Benchmarking Against the Performance of High Profile "Scandal" Firms*

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Abstract:

In recent years, several high profile firms engaged in accounting fraud that resulted in severe investor losses and erosion of trust in the capital markets. We examine high profile accounting "scandals" prosecuted by the Securities and Exchange Commission. Unlike most prior literature, we focus on the negative consequences that these "scandal firms" caused on competing firms. We find preliminary evidence that the compensation earned by executives in competing firms decreased as scandal firms appeared to perform better via inflated results. We also find that competing firms managed earnings more when their performance was lagging behind the performance of the "scandal firm".

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1. Introduction

A number of highly publicized accounting scandals have disconcerted investors in recent years as prominent firms disclosed major accounting violations and investors in seemingly successful firms lost billions of dollars. In this study, we document the economic consequences of aggressive financial reporting on the industry peers of "*scandal firms*" such as Enron and Worldcom (perceived leaders in their respective industries that were later found to have violated GAAP in their financial statements).[†] In particular, we examine whether scandal firms' inflated performance affected executive compensation in peer firms through relative performance evaluation (RPE hereafter) or performance benchmarking, and whether such use led to earnings management by competitors attempting to match the industry leaders' performance.

These scandals have had various negative economic consequences. Prior research provides evidence that firms revealing accounting irregularities experience a significant negative stock reaction upon announcement of accounting restatements (Palmrose, Richardson, and Scholz, 2004). Such a decline in value may occur due to several reasons: (1) the revelation of negative news that had been previously masked by the fraudulent reports, (2) the increased likelihood of losses from lawsuits, (3) a loss of confidence in the management team, or (4) a general increase in the uncertainty regarding the firm's future cash flows (Gonen 2003, Jones and Weingram 2004, Desai, Hogan, and Wilkins 2006). These reasons all relate to the firm that engaged in the fraud, its investors, and its other stakeholders.

[†] We define "leaders" as companies in the S&P 500, S&P 400 Midcap, or the S&P 600 Smallcap indices, which tend to have high coverage on the media.

However, the negative impact of accounting fraud may not be limited to the scandal firm and its stakeholders. Reducing investor confidence in the reliability of financial information jeopardizes the efficient allocation of resources within the whole economy. There is some empirical evidence of negative abnormal returns for competing firms when a peer announces a restatement (Gleason et al. 2004.) Gleason et al. (2004) suggest this result may be due to an increased likelihood of financial reporting irregularities in the competing firms. Also, Gonen (2003) shows that the contagion effect is larger whenever the fraudulent firm is dominant in its industry or the industry is highly concentrated. His empirical finding suggests that if the scandal firm provides a performance benchmark for its industry, then the likelihood that that its competitors committed fraud is also higher.

Explicit or implicit benchmarking of executive performance at peer firms relative to executives of scandal firms may provide a transmission mechanism for the fraudulent reporting to negatively affect other firms. If prior to the discovery of fraud, competitors' boards use – directly or indirectly – the performance of scandal firms as a benchmark in their executives' evaluations, the inflated performance of scandal firms is likely to result in less favorable performance evaluations for managers of competing firms. Charles Noski, AT&T's vice chairman prior to the MCI scandal, describes this situation: "We were constantly dissecting all of the public information about WorldCom/MCI and we would scratch our heads and try to figure out how they were doing it all.[‡]" At the time, AT&T was viewed as the legacy provider of telephone services. The general view on Wall Street was that their systems were antiquated. At the 2005 AAA meetings, Noski described strategy discussions with AT&T's COO offering $2-$4 billion for upgrading of systems. They concluded that AT&T had the best

[‡] WorldCom/MCI Rivals Vexed by Phantom Competitors, *Tulsa World*, July 7, 2002

telecommunications systems and did not require the additional investment[§] The senior executives at AT&T were perplexed that their firm's performance kept lagging behind the performance of Worldcom.

Benchmarking is widely recommended by consultants and others to provide desirable incentives for managers. Benchmarking appears, at least on the surface, to be a reasonably objective approach to evaluate any set of employees, including senior managers.[**] First, a set of firms and performance measures are selected.[††] Over time, the Board of Directors evaluates senior management relative to the performance of the comparison firms. When managers outperform their benchmarks, they are rewarded appropriately. The general notion is that superior performance relative to a standard is rewarded. Implicit in any benchmarking exercise is an assumption that all performance measures are reported accurately, or at a minimum with similar incentives, biases, and approaches. Our research seeks to understand the consequences of significant departures from this latter assumption.

A benchmarking exercise becomes problematic when a benchmark firm reports in a deviant fashion. Let us assume that the deviant reporting firm has positively biased reported earnings. Under these conditions, the standard for managers' performance is upward biased by the impact of the fraudulent report. A peer firm's manager whose performance is evaluated relative to the deviant firm is faced with a difficult problem.[‡‡] She must choose to either (1) continue prior reporting conventions or (2) bias reported earnings beyond previous reporting conventions. If

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[§] "Sarbanes-Oxley: A Preparers Perspective," 2005 American Accounting Association Meetings, San Francisco August 2005.

[**] Based on a study conducted by Towers Perrin, Murphy (1999) provides evidence that firms utilize benchmarking across different industries.

[††] Regulation FK requires firms to disclose their performance (measured in terms of annual stock returns) relative to the cumulative total return of a broad equity market index and of an industry index or peer group.

[‡‡] A Three-Card Monte Dealer named Canada Bill faced a similar problem on the Mississippi as our senior manager. As Bill was losing his entire bankroll at Faro, a friend approached and said, "Bill, don't you know this game is crooked?" Bill became famous for responding, "but it's the only game in town."

she decides not to change reporting conventions, her performance will be conditionally lower relative to the benchmark resulting in less reward for her performance (lower compensation). In extreme circumstances, she may face termination. Alternatively, she may adopt a more aggressive reporting strategy to partially match the bias in the standard created by the fraudulently reporting firm. In either case, the benchmarking exercise may result in unintended consequences.

We show that there were costs that scandal firms imposed on their competitors' managements. In particular, we hypothesize and find evidence suggesting that:

- the CEOs and top-five executives of competitor firms receive lower compensation as a consequence of comparing their own performance with the inflated performance of scandal firms within their industry;
- firms engage in more earnings management the further their performance lags behind the performance of the scandal firm(s) in their industry.

Our paper contributes to the literature exploring the contagion effects that scandal firms impose on their competitors and provides new insights (1) to regulators, since they should weigh all economic consequences of accounting fraud as they develop rules and impose penalties on fraudulent behavior, (2) to boards of directors and compensation committees, suggesting caution as they select firms they want to benchmark against, to evaluate their managers' performance, and (3) to managers who should guard against trying to match rather than question competitors' unreasonable or unrealistic results.

The remainder of the paper proceeds as follows. In Section 2 we develop our hypothesis, in Section 3 we describe the sample and methodology utilized, and in Section 4 we present our results. Section 5 concludes.

2. Hypothesis Development

An extensive body of literature (see Murphy 1999 and Bushman and Smith 2001 for a summary) provides evidence that executives' compensation contracts are tied to accounting earnings and stock returns. The use of performance-based compensation aligns executives' interests with those of shareholders, but also imposes undesirable risk on the executives. Agency theory suggests that one way of mitigating the undesirable risk is to use relative performance evaluation. RPE filters the risks from factors that are not under the control of an executive by comparing her performance to suitably chosen peers' performance. This filtering reduces the risk imposed on the executives due to performance-based compensation. Consistent with RPE, several studies have found that changes in CEO pay are negatively related (at least weakly) to peers' performance (Antle and Smith 1986, Gibbons and Murphy 1990, Albuquerque 2005).[§§]

We examine the use of peer performance in incentive contracts from a different perspective, by examining the effect that a fraudulently reporting competitor has on performance expectations. Benchmarking on the performance of high-profile firms in an industry provides incentives to improve management practices. Murphy (1999) provides survey evidence that compensation contracts reflect the use of targets based on the performance of above-median performers within an industry.

Given their inflated performance and resulting high visibility, scandal firms are likely to be used as benchmarks by their competitors. As described in a BusinessWeek article:

[§§] Weak results on RPE have prompted scholars to explore different motives to use (or not to use) RPE. For example, Aggarwal and Samwick (1999) claim that strategic interactions among firms can explain the lack of RPE. They argue that rewarding CEOs for rivals' performance can be used to soften product market competition. Oyer (2004) and Rajgopal, Shevlin and Zamora (2005) also show that the absence of RPE can be explained if the CEO's reservation wages from outside employment opportunities increase with the industry's overall performance.

> "When Enron Corp. reported revenue growth of 70% annually from 1997 to 2000, and operating profit growth of 35% a year, that drew other electric and gas utility companies into energy trading. The fact that Enron achieved much of its gains by moving debt off the books and using other accounting tricks was not obvious at the time. Similarly, in 1999 and 2000 Worldcom Inc. reported operating profits equal to 21.4% of sales, compared to 15.4% at Sprint and 11.8% at AT&T, its two main competitors. If Worldcom's profits were in part bogus that meant Sprint and AT&T were getting the wrong signals: They weren't doing as badly compared to Worldcom as it appeared.[***]"

If a firm is unable to recognize that the scandal firm's performance is driven by accounting irregularities, it will likely benchmark against it, leading to the following prediction:

H1: CEOs' (Top executives') compensation will be positively related to their firms' performance and negatively related to the performance of scandal firms within the industry after controlling for the performance of non-scandal peer firms.

A natural follow-up question is related to the executive's response to being evaluated relative to the performance of a scandal firm. Using scandal firm's performance as a benchmark could be misleading, since such performance may not be replicated through legitimate means. When faced with fraudulent competitors, managers may respond by managing earnings to catch up with the competition, particularly if other substantive efforts do not suffice to match the competitor's inflated performance. Therefore, we hypothesize that:

[***] Crimes Against the Information Age, *Business Week*, August 26, 2002.

H2: Discretionary accruals at firms that compete with scandal firms are positively correlated with the gap between their non-discretionary earnings and the scandal firms' earnings, during the time accounting fraud occurs.

3. Research Design

3.1 Sample

We identify 27 scandals occurring between 1995 and 2005, capturing the most recent wave of accounting scandals that peaked between the third quarter of 2001 and the second quarter of 2002 (Cohen, Dey and Lys 2005). We qualified as scandal firms those firms that (1) were allegedly accused of accounting fraud by the Securities and Exchange Commission[†††], (2) were found to have been inflating their accounting performance, and (3) were in the S&P 500, S&P 400 Midcap, or the S&P Smallcap indices (i.e., high-profile firms) (see Table 1). We constructed a database including all scandal firms' peers, defined as firms in the same two-digit SIC code industry (consistent with Gibbons and Murphy 1990). Each firm was required to have sufficient data in CRSP, COMPUSTAT and the Standard and Poor's EXECUCOMP databases, resulting in a total sample of 1,110 peer firms and 3,839 peer firm-years (see the last two columns in Table 1), in fifteen different industries.

We analyze the effect of the scandal firms' performance on executive compensation and earnings management in peer firms, during the time period of the alleged fraud (specified in the Accounting and Auditing Earnings Releases, and described in column 5, Table 1). To conduct this analysis, we define scandal firms in two alternative ways:

(1) all scandal firms identified in the two-digit SIC industry

[†††] To identify such firms, we searched for the word "fraud" in Accounting and Auditing Enforcement Releases (AAERs) issued by the Securities and Exchange Commission (as in Erickson, Hanlon, and Maydew 2006).

(2) the first scandal firm to commit fraud in the industry (see column 4, Table 1) - we chose to analyze the first scandal firm, since peer firms will most likely decrease their reliance on competitors' performance numbers after learning about the initial scandals.

3.2 Methodology and Variable Definition

3.2.1 Managerial Compensation at Competing Firms

To test our first hypothesis, we investigate to what extent the scandal firms' performance affects the compensation of executives in "peer" firms ("i"). We test this hypothesis using the following OLS regression, clustered by firm:

$$COMPENSATION_{it} = \beta_0 + \beta_1 * RET_{it} + \beta_2 * RETScandal_{it} + \beta_3 * RETPeers_{it}$$
$$+ \beta_4 * S\&P500RET_t + \beta_n * Control\ Variables + \varepsilon_{it} \qquad (1)$$

The regression includes one or more observations per each firm "i", corresponding to the fiscal years during which the "scandal firm(s)" in firm i's industry committed fraud. We use two alternative measures of compensation as dependent variables: the CEO's and the top-5 executives' total compensation (*CEOCOMP* and *EXECCOMP*, respectively). Our total compensation measures comprise salary, bonus, value of restricted stock granted, Black-Scholes value of stock options granted, long-term incentive payouts, and all other forms of annual compensation reported in Execucomp (e.g. severance payments, contributions to benefit plans). Given the fact that the compensation measures are highly skewed (see Table 2), we use the natural logarithm of total compensation in our regressions.

We measure each peer firm's performance using annual stock returns (*RET*), and evaluate the extent to which the (average) performance of the scandal firm(s) (*RETScandal*) in the same industry, affects the executives' compensation over and above the firm's own performance. Our first hypothesis predicts a negative sign for the coefficient associated to *RETScandal*.

To ensure that the effect of *RETScandal* is not just capturing economic reasons related to common "industry conditions," we control for the median performance of the industry peers (*RETPeers*), as well as for market wide returns (*S&P500RET*), measured as the S&P 500 annual returns. Agency theory (e.g. Holmstrom 1982) predicts peer performance may be utilized to remove any information related to common uncertainties faced by the industry (or the market) as a whole from firm i's performance. Thus, we would expect a negative incremental effect of *RETPeers* and *S&P500RET* on the executives' compensation. However, Oyer (2004) and Rajgopal, Shevlin and Zamora (2005) suggest the market and industry negative effects on compensation may be offset if such performance measures are associated with higher outside employment opportunities.

We also control for other potential correlated omitted variables in the compensation regressions. We include controls for the firm's size, competition, and growth opportunities; the level of noise in the RET performance measure; governance characteristics of the firm, and year dummies:

Firm's size, competition, and growth opportunities:

- *LNSIZE* – We measure size as the natural logarithm of total assets. We include this variable into the compensation regression, following prior research showing that larger firms provide higher compensation to their CEOs, presumably since larger firms require more skilled

managers and are associated with higher costs of monitoring (Rosen 1982, Eaton and Rosen 1983, Smith and Watts, 1992).

- *NUMBERPeers* – We count the number of firms in the same industry. Previous research shows that the degree of competition affects the extent to which firms use RPE (Aggarawal and Samwick 1999). We also predict that the number of firms in an industry positively relates to the outside employment opportunities for an executive, thus we predict a positive coefficient for this variable.
- *GROWTH*- We use the firm's market-to-book ratio as a measure of investment opportunities. Agency theory suggests that greater investment opportunities are associated with greater incentive pay (Smith and Watts 1992, Gaver and Gaver 1993 and Indjejikian and Nanda 2002).

Corporate governance controls:

The level of compensation and the sensitivity of compensation to the annual returns performance measures, may also be affected by the governance structure of the firm (Core, Holthausen and Larcker 1999, Bushman and Smith 2001). Lesser use of RPE may be explained by management entrenchment. Bertrand and Mullainathan (2001) find that pay is more closely associated with luck (observable positive shocks) especially in firms with poor governance. Thus we control for the following variables:

- *CEO/EXECHOLDINGS*-. We measure *CEOHOLDINGS (EXECHOLDINGS)* for our CEO (top 5 executives) compensation regression, as CEO's (top 5 executives') holdings of stock and stock options scaled by total shares outstanding. The relation of this variable to compensation is uncertain. On one hand, CEO and executives' holdings may serve as an

alternative means to align CEO's and top executives' interests with those of the shareholders, resulting in lower compensation (Core, Holthausen and Larcker 1999). On the other hand, this measure may capture a higher level of entrenchment, in which case they would relate to higher compensation (e.g. Albuquerque 2005).

- *BOARDINDEPENDENCE*- We also expect board independence to be negatively related to the executives' compensation. We measure "lack" of independence using three variables indicating the percentage of top-5 executives sitting on the board of directors (*EXECBOARD*), whether the CEO is the chairman of the board (*CEOCHAIR*), and whether the firm discloses a conflict of interest in the compensation committee (*INTERLOCK*).

Control variables affecting the pay-performance sensitivity:

- *STDRET* - The standard deviation of *RET* measures how noisy the returns number is. According to Lambert and Larcker (1987) the executive's compensation will be less sensitive returns, the higher the standard deviation of *RET*. Prendergast (2002) also finds that firms with greater uncertainty are more likely to provide incentives, since they need to rely more heavily on delegation. Thus, we expect *STDRET* will be associated with higher levels of compensation.

3.2.2. Earnings Management at Competing Firms

Our second hypothesis investigates the association between discretionary accruals and the gap between a company's non-discretionary earnings and the (average) earnings of a competing scandal firm(s), both scaled by lagged assets (*EARNINGSGAP*). We test for this relationship by running the following OLS regression, clustered by firm:

$$DISCACC_{it} = \beta_0 + \beta_1 \times EARNINGS\ GAP_{it} + \beta_2 \times RETPeers_{it} + \beta_3 \times S\&P500RET_t$$

$$+ \beta_n \times Control\ Variables + \varepsilon_{it} \qquad (2)$$

We follow four steps to calculate *DISCACC* and *EARNINGSGAP* using a modified cross-sectional Jones model (Dechow, Sloan and Sweeney 1995):

Step 1 : We estimate total accruals as:

$$TA_{it} = (\Delta WC_{it} - DEP_{it} - \Delta TP_{it},)/ A_{t-1} \qquad (3)$$

where:

ΔWC=change in working capital (change in current assets minus change in current liabilities)

DEP=depreciation

ΔTP=Change in taxes payable

A=total assets

Step 2: Using the result in step 1, we estimate the following model for each two-digit SIC code each year:

$$TA_{it}= \alpha_1*(1/A_{it-1})+ \alpha_2*([\Delta REV_{it} - \Delta REC_{it}]/A_{it-1}) + \alpha_3*(PPE_t/A_{it-1}) \qquad (4)$$

where:

ΔREV=change in revenues;

ΔREC=change in accounts receivable

PPE=property, plant and equipment;

Step 3: We calculate non-discretionary accruals (NDA) for each firm, each year, using the coefficients α_1, α_2, α_3 estimated from the model in Step 2.

Step 4: Finally, we calculate discretionary accruals (DISCACC) and the gap between the scandal firm's performance and the firm's non discretionary accruals as follows:

$DISCACC_{it}=TA_{it} - NDA_{it}$

$EARNINGSGAP_{it}$= Scandal firm's $ROA_{it} – (ROA_{it} - DISCACC_{it})$ (5)

We control for the competing firms' performance using the peers' median returns (*RETPeers*), and other control variables that explain the cross-section of discretionary accruals. Our control variables address three different drivers of discretionary accruals that relate to: (i) managerial incentives that lead to biased discretionary accruals, (ii) corporate governance attributes that counter-balance opportunistic managerial discretion, and (iii) operating environment attributes related to firm characteristics and prevailing market conditions.

Controls related to managerial incentives:

These controls include variables related to compensation incentives and debt covenants:

- Compensation Variables: Prior literature finds evidence that compensation incentives are associated to higher accruals (e.g., Healy 1985, Bergstresser and Philipon 2006)[‡‡‡]. We use two measures of compensation incentives:
  i. *BONUSPCT* captures cash incentives (Healy 1985), and is measured by dividing the top-5 executive's bonus by their total compensation, and
  ii. *INCENTIVE_RATIO*, captures equity incentives. We measure the power of equity-incentives based on Bergstresser and Philippon's (2006) metric This measure is

[‡‡‡] There is mixed evidence in prior literature examining the association between equity incentives and fraudulent earnings management. While Bergstresser and Philippon 2006 find evidence that equity incentives lead to higher use of accruals, Erickson, Hanlon and Maydew 2006 find no evidence that equity incentives relate to fraud.

based on the dollar change in value of the executives' stock and stock options that would come from a one-percent change in the stock price:[§§§]

$$ONEPCT = 0.01 \times \text{stock price} \times [\text{\# shares} + \text{\# options } \textit{held} \text{ by the top-5 executives}) \quad (6)$$

The incentive ratio captures the share of a hypothetical top-5 executives' total compensation, that would result from a one-percent change in the stock price:

$$INCENTIVE\_RATIO = ONEPCT \div (ONEPCT + SALARY + BONUS) \quad (7)$$

- Debt Covenant Variables: Positive accounting theory suggests that firms approaching covenant violations or facing higher litigation risk will use higher income-increasing accruals (Watts and Zimmerman 1986, DeFond and Jiambalvo 1994). We control for debt covenant concerns using two variables:
  i. *LEVERAGE*, is calculated as total debt divided by total assets
  ii. *LITIGATION*, is a dummy defined as in Matsumoto (2002). It is equal to 1 if the firm is in a high-risk industry and 0 otherwise (SICs 2833-2836, 3570-3577, 7370-7374, 3600-3674, 5200-5961)[****]

[§§§] The ONEPCT measure assumes a dollar increase in the share price translates to a dollar increase in the value of a stock option. This assumption is reasonable only for options that are deep in the money. A more accurate measure would adjust the sensitivity of options to a one percent change in price based on the Black-Sholes formula (as in Core and Guay 1999). Bergstresser and Philipon (2006) show that both measures, adjusted and un-adjusted, are equally effective in capturing the association between equity incentives and discretionary accruals, thus we utilize the un-adjusted ONEPCT measure.

[****] Although Matsumoto (2002) predicts a positive relation between litigation and earnings management, based on positive accounting theory, her empirical analysis concludes the opposite, an indication that litigation risk is likely to discipline opportunistic management of earnings.

Controls related to corporate governance:

The corporate governance variables that we use control for the attributes of a board that would limit opportunistic behavior by management. Specifically, we control for *BOARDINDEPENDENCE, CEOCHAIR, and INTERLOCK* defined as in the previous section.

Controls related to the operating environment:

We take into account different characteristics of the firms' operating environment that may affect the use of discretionary accruals. Prior research suggests that the firm's size (*SIZE*) and the volatility of the environment (*STDRET*) increase the use of accruals (Frankel, Johnson and Nelson 2002), as managers in such firms try to present consistent performance over time. However Matsumoto (2002) predicts and finds a negative association between the volatility of the environment and the use of accounting accruals, suggesting that the market is likely to get less surprised in such environments, resulting in less pressure to manipulate accounting numbers. We measure *SIZE* as total assets and *STDRET* as the standard deviation of annual stock price returns over the last five years. We also control for expected profitability and growth opportunities using the market-to-book ratio at the beginning of the year (*GROWTH*). Prior literature suggests stock prices are more sensitive to earnings in firms with higher growth opportunities. Therefore, such firms have higher incentives to manage earnings (Collins and Kothari 1989, Matsumoto 2002). Finally, we control for market (*S&P500RET*) and industry (*RETPeers*) performances to account for changes in economic conditions (Cohen, Dey, and Lys 2005).

4. Results

4.1 Descriptive Statistics

Table 2 provides descriptive statistics for all the variables utilized in our analysis. The median CEO (top-5 executive) in our sample receives $2.2 million ($1.3 million) in total annual compensation, though there is significant variation across firms. Since CEOs' and top-5 executives' compensation measures are highly skewed, we use the natural logarithm of compensation as the dependent variable in our regression analysis.

The majority of firms are successful in the year before accounting irregularities in their industries are publicly disclosed, with mean (median) annual returns of 23.8% (6.6%). The average firm's monthly stock return standard deviation is 0.66. Scandal firms perform better than their peers, in terms of annual stock returns but not in terms of ROA. We identified about 74 firms in each of the industries with a "scandal firm" (Table 1 specifies the number of firms identified in each industry). The mean firm in our sample has $6.8bn in assets, and market value of equity six times the size of its book value. With respect to governance characteristics, we find that less than 3% of the firms disclose a conflict of interest in their compensation committee, in 61% of the firms the CEO is also the chair of the board of directors, and the percentage of top-5 executives sitting in the board of directors is on average 36%.

Table 3 reports Pearson correlations among the variables used in our regressions. Results show that the CEO's compensation measures are positively related to the firm's own stock return performance, albeit the p-value is only 0.16. The correlations support our hypothesis that the stock returns of scandal firms are negatively related to compensation, suggesting that scandal firm performance is filtered out of the executives' compensation. To the extent that the performance of scandal firms is capturing some information related to the overall industry

performance, this result is inconclusive, thus we control for potential correlated omitted variables in our multivariate analysis. Consistent with prior studies, size, is positively related to compensation. CEO and executives' holdings of stock and stock options are negatively related to compensation, suggesting they constitute alternative means of compensating and motivating CEOs and other executives'. The positive relation between compensation and CEOCHAIR and EXECBOARD suggests that lack of board independence leads to higher CEO and executives' pay, however, contrary to expectations, our INTERLOCK measure is negatively related to compensation. It is possible that this latter measure is influenced by a few exceptional cases, given that less than 3% of our sample firms describe a conflict of interest in the compensation committee.

Multivariate Analysis

4.2.1 Managerial Compensation at Competing Firms

Table 4, Panel A provides some support to the prediction in hypothesis 1 that firms benchmark against scandal firms. Results suggest that CEOs are compensated based on their own firm's stock returns, and relative to the scandal firm's returns. In the three models presented, the coefficient on *RET* is significantly positive, while the coefficient on the scandal firm's stock returns (*RETScandal*) is negative, although not always significant. In Model 1 we define scandal firms as all the scandal firms in an industry (a total of 27 firms, listed in Table 1), while Models 2 and 3 define scandal firms only as the first scandal occurring in each industry (15 firms, identified in column four of Table 1). The relation between the scandal firms' performance (*RETScandal*) and CEO compensation in Model 1 is negative but insignificant. A potential explanation for this weak result is that once the first accounting fraud in the industry is revealed,

firms become more cautious about benchmarking against their peers. To increase the power of the test, we re-define scandal firms as only the first scandal firms in each industry. Model 2 shows that the performance of the first scandal firm in the industry (*RETScandal*) is indeed negatively related to the compensation of CEOs in competing firms. Furthermore, Model 3 shows that this association becomes even stronger if the scandal firm is a top performer in its industry: we find a significantly negative effect on CEO compensation when we interact *RETScandal* with a dummy indicating whether the scandal firm's performance was above median in its industry.

Similar to Gibbons and Murphy (1990), we find evidence of RPE with respect to market returns (*S&P500RET*) but not to industry returns (*RETPeers*). The lack of RPE with respect to the industry median may be explained by the positive relation between *RETPeers* and outside employment opportunities in the industry, which increase the reservation wage that must be paid to the CEO (Oyer 2004, Rajgopal et al. 2005.)

As expected from prior literature (e.g. Smith and Watts 1992, Core, Holthausen and Larcker 1999), size and growth are positively associated to higher pay, although growth is positively significant only in Model 2 and insignificant in all other specifications. *STDRET* is also positively related to CEO compensation, consistent with the idea that this measure captures the level of uncertainty and complexity of the business (Prendergast 2002), and the number of competitors in an industry is positively associated to CEO pay, perhaps an indication that more firms within an industry increase the outside employment opportunities for the CEO. Results on the governance variables are mixed. Although we find that compensation is higher in firms where the CEO is also the chairman of the board (in line with our predictions), we also find that compensation is lower in firms disclosing a conflict of interest in their compensation committee.

CEO stock holdings are negatively related to compensation (as in Core, Holthausen and Larcker 1999), suggesting stock and stock option holdings provide alternative mechanisms to reward performance.

Table 4, Panel B extends the analysis to explain the extent to which the top-5 executives' compensation in a firm relates to the performance of scandal firms in its industry. Results are very similar to those in Panel A. Top managers get rewarded for their own firm's performance (*RET*), but their compensation is discounted based on the performance of scandal firms in their industry. Models four through six show that this result is only significant for the first set of scandal firms, but not for the average of all scandal firms. The coefficient on the scandal firm's returns in Models 5 is significantly negative, as is the coefficient of the interaction between *RETScandal* and the variable indicating the scandal firm is an above median performer.

Results related to the control variables in Table 4, Panel B are almost the same as those in Table 4, Panel A, with two exceptions: first, Model 4 suggest the use of RPE not only based on the median returns in the market (*S&P500RET*) but also on the industry median (*RETPeers*), and second, the board's lack of independence, as measured by the percentage of top-5 executives sitting on the board of directors (*EXECBOARD*), is significantly positively related to the level of pay of these five executives.

4.2.2 Earnings Management at Competing Firms

A possible implication of firms benchmarking against the performance of scandal firms (especially the performance of the leading scandal firm in the industry), is that executives may have higher pressure to manage earnings, the larger the gap between their own firm's performance and the scandal firm's performance (as predicted in Hypothesis 2)

Table 5, Model 1 provides evidence that the gap between a company's non-discretionary earnings and the average scandal firms' earnings in its industry (*EARNINGSGAP*), is associated to the use of higher discretionary accruals, after controlling both for industry and market-wide performance. Models 2 and 3 also indicate a significantly positive association between *EARNINGSGAP* and *DISCACC* when the analysis focuses exclusively on the first scandal that occurred in the industry. However, Model 3 does not provide evidence of a stronger association between *EARNINGSGAP* and accruals if the scandal firm was an above median performer.

With respect to the control variables, as expected, size, growth and compensation incentives in the form of bonuses are positively related to the use of accruals (Healy 1985, Matsumoto 2002). In line with Matsumoto's findings, the litigation and volatility variables are negatively related to discretionary accruals. These two results suggest that (a) the risk of litigation is likely to discipline the managers' use of discretionary accruals, and (b) executives may be under less pressure to manage earnings in uncertain environments, where expectations are difficult to form. Results also provide some evidence that the lack of board independence is associated to the use of higher discretionary accruals (the percentage of executives on the board (*EXECBOARD*) is associated to higher discretionary accruals in Model 1, while the percentage of executives with conflicts of interest in the compensation committee (*INTERLOCK*) is positively associated to discretionary accruals in Models 2 and 3).

5. Conclusions

The unraveling of high profile accounting scandals over the last decade had several economic implications that affected not only the firms charged for using "fraudulent accounting numbers" but also their competitors. Previous literature has documented that competing firms suffer negative abnormal returns whenever a peer company announces a restatement (Gleason, Jenkins and Johnson 2004, Gonen 2003).

In this paper, we extend this literature by exploring consequences on competing firms. We provide preliminary evidence that, at the time the first accounting frauds occurred, scandal firms' behavior affected executive evaluations in competing firms. Results suggest the scandal firms' "inflated performance" led investors and board members of competing firms to believe their own firm could perform better, resulting in higher expectations and a lower evaluation of their executives. We show that the first scandal firm's performance was associated with a decrease in CEO's and top-five executives' total compensation in competing firms, especially if the scandal firm was an above median performer, in addition to being in any of the S&P 500, S&P 400 Midcap or S&P 600 Smallcap indices. We also provide evidence consistent with the notion that the use of scandal firms' as benchmarks led executives to manage earnings by using higher discretionary accruals.

Besides contributing to the accounting literature exploring the economic consequences of accounting fraud, this paper suggests boards of directors and compensation committees should be cautious as they benchmark their managers' performance against performance in competing firms. The study also informs discussions related to the costs and benefits of imposing rules and penalties to prevent accounting fraud. Our study provides evidence of a cost that accounting fraud imposes on competitor firms.

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TABLE I. SCANDAL FIRMS AND INDUSTRIES

SIC Major Code	Major Industry Group	Scandal Firm	First Scandal in the Industry	Years of Fraud	Number of Peer Firms	Number of Peer Firm-Years
13	Oil And Gas Extraction	Dynegy Inc.	x	2001 - 2002	46	89
22	Textile Mill Products	Guilford Mills Inc.	x	1997 - 1998	16	31
28	Chemicals And Allied Products	Bristol-Myers Squibb Company	x	2000 - 2001	107	206
34	Transportation Equipment	Material Sciences Corporation	x	1996 - 1998	29	71
35	Computer Equipment	Xerox Corporation	x	1997 - 2000	121	619
		Symbol Technologies Inc.		1998 - 2002		
		Telxon Corporation		1999		
		Gateway Inc.		2000		
36	Components, Except Computer Equipment	Oak Industries Inc.	x	1995 - 1996	160	829
		Tyco International LTD		1997 - 2002		
		Thomas & Betts Corporation		1998 - 1999		
37	Transportation Equipment	Thor Industries Inc.	x	1996 - 1998	51	134
48	Communications	Worldcom Inc.	x	1999 - 2002	36	123
		Qwest Communications International Inc		1998 - 2002		
49	Electric, Gas, And Sanitary Services	Enron Corporation	x	1997 - 2001	135	436
53	General Merchandise Stores	Dollar General Corporation	x	1998 - 2001	21	68
		K Mart Corporation		2001		
59	Miscellaneous Retail	Rite Aid Corporation	x	1998 - 2000	30	82
60	Depository Institutions	Huntington Bancshares, Inc.,	x	2001 - 2002	90	174
		Comerica, Inc.		2002 - 2002		
63	Insurance Carriers	Conseco, Inc	x	1999	52	52
73	Business Services	NCO Group, Inc.	x	1996 - 2004	191	859
		Lucent Technologies		1997 - 2000		
		Computer Associates International, Inc		1998 - 2000		
		McAfee, Inc.		1998 - 2001		
		Legato Systems Inc.		1999 - 2000		
80	Health Services	Healthsouth Corporation et al.	x	1999 - 2002	25	66

TABLE II. SUMMARY STATISTICS OF ALL NON-SCANDAL FIRMS

	mean	std deviation	min	p25	median	p75	max
CEOCOMP	5,501	16,635	0	1,015	2,167	5,011	600,347
EXECCOMP	13773	27975	677	3471	6474	13522	640530
DISCACC	-0.095	0.308	-12.927	-0.130	-0.073	-0.021	0.795
RET	0.238	0.879	-0.888	-0.241	0.066	0.427	4.878
RETScandal	0.191	0.661	-0.953	-0.303	0.144	0.429	2.464
RETPeers	0.092	0.300	-0.427	-0.120	0.052	0.265	1.357
S&P500RET	0.070	0.206	-0.234	-0.130	0.195	0.267	0.341
EARNINGSGAP	-0.070	0.216	-0.651	-0.175	-0.077	5.707	975.193
GROWTH	6.644	134.160	-876.945	1.583	2.485	0.004	6.600
CEOHOLDINGS	0.040	0.063	0.000	0.008	0.020	0.042	0.771
CEOCHAIR	0.607	0.488	0.000	0.000	1.000	1.000	1.000
EXECBOARD	0.358	0.186	0.000	0.200	0.400	0.400	1.000
INTERLOCK	0.027	0.099	0.000	0.000	0.000	0.000	1.000
STDRET	0.659	0.751	0.044	0.264	0.423	0.755	7.920
BONUSPCT	0.151	0.124	0.000	0.051	0.131	0.223	0.819
INCENTIVE_RATIO	0.196	0.160	0.000	0.081	0.150	0.263	1.000
LEVERAGE	0.210	0.200	0.000	0.018	0.190	0.337	2.450
LITIGATION	0.496	0.500	0.000	0.000	0.000	1.000	1.000
SIZE	6,833	29,521	3	343	1,024	3,708	758,800

Notes:
CEOCOMP=Total CEO compensation in (thousands $); EXECCOMP=Total top-5 executives' compensation in thousands of dollars; DISCACC=Discretionary accruals are defined based on a Modified Jones model; RET, RETScandal=Annual stock returns for the firm analyzed and average stock returns for the scandal firm(s) in its industry, respectively; RETPeers = Median RET for the same two-digit SIC industry firms, excluding the scandal firm; S&P500RET=Annual S&P index returns; EARNINGSGAP=The difference between the scandal firm earnings and the firm's earnings before discretionary accruals; GROWTH=Market-to-book value of equity; CEO/EXECHOLDINGS =CEO (top 5 executive's) stock and stock options holdings scaled by total shares; CEOCHAIR=Dummy equal to 1 for firms where the CEO is the chairman of the board, 0 otherwise; EXECBOARD=Percentage of top-5 executives sitting on the board of directors; INTERLOCK=Dummy equal to 1 if the firm disclosed a conflict of interest in the Compensation Committee in the proxy statement, 0 otherwise; STDRET = Standard deviation of annual returns over the last 5 years. BONUSPCT= top-five executives bonus divided by their total compensation; INCENTIVE_RATIO=Estimate of the share of the top-5 executives' equity incentives to total compensation that would result from a one-percent change in the stock price (Bergstresser and Philippon 2006); LEVERAGE= total debt divided by total assets; LITIGATION=Dummy equal to 1 if the firm is in an industry with high-litigation risk; SIZE = Total assets of the firm (million $).

TABLE III: Pearson Correlation Coefficients[1]

	EXECCOMP	*DISCACC*	*RET*	*RETScandal*	*RETPeers*	*S&P500RET*	*EARNINGSGAP*	*SIZE*	*GROWTH*	*CEOHOLDINGS*	*CEOCHAIR*	*EXECBOARD*	*INTERLOCK*	*STDRET*	*BONUSPCT*	*INCENTIVE_Ratio*	*LEVERAGE*
DISCACC	-0.039 (0.022)																
RET	0.024 (0.163)	-0.105 (0.000)															
RETScandal	-0.036 (0.035)	-0.068 (0.000)	0.154 (0.000)														
RETPeers	-0.035 (0.041)	-0.02 (0.234)	0.425 (0.000)	0.387 (0.000)													
S&P500RET	-0.111 (0.000)	0.025 (0.143)	0.216 (0.000)	0.309 (0.000)	0.524 (0.000)												
EARNINGSGAP	-0.077 (0.000)	0.327 (0.000)	-0.162 (0.000)	0.023 (0.173)	-0.047 (0.006)	-0.073 (0.000)											
SIZE	0.462 (0.000)	0.071 (0.000)	-0.06 (0.000)	-0.025 (0.144)	-0.005 (0.791)	-0.006 (0.708)	-0.122 (0.000)										
GROWTH	-0.013 (0.446)	0.007 (0.679)	0.048 (0.005)	0.032 (0.059)	0.005 (0.760)	0.023 (0.173)	0.001 (0.969)	-0.018 (0.290)									
CEOHOLDINGS	-0.211 (0.000)	-0.073 (0.000)	0.039 (0.024)	-0.005 (0.764)	-0.011 (0.539)	-0.031 (0.073)	-0.04 (0.018)	-0.266 (0.000)	-0.003 (0.842)								
CEOCHAIR	0.106 (0.000)	0.02 (0.234)	0.005 (0.786)	0.003 (0.854)	0.009 (0.593)	0.037 (0.031)	-0.003 (0.877)	0.211 (0.000)	-0.007 (0.667)	0.067 (0.000)							
EXECBOARD	-0.002 (0.915)	0.042 (0.014)	-0.014 (0.411)	-0.028 (0.097)	0.021 (0.219)	0.086 (0.000)	-0.034 (0.046)	0.083 (0.000)	0 (0.990)	0.091 (0.000)	-0.045 (0.009)						
INTERLOCK	-0.112 (0.000)	0.019 (0.262)	0.005 (0.757)	-0.006 (0.706)	0.017 (0.326)	0.066 (0.000)	-0.034 (0.046)	-0.077 (0.000)	0.027 (0.117)	0.124 (0.000)	-0.062 (0.000)	0.239 (0.000)					
STDRET	0.019 (0.260)	-0.141 (0.000)	0.206 (0.000)	-0.048 (0.005)	-0.052 (0.002)	-0.173 (0.000)	0.114 (0.000)	-0.219 (0.000)	0.005 (0.778)	0.117 (0.000)	-0.041 (0.017)	-0.094 (0.000)	-0.038 (0.027)				
BONUSPCT	-0.044 (0.010)	0.02 (0.247)	0.163 (0.000)	0.025 (0.141)	0.125 (0.000)	0.182 (0.000)	-0.212 (0.000)	0.119 (0.000)	0.029 (0.086)	0.005 (0.769)	0.076 (0.000)	0.072 (0.000)	0.086 (0.000)	-0.157 (0.000)			
INCENTIVE_Ratio	0.25 (0.000)	-0.123 (0.000)	0.243 (0.000)	0.022 (0.192)	0.071 (0.000)	-0.062 (0.000)	-0.176 (0.000)	0.222 (0.000)	0.003 (0.883)	0.299 (0.000)	0.018 (0.284)	0.173 (0.000)	0.049 (0.004)	0.175 (0.000)	-0.148 (0.000)		
LEVERAGE	-0.014 (0.415)	0.152 (0.000)	-0.085 (0.000)	-0.04 (0.020)	0.012 (0.486)	0.004 (0.835)	0.196 (0.000)	0.266 (0.000)	0.037 (0.029)	-0.169 (0.000)	0.093 (0.000)	0.041 (0.018)	-0.04 (0.021)	-0.178 (0.000)	-0.004 (0.803)	-0.218 (0.000)	1
LITIGATION	0.065 (0.000)	-0.15 (0.000)	0.076 (0.000)	0.004 (0.832)	-0.047 (0.006)	-0.069 (0.000)	-0.005 (0.769)	-0.241 (0.000)	-0.019 (0.276)	0.105 (0.000)	-0.121 (0.000)	-0.037 (0.030)	0.024 (0.166)	0.31 (0.000)	-0.136 (0.000)	0.232 (0.000)	-0.382 (0.000)

[1] The significance of the Pearson correlations between each pair of variables is indicated in *italics* under the correlation value.

Notes:
EXECCOMP=Total top-5 executives' compensation in thousands of dollars; DISCACC=Discretionary accruals are defined based on a Modified Jones model; RET, RETScandal=Annual stock returns for the firm analyzed and average stock returns for the scandal firm(s) in its industry, respectively; RETPeers = Median RET for the same two-digit SIC industry firms, excluding the scandal firm; S&P500RET=Annual S&P index returns; EARNINGSGAP=The difference between the scandal firm earnings and the firm's earnings before discretionary accruals; GROWTH = Market-to-book value of equity; *CEOHOLDINGS* =CEO's stock and stock options holdings scaled by total shares; CEOCHAIR=Dummy equal to 1 for firms where the CEO is the chairman of the board, 0 otherwise; EXECBOARD=Percentage of top-5 executives sitting on the board of directors; INTERLOCK=Dummy equal to 1 if the firm disclosed a conflict of interest in the Compensation Committee in the proxy statement, 0 otherwise; STDRET = Standard deviation of annual returns over the last 5 years. BONUSPCT= top-five executives bonus divided by their total compensation; INCENTIVE_RATIO=Estimate of the share of the top-5 executives' equity incentives to total compensation that would result from a one-percent change in the stock price (Bergstresser and Philippon 2006); LEVERAGE= total debt divided by total assets; LITIGATION=Dummy equal to 1 if the firm is in an industry with high-litigation; SIZE = Total assets of the firm (million $).

TABLE IV. CEO/EXECUTIVE COMPENSATION AT FIRMS IN SCANDAL INDUSTRIES

	Panel A. Dep. Variable: LNCEOCOMP			Panel B. Dep. Variable: LNEXECCOMP		
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
RET	0.087	0.086	0.089	0.080	0.073	0.077
	(0.033)***	(0.049)*	(0.049)*	(0.020)***	(0.030)**	(0.030)**
RETScandal	-0.013	-0.264	0.003	0.025	-0.267	0.031
	(0.032)	(0.047)***	(0.076)	(0.018)	(0.033)***	(0.045)
RETScandal x Top50			-0.339			-0.372
			(0.097)***			(0.067)***
Top50			-0.226			-0.264
			(0.076)***			(0.051)***
RETPeers	-0.057	0.010	0.133	-0.131	-0.021	0.115
	(0.073)	(0.092)	(0.090)	(0.048)***	(0.067)	(0.071)
S&P500RET	-0.392	-0.433	-0.673	-0.361	-0.396	-0.670
	(0.117)***	(0.146)***	(0.134)***	(0.080)***	(0.102)***	(0.105)***
LNSIZE	0.334	0.322	0.330	0.348	0.343	0.353
	(0.018)***	(0.020)***	(0.021)***	(0.013)***	(0.014)***	(0.014)***
GROWTH	-0.039	0.114	0.074	-0.034	0.106	0.060
	(0.082)	(0.057)**	(0.056)	(0.075)	(0.050)**	(0.048)
NUMBERPEERS	0.001	0.001	0.002	0.002	0.002	0.003
	(0.001)**	(0.001)*	(0.001)**	(0.000)***	(0.000)***	(0.001)***
CEO/EXECHOLDINGS	-2.274	-1.675	-1.668	-0.172	0.149	0.154
	(0.623)***	(0.713)**	(0.712)**	(0.177)	(0.170)	(0.165)
CEOCHAIR	0.112	0.156	0.157	0.033	0.047	0.049
	(0.054)**	(0.066)**	(0.065)**	(0.042)	(0.046)	(0.045)
EXECBOARD	0.008	0.101	0.116	0.269	0.327	0.344
	(0.133)	(0.153)	(0.152)	(0.111)**	(0.116)***	(0.117)***
INTERLOCK	-0.761	-0.902	-0.938	-0.785	-0.906	-0.948
	(0.240)***	(0.268)***	(0.266)***	(0.229)***	(0.240)***	(0.233)***
STDRET	0.169	0.173	0.168	0.233	0.271	0.265
	(0.036)***	(0.051)***	(0.051)***	(0.037)***	(0.049)***	(0.049)***
Number of Observations	*3,732*	*2,732*	*2,732*	*3,802*	*2,783*	*2,783*
Adjusted R-squared	*25.0%*	*22.0%*	*23.0%*	*38.0%*	*38.0%*	*39.0%*

Notes:
LNCEOCOMP= Natural logarithm of total CEO compensation in (thousands $); LNEXECCOMP = Natural logarithm of total top-5 executives' compensation in thousands of dollars; DISCACC= ; RET, RETScandal = Annual stock returns for the firm analyzed and average stock returns for the scandal firm(s) in its industry, respectively; Top50=Dummy variable indicating the scandal firm performed above median; RETPeers = Median RET for the same two-digit SIC industry firms, excluding the scandal firm; S&P500RET=Annual S&P index returns; LNSIZE = Natural logarithm of total assets of the firm (million $); GROWTH = Market-to-book value of equity; NUMBERPeers = Number of firms in the same industry-size quartile; CEO/EXECHOLDINGS = CEO (top 5 executive's) stock and stock options holdings scaled by total shares; CEOCHAIR = Dummy equal to 1 for firms where the CEO is the chairman of the board, 0 otherwise; EXECBOARD = Percentage of top-5 executives sitting on the board of directors; INTERLOCK = Dummy equal to 1 if the firm disclosed a conflict of interest in the Compensation Committee in the proxy statement, 0 otherwise; STDRET = Standard deviation of returns over the past five years.

TABLE V. DISCRETIONARY ACCRUALS AT FIRMS IN SCANDAL INDUSTRIES

	Dep. Variable: Discretionary Accruals		
	Model 1	**Model 2**	**Model 3**
EARNINGSGAP	0.210	0.272	0.259
	(0.028)***	(0.036)***	(0.038)***
EARNINGSGAP x Top50			0.030
			(0.063)
Top50			-0.011
			(0.008)
RETPeers	-0.015	-0.012	-0.007
	(0.008)*	(0.009)	(0.008)
S&P500RET	0.018	0.039	0.031
	(0.009)*	(0.010)***	(0.011)***
BONUSPCT	0.05	0.072	0.071
	(0.018)***	(0.022)***	(0.020)***
INCENTIVE_RATIO	-0.024	-0.032	-0.03
	(0.021)	(0.025)	(0.024)
LEVERAGE	0.003	-0.008	-0.008
	(0.015)	(0.020)	(0.021)
LITIGATION	-0.019	-0.025	-0.025
	(0.005)***	(0.006)***	(0.006)***
CEOCHAIR	-0.002	-0.006	-0.006
	(0.005)	(0.005)	(0.005)
EXECBOARD	0.019	0.019	0.019
	(0.011)*	(0.013)	(0.013)
INTERLOCK	0.027	0.055	0.052
	(0.022)	(0.023)**	(0.022)**
SIZE	0.006	0.006	0.007
	(0.002)***	(0.002)***	(0.002)***
STDRET	-0.019	-0.022	-0.022
	(0.007)***	(0.009)**	(0.009)**
GROWTH	0.004	0.009	0.008
	(0.005)	(0.002)***	(0.003)***
Number of Observations	*3,473*	*2,477*	*2,477*
Adjusted R-squared	*15.0%*	*20.0%*	*20.0%*

Notes:
Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

DISCACC= Discretionary accruals are defined based on a Modified Jones model; EARNINGSGAP= The difference between the scandal firm earnings and the firm's earnings before discretionary accruals; RETPeers = Median RET for the same two-digit SIC industry firms, excluding the scandal firm; Top50=Dummy variable indicating the scandal firm performed above median; S&P500RET=Annual S&P index returns; BONUSPCT= top-five executives bonus divided by their total compensation; INCENTIVE_RATIO=Estimate of the share of the top-5 executives' equity incentives to total compensation that would result from a one-percent change in the stock price (Bergstresser and Philippon 2006); LEVERAGE= total debt divided by total assets; LITIGATION=Dummy equal to 1 if the firm is in an industry with high-litigation risk; CEOCHAIR = Dummy equal to 1 for firms where the CEO is the chairman of the board; EXECBOARD = Percentage of top-5 executives sitting on the board of directors; INTERLOCK = Dummy equal to 1 if the firm disclosed a conflict of interest in the Compensation Committee in the proxy statement, 0 otherwise; SIZE = total assets of the firm (million $); STDRET = Standard deviation of returns over the past five years GROWTH = Market-to-book value of equity.