (2005) examines changes in various governance mechanisms following the issuance of AAERs by the SEC for firms that violated SEC's Rule 10b-5 over the period 1982–2000. He documents significant changes in various measures of corporate governance following the issuance of AAERs, such as an increase in the proportion of outside directors, reduced incidence of the same individual holding titles of Chairman and CEO, increased number of audit committee meetings, etc.

In this section we briefly examine whether the restating firms instituted changes in their governance structures following their restatements. We examine changes in four key variables: the incidence of the same individual holding the title of Chairman and CEO, the proportion of outside directors, ownership of officers and directors, and ownership of 5 percent and greater blockholders. Recall that prior to the restatement, as shown in Table 2, the governance structures of the sample and control firms had only one important difference—the proportion of outside directors was significantly lower for restatement firms.

Table 7 reports changes in the governance variables following the restatement using the third proxy statement (or second, if the third is not available) issued after the restatement. The proportion of outside directors at the sample firms increases from 61 percent to 69 percent following the restatement, and increases from 71 percent to 76 percent among the control firms. Both of these changes are statistically significant. Thus, although, the proportion of outside directors does increase at the sample firms, it remains lower than the corresponding proportion for control firms. The results also show a significant increase in 5 percent blockholders among both sample and control firms in the post-restatement period. The mean ownership of 5 percent blockholders at the sample firms increases from 18 percent to 22 percent, while the corresponding increase at the control firms is from 22 percent to 25 percent.

Overall, the results show that the sample firms experience an increase in two important governance variables following the restatement: the proportion of outside directors and the ownership of 5 percent and greater blockholders. These results are consistent with sample companies trying to improve their governance structures after their restatements. As such, the findings are similar in spirit to the changes in governance structure documented in Farber (2005) for a sample of firms that were targeted by the SEC. However, these findings should be interpreted with caution as there is significant attrition in the sample firms that may bias the results upward.

V. CONCLUSION

In this paper, we examine management turnover following earnings restatements. Our study is motivated by the lack of evidence in prior literature about adverse consequences to the managers of firms that have restated earnings (GAAP violations) or committed other types of corporate fraud. This has prompted various observers to conclude that internal control mechanisms at U.S. firms are incapable of disciplining managers. Concerns have also been expressed regarding the SEC's ability to investigate all of the alleged violators due to resource limitations. Given the above, our study is important because a high managerial turnover rate coupled with a low rehire rate can potentially influence managerial actions and incentives, *ex ante*.

In contrast to prior research, our examination of management turnover following earnings restatements reveals significant penalties for managers of firms that have restated their earnings. Roughly 60 percent of the firms experience a turnover in at least one of three top positions (Chairman, CEO, or President) within 24 months of the announcement of the restatement. The corresponding proportion at the control firms is approximately 35 percent. This increased turnover obtains even after controlling for firm performance and other determinants of management turnover. Moreover, the displaced managers face further discipline from the external labor market as the rehire rate for restatement firm managers is approximately half that of control firm managers. In addition, the quality of the new employment of the sample firm managers appears to be quite poor relative to their previous jobs, as well as relative to the quality of new employment obtained by the control firm managers.

We find our results comforting in that, contrary to popular perceptions, the managers of firms committing GAAP violations do not seem to be getting away with earnings manipulation (with the caveat that our analysis is limited to those cases where the manipulation is revealed). To the contrary, managers of restating firms incur significant losses in power, prestige, reputation, and, presumably, financial wealth for violating or aggressively interpreting GAAP. At a time when investor confidence is at its lowest level in years due to

TABLE 7
Governance Analysis for Restatement and Control Firm Pairs

Variable	Restatement Firms			Control Firms		p-value Restatement vs. Control Difference
	n	Mean	Within Sample p-value	Mean	Within Sample p-value	
% Insider Ownership before	113	26.6	—	24.5	—	0.50
% Insider Ownership after	88	21.6	—	20.8	—	0.80
Chg in Insider Ownership	81	-3.9	0.12	-4.9	<0.01	0.70
5% and Greater Block-holdings before	112	18.0	—	22.1	—	0.12
5% and Greater Block-holdings after	90	22.0	—	25.3	—	0.31
Chg in 5% and Greater Block-holdings	83	4.5	0.05	4.8	0.02	0.92
% Outsiders on the Board before	112	60.7	—	71.1	—	<0.01
% Outsiders on the Board after	89	69.1	—	76.1	—	<0.01
Chg in % Outsiders on the Board	83	8.0	<0.01	4.7	<0.01	0.17
% Chm/CEO before	140	60.7	—	62.1	—	0.81
% Chm/CEO after	79	62.0	—	70.9	—	0.24

As in Table 2, ownership and board structure data are taken from proxy statements. The variables are as defined in Table 2. The data before the restatement are from proxy statements issued prior to the restatement and data for the post restatement period are from the third (or second if the third is not available) proxy issued after the restatement. We require both the sample firm and the control firm to have data for each line item, such that only complete pairs are included in the analysis.

accounting irregularities and the SEC's inability to pursue every violator, our findings are encouraging. Specifically, they suggest that private penalties may serve as partial substitutes for public enforcement of GAAP violations, thereby potentially reducing the costs of enforcement.

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