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# Labor market consequences of accounting fraud

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## Abstract

**Purpose** – This paper aims to examine the research questions: Do executive and non-executive directors face similar labor market penalties upon revelation of accounting fraud? Are all executive directors treated by markets as a homogenous group? Or, do executive directors who are top managers face stiffer penalties than other executive directors?

**Design/methodology/approach** – Board membership of incumbent directors in US firms accused of accounting fraud are tracked for three years after the revelation. Two labor market consequences/penalties are considered. Probability of losing internal, own firm board seat is the likelihood that incumbent directors leave the accused firm's board upon accounting fraud revelation. The likelihood of losing at least one external board seat (outside directorship) is also examined. Both univariate tests and multivariate LOGIT regressions are used to conduct the analysis.

**Findings** – Compared to non-executive directors, executive directors are more than twice as likely to lose own firm board seat and at least five times as likely to lose at least one outside directorship. Moreover, all executives, top or otherwise, appear to face similar tough penalties.

**Research limitation/implications** – Accounting fraud is a rare event; this may limit the generality of the findings. Results obtained from a US sample may be applicable to countries with well-developed capital and labor markets. Results imply that the labor market for directors serves a vital function in the US-style corporate governance environment; labor market discipline provides at least some incentives for board members, including non-employee directors and other executive directors, to perform their fiduciary duties.

**Originality/value** – This is the first study that utilizes a single corporate event to analyze the operation of the labor market across different categories of directors. Also, while studies have examined penalties on top executives there is no evidence that other executives who also serve on the board of the accused firms suffer labor market penalties.

**Keywords** Boards of Directors, Accounting, Fraud, Corporate governance, United States of America

**Paper type** Research paper

## Introduction

The Anglo-Saxon corporate governance model relies on a single-tier board where executive and non-executive directors collaborate to provide oversight of major corporate decisions[1]. Effective governance requires that a board is well-designed and that directors' individual and collective responsibilities are clearly established. It is equally important, however, that directors have incentives to perform their fiduciary duties. While much research has focused on improving board structure and defining director responsibilities, we know relatively little about director incentives. One approach to understanding director incentives is to examine the relation between “on-the-job” performance and labor market opportunities. Coles and Hoi (2003) summarizes this argument succinctly: “If the labor market, either internal to the firm or externally, provides opportunities that managers and directors care about, and the availability of those

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opportunities is sensitive to 'on-the-job' performance, then the incentives of managers and directors will be aligned, at least somewhat, with shareholder interests. On the other hand, if performance has little connection to future opportunities, then the incentive effects of the labor market are minimal and shareholders must rely on other mechanisms to align the incentives of managers and directors with shareholder interests."

In this study, we use accounting fraud to examine the vitality and operation of the labor market for directors. Accounting fraud is a rare case of governance failure where "on-the-job" performance is relatively well-defined – all board members share at least some responsibility. If the revelation of accounting fraud tarnishes the reputation of incumbent directors then a loss of subsequent opportunities in the labor market may result. Loss of board seats subsequent to accounting fraud may therefore provide a glimpse into the operation of the labor market for directors. We contribute by providing fresh insights on the following research questions:

- Do executive and non-executive directors face similar labor market penalties?
- Are executive directors treated by markets as a homogenous group?

Or, do executive directors who are top managers face stiffer penalties than other executive directors?

Our sample contains 171 incumbent directors in 17 firms in the US accused of high-profile accounting fraud during 2000-2001. We compare each director's board service in the year prior to the revelation of fraud and three years thereafter. Compared to non-executive directors, executive directors are more than twice as likely to lose own firm (i.e. accused firm) board seat and at least five times as likely to lose at least one external directorship. Furthermore, there are no differences in penalties between top executives such as Chief Executive Officers and other lower-level executives such as Senior Vice Presidents.

To the best of our knowledge, this study is the first to report evidence of asymmetric penalties in labor market consequences between executive and non-executive directors in cases of accounting fraud. The asymmetry in labor market penalties is consistent with the notion that executive directors are quite influential in corporate financial audits and reporting – so much so that even those executive directors who are not directly responsible for the firm's financial reporting are held equally accountable. This implies that the incentives of executive directors, compared to those of non-executive directors, are more closely aligned with shareholder interests. Our evidence concerning *ex-post* settling up (Fama and Jensen, 1983) in labor markets builds on similar evidence in bankruptcy (Gilson, 1989, 1990), dividend cuts (Kaplan and Reishsus, 1990), stock and accounting performance (Brickley *et al.*, 1999), state anti-takeover law opt-out decision (Coles and Hoi, 2003) and earnings restatement (Desai *et al.*, 2006; Srinivasan, 2005).

## Motivation and background

### *Overview and rationale for the US sample*

Shareholders are vulnerable to inimical action by corporate insiders. A major purpose of corporate boards is to act on behalf of shareholders and prevent such problems. Coffee (2005) notes significant global differences in anti-shareholder activity. In jurisdictions with low investor protection, the main threat arises from majority shareholders extracting "private benefits of control." In contrast, in economies with strong investor protection, the main threat emanates from self-interested managers who seek to further their self-interest through manipulation of financial statements. The importance of corporate boards varies with the institutional context. At one end of the investor protection spectrum, perhaps using China as an example, the presence of a controlling shareholder has the potential to make the board ineffective and even irrelevant. At the other end, using the US as an example, the board may have an important role in mitigating the conflict between self-interested managers and shareholders.

The Anglo-Saxon setting is often considered one where the level of investor protection is high and where directors perform an important monitoring function. In this setting, therefore, it is relevant to ask whether director incentives exist and whether incentives differ between director categories. We focus on high-profile accounting fraud in the US principally because the US is an example of a high investor protection country with a potentially relevant role for boards. Also, our choice of the time-period of 2001-2002 is a reflection of its historical importance: Holmstrom and Kaplan (2003) argue that the wave of financial scandals in the US in 2001 and 2002 resulted in the landmark Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley Act, 2002). Finally, a single country sample naturally controls for the level of investor protection and other cultural and institutional factors.

### *Earnings management and accounting fraud*

Accounting fraud results when earnings have been manipulated willfully with an attempt to mislead and defraud investors. Thus accounting fraud is an extreme example of earnings management. Although our paper concerns accounting fraud, it relates to the broader topic of earnings manipulation, which is a well-researched topic in the accounting literature.

Manipulation of financial statements and earnings (or earnings management) arises because of flexibility in accounting systems. There are many ways to manage earnings. For example, Marquardt and Wiedman (2004) find that firms accelerate revenue recognition around equity issues resulting in increased receivables; another popular method is the use of "special items." Although contrary to the interest of shareholders, earnings manipulation may not always be illegal. In extreme cases, manipulation can cross the line and become accounting fraud. This is the case, for instance, when revenues are falsely reported with the intention of defrauding investors; when unearthed, litigation and criminal prosecution ensues.

There is considerable global evidence on earnings manipulation. Shen and Chih (2005) report that banks in more than two-thirds of the 48 countries sampled are found to have managed their earnings. Park and Shin (2004) find that Canadian firms manage earnings to avoid reporting losses and earnings declines. In the UK, Peasnell *et al.* (2000) indicate that firms use accrual management to meet earnings targets in periods before as well as after the Cadbury Report.

Research has also linked earnings manipulation to environmental variables such as investor protection. In an early study, Leuz *et al.* (2003) find that the extent of earnings manipulation is negatively related to investor protection in a sample of 31 countries. This result has been confirmed in other studies, most recently in Fonseca and Gonzalez (2008) who use a sample of banks in 40 countries and find that manipulation of loan-loss provisions to smooth income is quite prevalent but decreases as the level of investor protection rises.

These results concerning earnings manipulation might suggest a greater incidence of accounting fraud in countries with low levels of investor protection. However, Coffee (2005) argues this is not the case because "in emerging markets, the expropriation of private benefits typically occurs through financial transactions. Ownership may be diluted through public offerings, and then a coercive tender offer or squeeze-out merger is used to force minority shareholders to tender at a price below fair market value. These techniques have been discussed in detail elsewhere and in their crudest forms have been given the epithet 'tunneling' to describe them. A classic example was the Bulgarian experience between 1999 and 2002, when roughly two-thirds of the 1,040 firms on the Bulgarian stock exchange were delisted, following freeze-out tender offers for the minority shares at below market, but still coercive, prices."

Discovery and prosecution of accounting fraud is infrequent and the most egregious cases have occurred in the US. The low frequency of accounting fraud may be related to the difficulty of its detection: Lev (2003) explains how earnings manipulation or fraud entails assumptions concerning future cash flows, so detection usually requires passage of time. Also, in many developing countries, resources may not be adequately expended to discover

accounting fraud and perhaps the legal environment is also not conducive to prosecuting parties committing fraudulent activities. These reasons add to those proposed by Coffee (2005) to explain the greater instances of accounting fraud in the US. Finally, a recent study by Erickson *et al.* (2008) finds a direct link between accounting fraud and stock-based executive compensation. According to this study, equity-based executive compensation appears to provide motivation to maximize shareholder value while simultaneously providing incentives for accounting fraud. Such incentives are most prevalent in the US where executive equity-based compensation is widespread. For these various reasons, we focus on a US sample of accounting fraud.

### *Accounting fraud: causes and consequences*

There are two streams of research in the accounting fraud literature. One stream focuses on the probability of detection. The central hypothesis is that a more vigilant corporate governance structure can help to deter accounting fraud by increasing the likelihood of detection. Thus, when faced with weak boards or weak governance structures, executives are more likely to commit fraudulent accounting activities. Beasley (1996) finds that the presence of outside directors as well as their shareholding decreases the likelihood of accounting fraud. Uzun *et al.* (2004) find that the presence of independent directors on audit and compensation committees reduces the likelihood of corporate fraud. Farber (2005) finds that fraud firms' audit committees are less active and have fewer financial experts. These studies use US data. Using a Chinese sample, Chen *et al.* (2006) reports similar associations between accounting fraud and corporate governance variables such as ownership and board characteristics.

The second stream of accounting fraud literature focuses on consequences. This literature contains only a few studies and most have focused on earnings overstatement as opposed to outright accounting fraud. Benish (1999) finds that the frequency of top executive turnover is similar in firms that overstate earnings compared to firms that do not overstate earnings. However, Desai *et al.* (2006) find higher management turnover subsequent to revelation of earnings overstatement. Srinivasan (2005) finds that earnings overstatements are associated with higher turnover and loss of external directorships among independent non-executive directors. Together, these findings suggest director labor markets are efficient. Top executives and non-executive directors responsible for financial audits and reporting are penalized with fewer subsequent opportunities as directors after the revelation of earnings overstatement.

Our study is closely related to the latter stream of research and makes two contributions: we assess differences in penalties on executive compared to non-executive directors as well as differences between top and other executive directors. The extant literature examines either penalties on top executives or penalties on non-executive directors, but there is no study that compares the penalties facing different categories of directors in a single setting. Also, while studies have examined penalties on top executives there is no evidence that other executives who also serve on the board of the accused firms suffer labor market penalties.

### **Hypotheses**

Executive directors and non-executive directors have different but equally important roles in financial reporting. By being closer to the locus of control, executive directors may be in a position to influence accounting outcomes. In contrast, non-executive directors have a heightened monitoring role. Both parties are at fault in case of corporate governance failures such as accounting fraud. However, it is debatable whether they should be penalized in the same manner.

Let us first examine incentives to commit accounting fraud to determine the category of director likely held more responsible. Since the early 1990s, US corporations began to pay executives with significant equity-based incentives. Erickson *et al.* (2008) note a negative effect of this practice: it gives executives a perverse incentive to commit accounting fraud.

Accounting fraud is a means to manipulate stock prices. Gerety *et al.* (2001) note that non-executive directors have also received equity-based compensation in recent years; however, the magnitude of such compensation dwarfs in comparison to executive compensation. Executive directors therefore have a greater incentive to manipulate financial statements and commit fraud.

As gatekeepers, non-executive directors have the responsibilities to mitigate executive influence in financial reporting. The fact that they often come from other firms, if not from other industries, might contribute to a lack of firm-specific knowledge and make it difficult for non-executive directors to perform their fiduciary duties. For this reason, prior to Sarbanes-Oxley, it was uncommon for non-executive directors to challenge management assumptions regarding accounting statements. This created an environment where executive directors had both the incentive and the ability to commit accounting fraud. Accordingly, we expect markets to assign greater culpability to executive directors compared to non-executive directors.

*H1.* Following revelation of accounting fraud, executive directors when compared to non-executive directors face a higher probability of losing own-firm directorship as well as external directorships.

Next, we consider an executive director's position in the firm. Executive directors typically include current members of the top executive team and hold titles such as CEO, President or Chairman of the Board. However, it is not uncommon to find one or more other executive directors on boards. These other executive directors typically include retired top executives of the firm and current managers who hold titles such as Chief Finance Officer, Senior Vice President, Vice President, and so on. We refer to the former group as top-executive directors and the latter as other-executive directors.

What is the role of the second category of executive directors, the other-executive directors? These directors may be pawns, serving as rubber stamp and providing additional supporting voice to top-executive directors. On the other hand, they may serve to bridge the information gap non-executive directors face, enhancing the oversight function of boards. Given these conflicting possibilities, it is important to understand the incentives they face. A natural but unaddressed question is: what penalties do other-executive directors face if they fail to provide proper oversight? Do they face penalties similar to those faced by top-executive directors?

*H2.* Relatively higher penalties are incurred by top-executive directors compared to other executive directors.

## Sample and variables

Our sample is derived from the 2002 Forbes Corporate Scandal Sheet and the Accounting Scandal page on Wikipedia. Both sources list firms involved in high-profile corporate malfeasance during 2001-2002. From this list we excluded firms for which we could not obtain proxy statements (five firms), firms that filed for bankruptcy (four firms) within three years of the accusation, and firms involved in non-accounting scandals (four firms). Our final sample contains 17 firms.

We use corporate filings and litigation releases from the SEC as well as news articles from *Wall Street Journal* and Dow Jones News Retrieval services to obtain in-depth knowledge about the nature of the alleged fraudulent accounting activities. We find that almost all firms (16 of 17 firms) were subject to SEC accounting and auditing enforcement action, many (10 of 17 firms) were also under investigation for alleged criminal activities by the Department of Justice, regional US Attorney offices and/or district attorneys. A majority of the firms charged by the SEC (11 of 16 firms) subsequently settled the SEC enforcement action by agreeing to pay penalties and to perform remedial undertakings. In one case (Bristol-Myers Squibb), the settlement amounted to \$150 million. Furthermore, we are able to verify that eight executives

in five firms pleaded guilty to or were convicted on fraud, conspiracy and/or violations of security laws; in all these cases the executive faced multiple-year prison sentences. Content analysis of the SEC actions and lawsuits indicates that outside board members are seldom targeted in lawsuits or SEC investigations.

Our investigation focuses on executives and non-executives serving as 'incumbent' directors of these 17 firms at the time of the scandal. This year – 1 proxy statement identifies 196 such directors and their various directorships in listed firms. Following Srinivasan (2005) and others, we exclude 25 directors who are confirmed as dead or retired within three years to leave a final sample of 171 directors. Of the sample of 171 directors, 17 are current or retired CEO, president, chairman of the board at year – 1. In addition, 22 directors held positions as other officers (e.g. CFO, COO, vice president and etc.). Thus, the final sample contains 39 (17 + 22) executive directors and 132 non-executive directors. The year +3 date proxy is used to determine director turnover as well as changes in external directorships.

Table I reports sample statistics using year – 1 data from COMPUSTAT PCPlus and stock return data from CRSP. On average, the firms recorded net sales of \$32 billion indicating that the sample contained mostly large firms. On average, there were about 12 board members per firm of which 75 percent are non-executives. We verify that all firms in the sample had a standing audit committee, which, on average, consisted of five non-executive directors. No executive director served in the audit committee. Finally, sample firms lost more than half their market value in the year of the scandal.

## Accounting fraud and director labor market consequences

### *Incidence of own-firm director turnover*

Table II, Panel A shows that about 77 percent (30 of 39) of all incumbent executive directors lost their board seats in the accused firm by the third fiscal year ending after the scandal. By way of comparison, the own-firm turnover rate for incumbent non-executive directors is about 55 percent (73 of 132). The difference between these proportions is significant at conventional levels using the  $\chi^2$  goodness-of-fit test ( $p = 0.015$ ). The implied turnover frequencies for both executive and non-executive directors are higher than those observed in other studies. For instance, Gilson (1989) reports an executive turnover frequency of 44 percent in a sample of financially-distressed firms in an analogous four-year window. Hermalin and Weisbach (1988) find a normal director turnover of 7.7 percent per annum using a sample of NYSE-listed firms during 1971 to 1983.

<b>Table I Firm and board characteristics</b>				
<i>Variable</i>	<i>Mean</i>	<i>Median</i>	<i>Max.</i>	<i>Min.</i>
Net sales (in millions)	32,086	31,502	100,789	325
Research intensity	0.044	0	0.272	0
Market-to-book value ratio	0.90	0.61	0.06	3.68
Unadjusted stock return in the scandal year (in %)	-51.84	-64.61	47.29	-99.27
Number of directors on the board	11.58	12	16	7
Proportion of non-executive directors on the board	0.75	0.77	0.92	0.10
Number of non-executive directors on the audit committee	4.65	4	8	2

**Notes:** The sample consists of 17 firms listed in either the 2002 Forbes Corporate Scandal Sheet or the 2002 Accounting Scandal page on Wikipedia. This set of firm excludes the accused firms for which we could not obtain proxy statements either before or after the publication of both lists (five firms), those that filed for bankruptcy (four firms) within three years after the accusation, and those that were involved in non-accounting corporate scandal (four firms). Accounting data are based on 2001 information for the fiscal year just prior to the scandal from COMPUSTAT PCPlus. Stock prices from CRSP are used to calculate unadjusted stock return in the scandal year. Information about the firm and the board of directors are based on proxy statement filed in the year just prior to the scandal

**Table II** Director turnover and external board seats lost

	Number, age, tenure, and external directorship of incumbent directors			Mean number of external board seats		Own-firm turnover		Lost at least one external board seat		Change in external board seats		P(t)
	Total number	Mean age	Mean tenure	Mean number of external board seats	Proportion	Number	Proportion	Number	Mean	Number		
<i>Panel A: all incumbent directors</i>												
Executive member of the accused firm	39	53.41	5.74	0.974	0.769	30	0.359	14	-0.410	-8	0.001	
Non-executive director: director is not a current or former executive member of the accused firm	132	58.29	6.10	1.280	0.553	73	0.212	28	-0.061	-16	0.416	
$\rho(\chi^2)$ test for difference in proportions/means across the samples		0.000	0.441	0.195	0.015		0.061		0.014		-	
<i>Panel B: incumbent executive directors</i>												
Own top executive: director is also chairman, CEO, or president of the accused firm	17	52.29	5.58	0.941	0.765	13	0.412	7	-0.412	-7	0.016	
Other own executives: director is CFO, controller, senior VP or other executive of the accused firm	22	54.27	5.86	1.000	0.773	17	0.318	7	-0.409	-9	0.025	
$\rho(\chi^2)$ test for difference in proportions across the samples		0.228	0.796	0.976	0.796		0.548		0.693		-	
<i>Panel C: incumbent non-executive directors</i>												
Audit committee member: director is an audit committee member of the accused firm	59	57.08	5.28	1.288	0.492	29	0.186	11	0.034	2	0.734	
Non-audit committee member: director is not an audit committee member of the accused firm	73	59.27	7.76	1.274	0.603	44	0.233	17	-0.136	-10	0.206	
$\rho(\chi^2)$ test for difference in proportions across the samples		0.049	0.555	0.924	0.201		0.516		0.425		-	

**Notes:** This table reports the proportion and total number of incumbent directors who loses his board seat in the accused firm by the third fiscal year ending after the scandal and net change in external directorships (in other firms) held by incumbent directors. An incumbent director is a board member serving at least one of the 17 accused firms in either the 2002 Forbes Corporate Scandal Sheet or the 2002 Accounting Scandal page on Wikipedia. Twenty-five incumbent directors that died or retired before the third fiscal year ending after the scandal are excluded from the sample. Changes in external directorships held by directors are identified by comparing the proxy statements before and after the scandal

Table II reveals the pattern of own-firm director turnover for the subsets of incumbent executive directors (Panel B) and non-executive directors (Panel C). The results suggest that turnover rates are equally high but not significantly different across the sub-groups of executive directors. Further, whether a non-executive director serves on the audit committee also appears to have no significant impact on the own-firm turnover rates.

#### *Net change in external directorships*

The data in Table II suggest that incumbent executive directors experienced significant losses in external directorships. The change in external board seats of -0.410 is significantly different from zero at conventional levels using the standard *t*-test ( $p = 0.001$ ). The analogous figure for non-executive directors is -0.061 and is not significant. Using the Wilcoxon rank-sum test we reject the hypothesis that changes in external directorships are equal for executive and non-executive directors ( $p = 0.014$ ).

Panel B reports results for subsets of executive directors. In both categories (top executives and other-executives), using the *t*-test, we find that the mean of the net change in external directorships is significantly different from zero at conventional significance levels ( $p < 0.03$ ). But there is no evidence that these two categories of executive directors are affected differently. The data fail to reject the hypothesis that changes in external board seats are equal across the two categories.

#### *Logit analysis of own-firm director turnover and incidence of losing external directorships*

To this point, the evidence suggests that executive directors face more severe labor market penalties, both internally and externally, relative to non-executive directors. While suggestive, the results reported above could also be explained by variables such as director and firm “quality” that affect both accounting fraud and outcomes in the labor markets for directors. In this section we control for these potentially confounding factors by using logit regressions. Our dependent variables are the probability of own-firm turnover (DIRTNOV) and the probability that the director loses at least one external board seat (LOSTEXTDIR).

We use dummy variables to identify director types and director affiliations. EXECBRDMBR indicates a current or retired executive of the firm. OWNTOPMGR indicates a current or retired Chairman, CEO, or President. OTHOWNMGR indicates a CFO, Controller, Senior VP or other directors. Following Srinivasan (2005), we capture the severity of the event using stock price performance in the scandal year and use the dummy variable, AUDIT, to identify whether the non-executive director is an audit committee member. Following Kaplan and Reishsus (1990), we control for the number of external board seats a director held before the scandal (NDIR). We use two variables to capture career concerns of directors. The variable, YTREXEC, reflects the career concern of executive directors; it equals 65 minus age for executive directors and equals zero for others. YTRDIR, the variable we use to indicate non-executive directors’ career concern, equals 70 minus age for non-executive directors and equals zero for others. Lastly, we control for firm size and director tenure.

Table III reports the results of four multivariate logit regressions. In all models, the intercept term captures the marginal effect of accounting fraud on the group of non-executive directors who do not serve on the audit committee (EXECBRDMBR = 0 and AUDIT = 0). The dependent variable in Models 1 and 2 is DIRTNOV. The coefficients on the variables representing director types and director affiliations are positive and generally significant at conventional levels. In Model 1, the estimated coefficient on EXECBRDMBR is significant at the one percent level ( $p = 0.008$ ). In Model 2, the estimated coefficients on OWNTOPMGR and OTHOWNMGR are both significant ( $p < 0.03$ ).

Models 3 and 4 examine consequences on external directorships (LOSTEXTDIR). Again, the coefficients on the variables representing director types and director affiliations are positive and generally significant at conventional levels. In Model 3, the estimated coefficient on

**Table III** Logit estimates of director turnover and the probability of losing at least one external board seat

Variables	DIRTNOV = 1		DIRTNOV = 1		LOSTEXTDIR = 1		LOSTEXTDIR = 1	
	Model 1	p(t)	Model 2	p(t)	Model 3	p(t)	Model 4	p(t)
Intercept	-4.692	0.008	-4.538	0.013	-3.843	0.074	-3.921	0.073
EXECBRDMBR (1 = director is current or former executives of the accused firm, else 0)	2.339	0.008			2.409	0.005		
OWNTOPMGR (1 = director is chairman, CEO, or president of the accused firm, else 0)			2.392	0.024			3.088	0.007
OTHOWNMGR (1 = director is CFO, controller, senior VP or other executive of the accused firm, else 0)			2.042	0.027			2.134	0.017
AUDIT (1 = director is an audit committee member of the accused firm, else 0)			-0.686	0.094			-0.345	0.461
Tenure (Number of years as director of the accused firm)	0.050	0.155	0.048	0.178	0.042	0.233	0.039	0.274
YTREXEC (Executive retirement age of 65 minus age before scandal if EXECBRDMBR = 1, else 0)	-0.027	0.627	-0.307	0.584	-0.962	0.122	-0.119	0.088
YTRDIR (Director retirement age of 70 minus age before scandal if EXECBRDMBR = 0, else 0)	0.965	0.007	0.107	0.004	0.035	0.361	0.039	0.308
NDIR (Number of external board seats held before scandal)	-0.384	0.013	-0.387	0.013	0.557	0.001	0.577	0.001
Firm size (Logarithm of book value of total assets before scandal, in millions)	0.319	0.032	0.320	0.035	0.120	0.504	0.135	0.459
Market reaction (unadjusted buy-and-hold stock return in the year of the scandal)	-0.012	0.005	-0.013	0.004	0.005	0.286	0.005	0.301
p-value of likelihood ratio test	0.000		0.000		0.001		0.002	

**Notes:** For Model 1 and 2 the dependent variable (DIRTNOV) equals 1 if incumbent director loses his board seat in the accused firm by the third fiscal year ending after the scandal, 0 otherwise. For Model 3 and 4 the dependent variable (LOSTEXTDIR) equals 1 if incumbent director on net loses at least one external directorship by the third fiscal year after the scandal, 0 otherwise. Director observations include the entire sample of incumbent directors serving the accused firms before the scandal for whom verifiable information on directorships is available ( $n = 171$ )

EXECBRDMBR is significant ( $p = 0.005$ ). In Model 4, the estimated coefficients on OWNTOPMGR and OTHOWNMGR are both significant ( $p < 0.02$ ).

In sum, estimates from these four models imply that executive directors, irrespective of their rank in the organization, are significantly more likely to lose the board seat in their own firm and significantly more likely to lose at least one external board seat in other firms by year +3 after the accounting scandal. Considering the fact that we are studying accounting fraud, it is interesting to note that executives, even though they are not members of audit committees, are considered to be more culpable. In fact, audit committee membership appears to have no effect: the estimated coefficients on AUDIT are negative and not significant at conventional levels.

Table IV provides the implied probability of own firm turnover as well as the implied probability of losing at least one external board seat. The results are based on estimates from the logit models (Models 2 and 4). Values for explanatory variables are set at the sample median. Both probabilities are significantly higher for executive directors. There is a greater than 81 percent chance that an executive director, irrespective of his or her position in the organization, will lose own firm board seat by year +3. By way of comparison, a non-executive director has a turnover probability of 41 percent. We observe an even more striking pattern in terms of probability of losing at least one external directorship. There is a 52 to 74 percent chance that an executive director will lose at least one external directorship; the analogous value for non-executive directors is 11 percent. In sum, executive directors are more than twice as likely to lose own firm board seat and at least five times as likely to lose at least one external directorship.

**Table IV** Implied probabilities of director turnover and losing at least one external board seat

	<i>Incumbent directors by employment affiliations</i>		
	<i>Board members are own top managers of the accused firm</i>	<i>Board members are other top executives of the accused firm</i>	<i>Non-executive directors</i>
	OWNTOPMGR = 1 OTHOWNMGR = 0 AUDIT = 0 YTRDIR = 0	OWNTOPMGR = 0 OTHOWNMGR = 1 AUDIT = 0 YTRDIR = 0	OWNTOPMGR = 0 OTHOWNMGR = 0 AUDIT = 1 YTREXEC = 0
Probability of director turnover as implied by estimates of Model 2 in Table III	0.864	0.818	0.408
Probability of losing at least one external board seat as implied by estimates of Model 4 in Table III	0.740	0.523	0.112

**Notes:** Probability of director turnover and losing at least one external directorship, as implied by the estimates of the logit regressions reported in Table III. The probabilities are calculated based on all control variables, including indicator variables, set at median values, unless otherwise specified. An incumbent director is a board member serving at least one of the 17 accused firms before the scandal for whom verifiable information on directorships is available. The full sample contains 171 incumbent directors with available information on directorships. Executive directors are incumbent directors who are CEO, president, chairman, CFO, COO, and/or any other past or present member of the management team of an accused firm. OWNTOPMGR = 1 if the director is chairman, CEO, or president of the accused firm, else 0. OTHOWNMGR = 1 if the director is CFO, controller, senior VP or other executive of the accused firm

### Conclusion and discussion

We track 171 incumbent directors in 17 firms accused of accounting fraud during 2000-2001. We assess labor market penalties for these directors. We obtain data on board membership before and after the revelation of fraud to determine whether they lose own-firm board seats and whether they lose external directorships. Overall, we find that all categories of directors lose own firm board seats as well as external directorships. Compared to non-executive directors, executive directors are more than twice as likely to lose own-firm board seats and at least five times as likely to lose at least one external directorship. Further, we find that both top-executive directors and other-executive directors face the same, stiff penalty in accounting fraud.

We find that almost 77 percent of incumbent executive directors have lost (own-firm) employment within three years of the fraud revelation. The high turnover rate almost certainly coincides with a low probability of subsequent executive level employment in other firms; we confirm this by searching for these managers in the "management roster" of Standard and Poor's 1,500 firms. In addition to losing corporate employment, it is quite conceivable that prospects for other forms of employment are also significantly affected. At current rates of top executive compensation, with median pay in large firms exceeding \$6.5 million (Lublin, 2007), our findings suggest that executives face penalties adding to tens of millions of dollars in present value terms.

These findings indicate that the labor market for directors could be a vital component of the US-style corporate governance environment. Specifically, well-functioning labor markets might provide board members, particularly executive directors, with significant incentives to perform their fiduciary duties. Given the widespread evidence of earnings management in many countries, these results are relevant to the global theory of corporate governance. For instance, future research can add to our understanding by examining the link between earnings management and labor market penalties in various jurisdictions.

Prior studies on adverse consequences of accounting improprieties (fraud or restatements) focused on top executives. We are the first to compare labor market consequences on various categories of executives including those who hold titles such as Chief Finance Officer, Senior Vice President, Vice President and so on. We find equal and negative

consequences in this latter category of executives. These labor market consequences could potentially offset the perverse incentives stemming from large equity-based awards. Perhaps this is why, despite rhetoric to the contrary, corporate scandals did not get out of control in the US.

Corporate governance may be viewed as a set of mechanisms to safeguard and promote the interests of stockholders. Our evidence suggests that director labor markets serve as a vital cog in the US corporate governance framework. A natural extension is to analyze managerial and director labor markets in other countries. For instance, one might question whether the functioning of these labor markets is dependent on a country's legal environment and investor protection. There is preliminary evidence that these labor markets may be ineffective in economies with extremely low levels of investor protection. Using a sample of China-listed firms accused of fraud during 1990-2002, Sun and Zhang (2006) find that many top executives leaving the accused firms easily find executive positions in other firms. Future research can add to our understanding of this important topic by examining countries with different degrees of investor protection.

Lastly, our results have implications for corporate governance reforms. The US took the lead in the battle against corporate malfeasance with the Sarbanes-Oxley Act of 2002. This Act had global reverberations and ultimately entities such as the Organization for Economic Cooperation and Development and the European Union followed suit with similar proclamations concerning governance. However, well-intentioned legislation may result in unintended consequences. For example, consider the CEO certification provisions (Sections 904 and 906) of Sarbanes-Oxley, which calls for severe criminal penalties in case of failure of corporate officers to certify financial reports. These provisions clearly assume that there are insufficient penalties to deter top executives from committing accounting fraud. But our findings are the contrary. If labor market penalties already constrain opportunistic executive behavior in financial reporting, Sarbanes-Oxley penalties would only add to the already high-expected cost of perpetrating the offense. Certainly, it will further reduce the likelihood of accounting fraud, but at what cost? Hoi *et al.* (2007) argue that such regulation can increase managerial risk aversion to the point where managers make sub-optimal decisions. In other words, goals of risk mitigation and wealth generation may not be compatible. Also, in such a risk-laden setting, executive compensation contracts may not always be shareholder friendly. We may have already seen this effect.

## Note

1. The authors define executive directors as current members of the top executive team and hold titles such as CEO, President or Chairman of the Board or other executives of the firm and current managers who hold titles such as Chief Finance Officer, Senior Vice President, Vice President, and so on. The former are referred to as top executive directors and the latter are called other executive directors. Non-executive directors are all other directors (may also be called as outside directors).

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