Corporate Governance and Accounting Scandals

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Current draft: May 2003
First draft: November 2002

Comments welcome.

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Abstract

This paper empirically examines whether certain corporate governance mechanisms are related to the probability of a company restating its earnings. We examine a sample of 159 U.S. public companies that restated earnings and an industry-size matched sample of control firms. We have assembled a novel, hand-collected dataset measuring corporate governance characteristics of these 318 firms. We find that several key governance characteristics are unrelated to the probability of a company restating earnings. These include the independence of boards and audit committees, and the provision of non-audit services by outside auditors. We find that the incidence of independent directors with a background in accounting or finance on the board or audit committee is negatively related to the probability of restatement. This relation is statistically significant, large in magnitude, and robust to alternative specifications. Our findings are consistent with the idea that independent directors with financial expertise are valuable in providing oversight of a firm's financial reporting practices.

JEL classification: G34, G38, K22, L51, M41

Keywords: Corporate governance, Accounting scandals, Earnings restatements, Financial scandals, Sarbanes-Oxley Act, Boards of directors

Corporate Governance and Accounting Scandals

1. Introduction

Recent accounting scandals at prominent companies such as Enron, HealthSouth, Tyco and Worldcom appear to have shaken the confidence of investors. In the wake of these scandals, many of these companies saw their equity values plummet dramatically and experienced a decline in credit ratings of their debt issues, often to junk bond status. Many of them were forced to file for Chapter 11 bankruptcy protection from creditors. Revelations about the unreliability of reported earnings continue to mount, as evidenced by an alarming increase in the frequency of earnings restatements by firms in the last few years. The widespread failure in financial reporting has largely been blamed on weak internal controls. Worries about accounting problems are widely cited as a reason for the stock market slump that followed these scandals (see, e.g., Browning and Weil (2002)).

Four major changes have taken place following these scandals. First, the nature of the audit industry has changed. Three of the Big 4 audit firms have either divested or publicly announced plans to divest their consulting businesses.[1] Second, Arthur Andersen, formerly one of the Big 5 audit firms, has gone out of business. Third, in July 2002, President Bush signed the Sarbanes-Oxley Bill (also known as the Corporate Oversight Bill) into law. This law imposes a number of corporate governance rules on all public companies with stock traded in the US. Finally, in August 2002, the New York Stock Exchange (NYSE) proposed an additional set of corporate governance rules. If approved by the Securities and Exchange Commission (SEC), these rules will become part of NYSE's listing requirements and apply to most companies with stock listed on NYSE.

Among their many provisions, the new law and the NYSE proposal together require that the board of a publicly traded company be composed of a majority of independent directors and the board's audit committee consist entirely of independent

[1] This process began before the scandals but gathered steam after the scandals broke out.

directors and have at least one member with financial expertise. They also impose restrictions on the types of services that outside auditors can provide to their audit clients.

These wide-ranging legislative and regulatory changes were adopted or proposed in response to the widespread outcry that followed these scandals.[2] But Holmstrom and Kaplan (2003) argue that while parts of the U.S. corporate governance system failed in the 1990s, the overall system performed quite well. They suggest that the risk now facing the U.S. governance system is the possibility of over-regulation in response to these extreme events. Until now, there is no systematic empirical evidence on the effectiveness of these governance provisions in avoiding serious corporate accounting scandals, typically exposed by a restatement. This paper is a step in that direction.

We empirically investigate the relation between certain corporate governance mechanisms and the likelihood of a company having a serious accounting problem, as evidenced by a mis-statement of its earnings. The specific corporate governance issues that we analyze are: board and audit committee independence, the use of independent directors with financial expertise on the board or audit committee, conflicts of interest faced by outside auditors providing consulting services to the company, membership of independent directors with large blockholdings on the board or audit committee, the influence of the chief executive officer (CEO) on the board and audit committee, and the membership of the chief financial officer (CFO) on the audit committee.

To our knowledge, this is the first empirical study to analyze the relation between corporate governance mechanisms and the incidence of earnings restatements. Prior studies examine the relation between corporate governance mechanisms and either earnings management (e.g., Klein (2002)) or SEC enforcement actions for violations of generally accepted accounting principles or GAAP (e.g., Beasley (1996) and Dechow, Sloan and Sweeney (1996)). Our paper extends the literature on the relation between corporate governance and earnings management in two ways. First, unlike earnings management, which most firms might engage in routinely to varying degrees, a mis-statement of earnings is a rare and serious event in the life of a company. As Palmrose, Richardson and Scholz (2001) point out, a restatement can trigger an SEC investigation, lead to replacement of top executives, and result in the firm being significantly penalized

[2] See, e.g., Cummings, et al. (2002), Milligan (2002), and New York Times (2002),

by investors. Many restating firms subsequently end up in bankruptcy. Second, the measurement of earnings management is an academic construct; there is no 'smoking gun' showing that earnings were indeed manipulated by managers. On the contrary, a mis-statement of earnings is essentially a direct admission by managers of past earnings manipulation.

Our paper also extends the literature on the relation between corporate governance and SEC enforcement actions for GAAP violations. Examining a sample of mis-statements of earnings, rather than focusing only on SEC enforcement actions, provides a larger sample of cases where earnings were manipulated. Given its limited staff and resources, the SEC obviously cannot pursue all the cases where earnings were manipulated. Rather, it is more likely to focus its enforcement effort on high-profile cases that are likely to generate more publicity and so have greater deterrent effects.

We analyze a sample of 159 U.S. public companies that restated their earnings in the years 2000 or 2001 and an industry-size matched control sample of 159 non-restating firms. We have assembled a unique, hand-collected dataset that contains detailed information on corporate governance characteristics of these 318 firms. We find no relation between the probability of restatement and board and audit committee independence and auditor conflicts. We find that the probability of restatement is negatively related to the incidence of an independent director with financial expertise on the board or audit committee.

The remainder of this paper is organized as follows. Section 2 discusses the issues. Section 3 briefly reviews prior studies. Section 4 provides details of the sample and data, and describes the stock price reaction to restatement announcements. Section 5 presents our empirical results and robustness checks, section 6 examines other interpretations of our results, and the final section concludes.

2. Issues

2.1. Independence of boards and audit committees

Independent directors are believed to be better able to monitor managers (see, e.g., Weisbach (1988), Byrd and Hickman (1992), and Brickley, Coles and Terry (1994)). Firms with more independent boards also have lower incidence of accounting fraud and

earnings management (see, e.g., Beasley (1996), Dechow, Sloan and Sweeney (1996), and Klein (2002)). The recent NYSE proposals on corporate governance assume that outside directors are more effective in monitoring management.

The primary purpose of the board's audit committee is to oversee the financial reporting process of a firm. The committee oversees a company's audit process and internal accounting controls. In 1999, a Blue Ribbon Panel sponsored by the NYSE and NASDAQ made recommendations about the independence of audit committees. While the NYSE requires each firm to have an audit committee comprised solely of independent directors, NASDAQ only requires that independent directors comprise a majority of a firm's audit committee. AMEX strongly recommends but does not require firms to have independent audit committees. Klein (2002) finds a negative relation between audit committee independence and earnings management. This finding is consistent with the 'impaired monitoring' story, which suggests that lack of independence impairs the ability of boards and audit committees to monitor management.

On the other hand, audit committees of corporate boards are typically not very active. They meet just a few (usually two or three) times a year. Therefore, even if the committee is comprised of independent directors, it may be hard for a small group of outsiders to detect fraud or accounting irregularities in a large, complex corporation in such a short time. We refer to this as the 'no-effect' story. Consistent with this story, Beasley (1996) finds no difference in the composition of the audit committee between samples of fraud and no-fraud firms. Similarly, even though a typical board meets more frequently than the audit committee (usually about six to eight times a year), it has a variety of other issues on its agenda besides overseeing the financial reporting of the firm. The board is responsible for issues such as the hiring, compensation, and firing of the CEO and overseeing the firm's overall business strategy, including its activity in the market for corporate control. So it is possible that even a well-functioning, competent, and independent board may fail to detect accounting problems in large firms. In support of the 'no-effect' story, Chtourou, Bedard, and Courteau (2001) find no significant relation between board independence and the level of earnings management. A third possibility is that inside directors on the board and the audit committee can facilitate oversight of potential accounting problems by acting as a channel for the flow of

pertinent information (see, e.g., Fama and Jensen (1983), and Klein (1998)). We refer to this as the 'information flow' story.

We examine the relation between independence of boards and audit committees and the likelihood of earnings restatement by a firm. A finding of a negative relation is consistent with the 'impaired monitoring' story; an insignificant relation is consistent with the 'no-effect' story; and a positive relation is consistent with the 'information flow' story.

2.2. Financial expertise of boards and audit committees

In addition to independence, the accounting and financial expertise of members of boards and audit committees has also received widespread attention from the media and regulators. Following the Blue Ribbon Panel's report (1999), the NYSE now requires that all members of the audit committee be 'financially literate' and that at least one member have expertise in accounting or finance. The rules assume that members with no experience in accounting or finance are less likely to be able to detect problems in financial reporting. We refer to this as the 'financial expertise' hypothesis. On the other hand, given the relatively short time that boards and audit committees spend reviewing a company's financial statements and controls, it is not clear that even members with expertise can discover accounting irregularities. As earlier, we refer to this as the 'no-effect' story. Third, the presence of a member with financial expertise can lead other members to become less vigilant. If the member with expertise is not effective in monitoring (perhaps because not enough time is spent monitoring), the board or audit committee may actually be less effective. We refer to this as the 'complacence' story.

We examine the relation between the financial expertise of boards and audit committees and the likelihood of earnings restatement by a firm. A finding of a negative relation is consistent with the 'financial expertise' story; an insignificant relation is consistent with the 'no-effect' story; and a positive relation is consistent with the 'complacence' story.

2.3. Auditor conflicts

The external audit is intended to enhance the credibility of financial statements of a firm. Auditors are supposed to verify and certify the quality of financial statements issued by management. However, over the last several decades, a substantial and increasing portion of an accounting firm's total revenues have been derived from consulting services of various kinds. Provision of these non-audit services can potentially hurt the quality of an audit by impairing auditor independence because of the economic bond that is created between the auditor and the client. We call this the 'conflict of interest' story.

With the revelation of accounting problems in increasing numbers of prominent companies, potential conflicts of interest generated by the lack of auditor independence have received widespread scrutiny from the media. The buildup of public pressure has led to a major overhaul in the audit industry. Following the criminal indictment of Arthur Andersen, many large accounting firms have either divested or have publicly announced plans to divest their consulting businesses. Recent regulations on accounting reform have also addressed this issue. One of the key provisions of the Sarbanes-Oxley Act of 2002 addresses concerns regarding auditor independence by restricting the types of non-audit services that an auditor can offer to its audit client. Frankel, Johnson, and Nelson (2002) find an inverse relation between auditor independence and earnings management. We extend their study by analyzing the relation between auditor independence and earnings restatements.

Auditors have long resisted calls to refrain from providing consulting and business services to their audit clients. Auditors argue that providing consulting services to audit clients increases their knowledge and understanding of the client's business, which leads to improvement in the quality of their audits. We refer this as the 'synergy' story.

We examine the relation between auditor conflicts and the likelihood of a firm restating earnings. A finding of a positive relation is consistent with the 'conflict of interest' story; a negative relation is consistent with the 'synergy' story.

2.4. CEO's influence on the board

The influence that a CEO has on the board and the audit committee can reduce the effectiveness of these mechanisms in monitoring managers. The greater is a CEO's influence on the board, the less likely is the board to suspect irregularities that a more independent board may have caught. We refer to this as the 'impaired monitoring' hypothesis. Concerns about a CEO's influence on the board have led the NYSE to propose that each board have a nominating or corporate governance committee that is comprised solely of independent directors. The NYSE views board nominations to be among the more important functions of a board and concludes that independent nominating committees "can enhance the independence and quality of nominees." However, it is possible that even if a CEO is influential on the board and audit committee, she is deterred from hindering the board in its oversight by other control mechanisms such as the market for corporate control, monitoring by large blockholders or institutions, or labor market concerns (see, e.g., Agrawal and Knoeber (1996)). We refer to this idea as the 'disciplinary effect of other control mechanisms'.

We examine the relation between the influence of the CEO on the board and audit committee and the likelihood of earnings restatement by a firm. A finding of a positive relation is consistent with the 'impaired monitoring' story, while an insignificant relation is consistent with the 'disciplinary effect of other control mechanisms' story.

2.5. Other governance mechanisms

In addition to independence and financial expertise of boards and audit committees, other governance mechanisms can also affect the likelihood of a restatement by a firm. First, large outside blockholders have greater incentives to monitor managers (see, e.g., Shleifer and Vishny (1986), Holderness and Sheehan (1988), and Agrawal and Mandelker (1990)). Similarly, independent directors with large blockholdings on the board and audit committee also have greater incentives to monitor managers than other independent directors. We examine whether these mechanisms affect the likelihood of a restatement.

A CFO is directly engaged in making and implementing financial decisions and is ultimately responsible for a firm's financial activities. Her influence on the board or the

audit committee can significantly reduce the effectiveness of the oversight process. On the other hand, the CFO's presence on the audit committee may facilitate the flow of pertinent information to the committee. We examine whether the CFO's membership on the audit committee affects the likelihood of a restatement.

Finally, reputational capital is important for accounting firms given the repeat nature of their business. The Big 5 accounting firms (PriceWaterhouseCoopers, Ernst & Young, Arthur Andersen, Deloitte and Touche, and KPMG) were long viewed as surrogates for audit quality. However, in the wake of the recent accounting revelations and the demise of Arthur Andersen, it is unclear whether these Big 5 firms are indeed better at providing higher quality audit services than other firms. We examine whether the probability of restatement is related to the use of Arthur Andersen or another Big 5 auditor.

3. Prior studies on earnings restatements

As discussed in the introduction, no prior study examines the relation between corporate governance mechanisms and the likelihood of an earnings restatement. A few studies examine the consequences of earnings restatements. Kinney and McDaniel (1989) analyze the stock price reaction for a sample of 73 firms that restated earnings between 1976 and 1985. They find that, on average, stock returns are negative between issuance of erroneous quarterly statements and its corrections. Defond and Jiambalvo (1991) study the characteristics of a sample of 41 companies that restated their earnings from 1977 to 1988. They find that restating companies had lower earnings growth before the restatement and were less likely to have an audit committee than firms in their control sample.

Palmrose, et al. (2001) analyze the stock price reaction for a sample of 403 restatements of quarterly and annual financial statements announced during 1995-99. They find a significant mean (median) abnormal return of about –9.2% (-4.6%) over a 2-day announcement period. The average stock price reaction is even larger than this to restatements with an indication of management fraud, cases with more material dollar effects, and to restatements initiated by auditors..

Anderson and Yohn (2002) examine a sample of 161 firms that announced a restatement of audited annual financial statements over the period 1997-99. They find a mean (median) stock price drop of –3.5% (-3.8%) over days (-3, +3) around the announcement of a restatement; for firms with revenue recognition problems, the drop is much bigger, about -11% (-8%). They also find an increase in bid-ask spreads upon such announcements.

4. Sample and data

Section 4.1 below describes our restatement and control samples, section 4.2 examines the stock price reaction to restatement announcements, section 4.3 describes the source and measurement of our corporate governance variables, and section 4.4 describes the characteristics of our sample firms.

4.1. Earnings restatements and control samples

We identify earnings restatements by searching the Lexis-Nexis News library using keyword and string searches. We searched for words containing the strings 'restat' or 'revis'. We supplement this sample with keyword searches from two other full-text news databases, Newspaper Source and Proquest Newspapers. The restatement sample includes restatements announced over the period from January 1, 2000 to December 31, 2001. We choose this sample period because the data on audit and non-audit fees are only available in proxy statements filed on February 5, 2001 or later, following the SEC's adoption of revised auditor independence rules on November 15, 2000.

We identify 303 cases of restatements of quarterly or annual earnings over this two-year period. As in Palmrose and Scholz (2002), we only include mis-statements of earnings rather than restatements for technical reasons. Accordingly, we exclude retroactive restatements required by GAAP for accounting changes (such as from FIFO to LIFO) and subsequent events (such as stock splits, mergers and divestitures). We also exclude restatements involving preliminary earnings announcements that do not get reflected in published financial statements, and cases where a potential restatement was announced but did not actually occur.

For each case, we tried to identify from news reports the specific accounts restated, the number of quarters restated, original earnings, restated earnings, and the identity of the initiator of the restatement. The restated accounts are divided into core versus non-core accounts, following Palmrose, et al. (2001). Core accounts are accounts that affect the on-going operating results of a firm and include revenue, cost of goods sold, and selling, general and administrative expenses. Accounts that relate to one-time items such as goodwill or in-process research and development (IPR&D) represent non-core accounts. We attempt to discern the magnitude of the restatement by examining the number of quarters restated and by analyzing the percentage and the dollar value change between originally reported and newly restated earnings.

For each restating firm, we obtain a control firm that (1) has the same primary 2-digit SIC industry code as the restating firm, (2) has the closest market capitalization to the restating firm at the end of the year before the year of the restatement, and (3) did not restate its earnings in the two years prior to the date of the restatement announcement by its matched firm. We assume that serious accounting problems tend to be self-unravelling and force a firm to restate its financial reports. Under this assumption, firms in our control sample do not have an accounting problem.

Out of the initial sample of 303 restating firms identified from news reports, 216 firms are listed on CRSP and Compustat databases. Out of those, we were able to find a control firm for 185 firms. For each of these 185 restating firms, we tried to obtain detailed information on the nature and characteristics of the restatement by reading the relevant SEC filings (Forms 10K, 10K-A, 10Q and 10Q-A). For 10 firms, despite the initial news reports, we could not find any indication of a restatement in these filings. We omitted these 10 cases, leaving us with a sample of 175 firms. Of these 175 pairs, we were able to obtain proxy statements for 159 pairs of firms. Our final sample consists of these 159 pairs of firms.

Table 1 shows descriptive statistics of our sample of restating firms. Panel A shows that 25 of the restatements were initiated by regulators (21 of them by the SEC), 15 cases were initiated by the outside auditors, and the remaining 119 cases were initiated

by the companies themselves.[3] Ninety-eight (62%) of the cases involved a restatement of one or more of the core accounts, 56 (35%) involved non-core accounts, and 5 cases involved both sets of accounts. A restatement usually involves a decrease in earnings from their originally reported levels. In our sample, this was true in 130 cases. For 21 firms, earnings actually increased as a result of the restatement. We could not ascertain the direction of change in earnings in the remaining 8 cases.

Panel B of Table 1 shows that the mean (median) level of original earnings in our sample is about $35 million ($1.4 million); upon restatement, it drops to about -229 million (-$0.4 million). The mean (median) change in earnings is –114% (-6%). The median restatement involves 4 quarters of earnings.

Panel C of Table 1 shows the industry distribution of our sample firms based on their primary 2-digit SIC code from Compustat. We further collapse all 2-digit SIC codes into 21 industries, following the classification used by Song and Walkling (1993). Of the sample of 159 restating firms, 39 are in the service sector, 26 are in the financial services, and 21 are machinery manufacturers. The remaining 73 firms are scattered across a wide range of industries. There were no restatements by firms in the agriculture or hotel businesses.

4.2 Stock price reaction to restatement announcements

We obtain stock returns for our sample firms and the stock market for days –1, 0 and +1 from the Center for Research in Security Prices (CRSP) database, where day 0 is the announcement date of a restatement. The stock market return is defined as the value-weighted CRSP index return. Section 4.2.1 below discusses the stock price reaction to the announcement of restatements in our full sample, and section 4.2.2 discusses it for sub-samples based on the type of restatement.

4.2.1 Full sample

We compute the abnormal return for firm i over day t as

[3]Following Palmrose, et al. (2001), the last category includes 47 cases where the identity of the initiator could not be determined from news reports and SEC filings.

(1) $e_{it} = r_{it} - r_{mt}$

where r_i and r_m are the stock return for firm i and the market, respectively. The cumulative abnormal return for firm i over days (t_1, t_2) is measured as

(2) $$CAR^i_{t_1,t_2} = \sum_{t=t_1}^{t_2} e_{it}$$

The cumulative average abnormal return over days (t_1, t_2) is measured as

(3) $$CAAR_{t_1,t_2} = (\sum_{i=1}^{n} CAR^i_{t_1,t_2}) / n$$

In row 1 of Table 2, the abnormal return (CAAR) over days (-1, +1) is –5.6%. The CAAR over days (-1, 0) is –4.2%. Both CAARs are statistically significant at the 1% level in 2-tailed tests. Clearly, the market does not take a restatement of earnings lightly. The announcement of a restatement presumably causes investors to reassess management's credibility as well as future earnings and cash flows.

4.2.2 Sub-samples

In the rest of Table 2, we present the CAARs for five partitions of our overall sample of earnings restatements based on the type of accounts involved in a restatement, the identity of the initiator, the number of quarters restated, the size of the absolute percentage change in earnings, and the direction of change in earnings. Consistent with the findings of Palmrose et al. (2001), the announcement effect is worse for restatements of core accounts than for non-core accounts. The CAAR over days (-1, +1) for core restatements is a statistically significant (at the 1% level) –7.8%; it is insignificant for non-core restatements. Restatements initiated by the company itself or by its auditors are bad news (with a statistically significant CAAR of –6%), while restatements initiated by regulators have essentially no effect on stock prices on average.[4] As expected, restatements involving large (greater than the sample median value) changes in earnings are worse news (with a statistically significant CAAR of –8.6%) than smaller

[4]This finding could be due to leakage of information about cases initiated by regulators (see Dechow, Sloan and Sweeney (1996)).

restatements (with an insignificant abnormal return). On average, restatements involving less than four quarters are bad news (with a significant CAAR of -7.4%), but those involving more quarters are not. This is because the magnitude of the earnings restated (not shown in the table) is substantially bigger in the former group. Not surprisingly, restatements resulting in an earnings decrease are bad news (with a statistically significant CAAR of –6%), but those that result in an increase in earnings are not. The difference in abnormal returns between the two groups in each partition is statistically insignificant at the 5% level in two-tailed tests.

4.3. Corporate governance variables

The variables measuring the independence and financial expertise of the board and audit committees, the CEO's influence on the board, and data on auditors' fees are hand-collected from the latest proxy statement dated before the announcement date of a restatement. This is done to avoid the possibility of firms changing the structure of their board or audit committee or replacing their CEOs after restating their earnings.[5] If the data on audit and non-audit fees are not reported in that proxy, we obtain it from the next year's proxy statement because these data were not required to be disclosed in proxy statements filed before February 5, 2001.

We divide the board of directors into three groups: inside, gray and independent directors. Inside directors are employees of the firm. Gray directors are ex-employees, family members of the CEO, or outsiders who have a business relationship with the company such as consultants, lawyers, bankers, accountants, suppliers, customers, service providers, etc. The remaining directors are classified as independent. Directors with accounting or financial background are those with a CPA, CFA, or experience in corporate financial management (e.g., as CFO, treasurer, controller, or VP-Finance).

We measure a CEO's influence on the board and audit committee via dummy variables for whether the CEO chairs the board (CEOCHAIR), serves on the audit committee, and belongs to the founding family. Following Shivdasani and Yermack

[5]Sixteen of the 159 firms in our restatement sample had made another restatement announcement within the prior two years. Omitting these 16 firms from the sample has essentially no effect on our results.

(1999), we say that a CEO picks board members if the CEO serves on the board's nominating committee or if the board has no such committee.

We measure auditor conflicts via two variables: (1) the proportion of fees paid to auditors for non-audit services to total fees for audit and non-audit services (PNAUDFEE), and (2) a dummy variable for large (> $1 million) non-audit fees paid to auditors (LNAUDFEE). We attempt to assess the difference in audit quality via dummy variables for Big 5 accounting firms (BIG5) and for Arthur Andersen (AA).

4.4. Other control variables

Data on control variables to measure firm size, profitability, growth rates, and financial leverage are obtained from annual Compustat data files. We present descriptive statistics of our samples of restating (control) firms in Panel A of Table 3. The median sales of these firms are about $348 ($326) million. Their median market capitalization is about $205 ($210) million. The median firm employs about 1,200 (1,000) employees. Restating firms appear to have significantly (both statistically and economically) worse operating performance to assets (OPA) than control firms over the two year period preceding the year of restatement. This suggests that a desire to boost reported performance may have caused companies to adopt aggressive accounting practices, from which they are later forced to retract. Both restating and control firms have median 4-year sales growth rates of around 15%. Both groups seem to have moderate leverage. The median debt to asset ratio is about 0.12 (0.11) for restating (control) firms.

5. Empirical results

We discuss univariate tests in section 5.1 below, Pearson product-moment correlations in section 5.2, matched-pairs logistic regressions in section 5.3, and robustness checks in section 5.4.

5.1 Univariate tests

We examine differences between restating and control firms' board structures in section 5.1.1, audit committees in section 5.1.2, the CEO's influence on the board in section 5.1.3, ownership structures in section 5.1.4, and outside auditors in section 5.1.5.

5.1.1 Board structure

We present measures of board structure for the restating and control samples in Panel B of Table 3. The two groups of firms have similar board structures. The median board size for restating (control) firms is 7 (8) members. The median proportion of independent directors (PID) is about 71% in each sample. About 5% of the independent directors hold 5% or larger blocks of equity (PID5) in both groups. One striking difference between the two groups is in the incidence of an independent director with a background in accounting or finance (IDAC). The proportion of firms with at least one such director is about 18% in restating firms; in control firms, this proportion is more than twice as big (44%). This difference is statistically significant at the 1% level in two-tailed tests.

5.1.2 Audit committee

Panel C of Table 3 describes the board's audit committee for our restating and control samples. In many respects, the structure of this committee is similar for the two groups of firms. The median size of this committee is 3 members in both groups. The mean (median) proportion of independent directors on this committee (PIDAUD) is about 94% (100%) in both groups. The CEO serves on the audit committee (CEOAUD) in about 2.5% of the firms in each group. There are two striking differences between the two groups. First, the mean proportion of firms whose audit committees include at least one independent director with a background in accounting or finance (IDACAUD) is about 15% for restating firms, while it is 33% in control firms. This difference is statistically significant at the 1% level in two-tailed tests. Second, the CFO serves on the audit committee (CFOAUD) in about 2% of the restating firms; this proportion is about 10% in the control sample. Once again, this difference is statistically significant at the 1% level. Audit committees of companies that restate earnings are less likely to have an

independent director with finance background and to have the CFO as a member than control firms.

5.1.3. CEO's influence on the board

Restating and control firms appear very similar in the measurable degree of influence that the CEO exerts on the board. Panel D of Table 3 shows that the CEO chairs the board in about 64% (62%) of the restating (control) firms. The median tenure of the CEO on the board is 5 (7) years in restating (control) firms. The CEO belongs to the founding family in 26% (20%) of the firms in the two samples. The CEO appears to pick board members in 80% (82%) of the firms in the two groups. None of these differences are statistically significant.

5.1.4. Ownership structure

Restating and control firms also appear to have similar ownership structures, as can be seen from Panel E of Table 3. About 81% (84%) of the firms have an outside blockholder (BLOCK) who owns 5% or more of the outstanding equity in restating (control) firms. The median number of outside blockholders (NBLOCK) is 2 in each group. The CEO owns a median of 1.2% (1.8%) of the equity in restating (control) firms. None of these differences are statistically significant at the 5% level. Inside directors own a median of 1.9% and 3.2% of the equity in the two groups of firms. This difference has a p-value of .04.

5.1.5 Outside auditor

Restating and control firms also appear to be quite similar in terms of observable characteristics of their outside auditor. The proportion of the two groups of companies with a Big 5 firm as their auditor (BIG5) was about 89% and 90%, respectively; the proportion of companies audited by Arthur Andersen (AA) was about 13% and 17%, respectively. Non-audit fees comprised a median of about 51% (52%) of the total fees of auditors (PNAUDFEE) in restating (control) companies. About 30% of the restating firms and 27% of the control group paid over $1 million in non-audit fees to their outside auditors (LNAUDFEE). None of these differences are statistically significant.

5.2 Correlations

Table 4 shows product-moment correlations among our main variables. The incidence of restatement (RESTATE) is negatively correlated with the incidence of independent directors on the board who have a background in accounting or finance (IDAC), the incidence of such directors on the audit committee (IDACAUD), and the membership of the CFO on the audit committee (CFOAUD). The proportion of independent directors on the board (PID) is positively correlated with the proportion of such directors on the audit committee (PIDAUD). IDAC is positively correlated with IDACAUD and CFOAUD. The latter variable is correlated positively with IDACAUD and negatively with PIDAUD. Firm size, as measured by the natural log of the number of employees in thousands (LEMP) is positively correlated with PID, the proportion of non-audit fee to total fees paid to auditors (PNAUDFEE), and the average ratio of operating performance to assets for the prior three years (OPA) and is negatively correlated with IDAC and IDACAUD. All of these correlations are statistically significant at the 1% level in 2-tailed tests.

5.3 Matched-pairs logistic regressions

Because we have a matched-pairs (rather than a random) sample, the standard logistic regression is inappropriate. Instead, we use the matched-pairs logistic regression. We estimate variants of the following model:[6]

(1) RESTATE = f (PID, IDAC, PIDAUD, IDACAUD, CFOAUD, PNAUDFEE, AA, LEMP, OPA)

The first seven of the explanatory variables are the corporate governance variables that we discussed in section 5.1 above. The last two are control variables. As discussed in section 2 above, the signs of most of these variables are empirical issues. So we use the observed signs to interpret our results.

Panel A of Table 5 shows estimates of seven variants of equation (1), where we include one governance variable of interest at a time, together with the control variables LEMP and OPA. The p-values are reported in parentheses below the coefficient

[6]See Hosmer and Lemeshow (2000) for a detailed exposition of this technique. The results are similar when we use the usual (non-matched pairs) logistic procedure, so they are not reported in a table.

estimates. We also report (in square brackets below the p-values) marginal effects[7] of the variables of interest that are statistically significant; all of these turn out to be binary dummy variables.

The probability of restatement is significantly negatively related to the incidence[8] of independent directors with a background in accounting or finance on the board and the audit committee (IDAC and IDACAUD) and to the presence of the CFO on the audit committee (CFOAUD). The magnitudes of these effects are quite large. For a firm with at least one independent director with financial expertise on the board (audit committee), the probability of restating is .30 (.22) lower than that for a control firm without such a director. Similarly, for a firm with the CFO on the audit committee, the probability of restatement is .33 lower than that for a control firm where the CFO does not serve on this committee. The probability of restatement is unrelated to the proportion of independent directors on the board and the audit committee (PID and PIDAUD), the proportion of non-audit fee to total fees paid to auditors (PNAUDFEE), and the use of Arthur Andersen (AA) as outside auditors.

In Panel B, we report estimates of four more variants of equation (1). In these models, we include multiple governance variables as explanatory variables and examine several additional explanatory variables. These are the proportion of independent directors who are 5% blockholders on the board and the audit committee (PID5 and PID5AUD), a dummy variable (CEOCHAIR) that equals 1 if the CEO chairs the board and 0 otherwise, and a dummy variable (BLOCK) that equals 1 if the firm has a 5% blockholder and 0 otherwise. In model (1), we include the PID, PIDAC, and PID5 variables, together with the CFOAUD variable and the control variables for firm size and firm performance (LEMP and OPA). Model (2) is similar to model (1), except we replace the CFOAUD variable by the CEOCHAIR and BLOCK variables. Model (3) is similar to model (1), except we replace the board structure variables (PID, IDAC, and PID5) by the

[7]For the matched-pairs logistic regression, marginal effects are computed as the difference between two cases in the probability of the restating firm being classified correctly out of a given pair of firms. The first case is where each explanatory variable takes the same value for the two firms. In the second case, the explanatory dummy variable of interest takes the values of 1 and 0 for the restating and control firms, respectively, and each of the other variables takes the same value for the two firms.

[8]The results are similar when we use the proportion, rather than the incidence, of such directors on the board and the audit committee.

corresponding variables for the structure of the audit committee (PIDAUD, IDACAUD, and PID5AUD). Model (4) is similar to model (3), except we replace the CFOAUD variable by the CEOCHAIR and BLOCK variables.

The results are similar to those in Panel A, except that the coefficient of CFOAUD is no longer significant. The probability of a restatement is negatively related to IDAC and IDACAUD. Once again, the magnitudes of these effects are quite large and similar to those in Panel A. These findings are consistent with the idea that the chances of a firm getting into a serious accounting problem are reduced by the presence of an independent director with a background in finance or accounting on the board (IDAC) or the audit committee (IDACAUD). Independent directors with financial expertise appear to be valuable in providing oversight of a firm's financial reporting practices. None of the other variables of interest is statistically significant. These results are quite robust to alternative specifications of our basic empirical model.

5.4 Robustness checks

We next examine the robustness of our results in section 5.3 above to four potential issues: controls for other governance variables, inclusion of other control variables, whether restatements denote a serious accounting problem, and the timing of measurement of the explanatory variables.

5.4.1 Other governance variables

We next examine whether the remaining corporate governance variables discussed in section 2 are related to the probability of a company restating earnings. These variables measure the CEO's influence on the board, a dummy for a Big 5 auditor, and a dummy for large (> $1 million) non-audit fees paid to auditors. When we add these variables to the right hand side of our logistic regressions in Table 5, none of them is statistically significant; their addition does not change the main results found earlier in Table 5.

5.4.2 Other control variables

The logistic regressions shown in Table 5 control for firm size (measured by number of employees) and prior operating performance. In results not shown in a table, we also control for financial leverage and growth. Highly levered firms may find it more difficult to raise external financing on reasonable terms. As suggested by Dechow, Sloan and Sweeney (1996), the desire to raise outside financing at low cost can lead firms to manipulate earnings in the first place. We measure financial leverage as long-term debt divided by either total assets or firm value. Similarly, the desire to sustain growth is another reason that managers may resort to aggressive accounting practices that lead to a restatement of earnings. So we also control for growth, measured two ways: prior 5-year sales growth rate, and the ratio of firm value to total assets measured one year before the announcement of a restatement. None of these variables is significantly related to the probability of restatement, and their inclusion does not change our basic results. We also control for firm size using variables other than the number of employees, such as sales, total assets, market capitalization, and firm value. The results are similar to those shown in Table 5.

5.4.3 Is a restatement a serious episode?

As discussed in section 4.1 above, our sample consists of generally more serious, rather than technical, cases of restatements. Nevertheless, the sample includes some cases where firms restated due to reasons that are arguably less serious. One such group may be restatements triggered by the SEC's adoption of revenue recognition rules under Staff Accounting Bulletin 101.[9] Our sample contains 8 such cases. Arguably also, restatements that result in an *increase* in earnings may not be as serious as cases that result in an earnings decrease. In Table 6, we report estimates of logistic models similar to those in Panel B of Table 5 after omitting both of these types of restatements from the sample. The results here reinforce those found earlier in Table 5. Once again, the probability of restatement is negatively related to the presence of an independent director with financial expertise on the board (IDAC) or the audit committee (IDACAUD). This result is quite

[9] Although Rountree (2003) finds that on average, stock prices decline upon the announcement of such restatements also.

robust; it continues to hold when we omit restatements involving non-core accounts in addition to SAB 101 and earnings increase cases.

5.4.4 Timing of measurement of the explanatory variables

In the logistic regressions in section 5.3 above, the governance (as well as control) variables are measured during the year before the announcement of the restatement, rather than before the beginning date of the accounting problems that led the company to restate earnings. The difficulty in using the latter approach is that the beginning date of the accounting problems is unknown in most cases, even ex-post. What *is* known, however, is the earliest time period for which earnings were restated. One approach to address this issue is to use this date as a proxy for the date that the accounting problems first began. Out of our sample of 159 restating firms, in 109 companies the announcement of a restatement came within a year following the earliest year restated. For this sub-sample, our governance and control variables are measured as of the year before the first year restated or during that year. We re-estimate our Table 5 regressions for this sub-sample. The results are essentially unchanged.

6. Other interpretations of the results

This section examines the possibility of reverse causality in section 6.1 and the issue of incidence vs. revelation of an accounting problem in section 6.2.

6.1 Reverse causality?

We find that firms that have an independent director with financial expertise on the board or audit committee are less likely to restate earnings. This finding is consistent with the idea that such directors help firms in avoiding serious accounting problems. But could it be that better managed firms, which are less likely to have accounting problems choose to have such directors in the first place? Well, Table 4 shows that prior 3-year operating performance (OPA) of our sample of 318 restating and control firms is essentially uncorrelated with the presence of an independent director with financial expertise on the board (IDAC) or on the audit committee (IDACAUD). To the extent that

OPA can be viewed as a measure of management quality, the evidence does not support this alternative interpretation of our results.

6.2 Incidence vs. revelation of accounting problems

As discussed in section 4.1, our tests assume that serious accounting problems tend to be self-unraveling and force a firm to restate its financial statements. Under this assumption, a restatement is synonymous with the incidence of a serious accounting problem. Relaxing this assumption potentially complicates our analysis. A restatement can now be interpreted as bad news for investors (by revealing that the company has accounting problems) or as good news (by revealing that the company has decided to clean up its problems).

While this is a common problem with any economic analysis of the causes of crime, fraud or insider trading, this issue is moot here for all the governance variables that we find to be unrelated to the probability of a restatement. But it is relevant for the negative relation that we find between this probability and the presence of an independent director with financial expertise on the board or audit committee. Does our finding imply that such directors help companies avoid serious accounting problems (perhaps by early intervention) or that they help companies hide such problems? The latter interpretation does not seem very likely. Independent directors lack incentives to aid the firm in hiding an accounting problem for two reasons. First, unlike managers who have their jobs (and the investment in firm-specific human capital that goes with it) at stake in the firm, independent directors are not employed by the firm and so do not have as much at stake. Second, they face substantial liability[10] and loss of reputational capital if they are caught helping the firm hide a serious accounting problem. So independent directors have little to gain and much to lose from aiding the firm in a cover-up scheme.

7. Summary and conclusions

Following accounting scandals at prominent companies such as Enron, Worldcom and Tyco, there has been a sweeping overhaul of regulations on corporate governance.

[10]This liability is typically not covered by directors and officers liability insurance. These policies usually exclude coverage for fraud.

First, in July 2002, the United States adopted the Sarbanes-Oxley Act, which applies to all public companies with stock traded in the US. Second, in August 2002, the NYSE proposed a new set of corporate governance rules. If approved by the SEC, these rules will become part of NYSE listing requirements and will apply to most companies with stock listed on NYSE. Among their many provisions, the Sarbanes-Oxley Act and the NYSE proposal together require that a company's board have a majority of independent directors, that the board's audit committee consist entirely of independent directors and have at least one member with a background in accounting or finance, and restrict the types of non-audit services that the outside auditor can provide. Until now, there is no systematic empirical evidence on the effectiveness of these governance provisions in avoiding serious accounting problems at companies. This paper is a step in that direction.

We examine whether certain governance mechanisms are related to the incidence of an earnings restatement by a firm. The corporate governance issues that we analyze are: independence of the board and audit committee, the use of independent directors with an accounting or finance background on the board or audit committee, the use of independent directors with large blockholdings on the board or audit committee, conflicts facing outside auditors, the CFO serving on the audit committee, and the CEO's influence on the board. We examine a sample of 159 U.S. public companies that restated earnings in 2000 or 2001 and an industry-size matched sample of control firms. We have assembled a novel, hand-collected dataset measuring corporate governance characteristics of these firms.

We find that several key governance characteristics are essentially unrelated to the probability of a company restating earnings. These include the independence of boards and audit committees, and outside auditors providing non-audit services. Interestingly, the use of Arthur Andersen or another Big 5 audit firm is also unrelated to this probability. We find that the incidence of an independent director with a background in accounting or finance on the board or audit committee is significantly negatively related to the probability of restatement. The magnitude of this relation is quite large. For a firm with at least one independent director with financial expertise on the board (audit committee), the probability of restating is .31 (.23) lower than that for a control firm without such a director, after controlling for other things. This relation is robust to

alternative specifications. Our findings are consistent with the idea that independent directors with financial expertise are valuable in providing oversight of a firm's financial reporting practices.

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Table 1

Frequency Distribution and Descriptive Statistics of Restating Firms

Panels A, B and C show, respectively, the frequency distribution, descriptive statistics, and industry distribution of the restating firms. The sample consists of publicly traded U.S. companies that restated their earnings during the years 2000 or 2001, identified using three online databases: Lexis/ Nexis News library, Newspaper Source, and Proquest Newspapers.

Panel A: Frequency Distribution

Initiated by	**Number**
Regulators	
SEC	21
Department of Justice	2
Comptroller of Currency	2
Auditor	15
Company[1]	119
	159

Accounts restated	**Number**
Core	98
Non-Core	56
Mixed	5
	159

Restatements that	**Number**
Reduce earnings	130
Increase earnings	21
Have unknown effect	8
	159

Panel B: Descriptive Statistics

	Mean	**p-value**	**Median**	**Wilcoxon p-value**	**Sample size**
Original earnings[2] ($ million)	34.89	.21	1.45	.00	152
Restated earnings[2] ($million)	-229.34	.42	-.386	.67	155
Change in earnings[3]	-113.75%	.22	-6.42%	.01	150
Absolute change in earnings[3]	227.48%	.02	38.61%	.00	150
Number of quarters restated	5.03	.00	4	.00	157

Table 1 (cont.)

Panel C: Industry Distribution

Industry (SIC2 codes)	Number of firms
Agriculture (01-09)	0
Mining (10-14)	1
Construction (15-19)	3
Food and tobacco (20-21)	5
Textiles and apparel (22-23)	2
Lumber, furniture, paper and print (24-27)	6
Chemicals (28)	7
Petroleum, rubber and plastics (29-30)	2
Leather, stone, glass (31-32)	2
Primary and fabricated metals (33-34)	3
Machinery (35-36)	21
Transport equipment (37)	3
Instruments and miscellaneous manufacturing (38-39)	8
Transport, communications, utilities (40-49)	12
Wholesale trade (50-51)	7
Retail trade (52-59)	11
Finance, insurance, real estate (60-69)	26
Hotels and personal services (70-71)	0
Services (72-89)	39
Public administration and others (90-99)	1

[1]Includes 47 cases where the identity of the initiator could not be determined from news reports and SEC filings.

[2]The sum of earnings for all quarters affected by the restatement.

[3]The sample excludes one firm with zero original earnings.

Table 2
Abnormal Stock Returns (%) Around Restatement Announcement

The abnormal return for firm i over day t is computed as $e_{it} = (r_{it} - r_{mt})$, where r_i and r_m are the stock return for firm i and the CRSP value-weighted index, respectively. The cumulative abnormal return over days (t_1, t_2) is measured as

$$\text{CAR}_{t_1,t_2} = \sum_{t=t_1}^{t_2} e_{it}$$

The cumulative average abnormal return (CAAR) is the average of CARs across firms. The sample consists of all companies with non-missing stock returns out of the 159 publicly traded U.S. companies that restated their earnings during the years 2000 or 2001.

	$CAAR_{-1,0}$ (%)		$CAAR_{-1,+1}$ (%)		Sample Size
	Mean	Median	Mean	Median	
Full sample	-4.22[a]	-2.02[a]	-5.65[a]	-2.54[a]	119
Core = 0	-1.46	-0.20	-2.15	-.39	43
Core = 1	-5.73[a]	-2.88[a]	-7.77[a]	-3.47[a]	73
p-value for difference[1]	.131	.092	.097	.123	
Initiated by regulators (DOJ, COC, SEC)	-4.55	-2.88	-3.56	-.34	17
Initiated by companies and auditors	-4.08[a]	-1.68[a]	-6.01[a]	-2.58[a]	99
p-value for difference	.936	.973	.719	.696	
Restated > 4 quarters	-1.08	-0.125	-2.06	-0.41	35
Restated ≤ 4 quarters	-5.53[a]	-2.43[a]	-7.45[a]	-3.44[a]	80
p-value for difference	.271	.225	.254	.119	
Large restatements[2]	-5.82	-2.41	-8.59[b]	-4.69[b]	53
Small restatements[2]	-2.77[b]	-1.94[b]	-2.99	-1.62	56
p-value for difference	.384	.487	.167	.236	
Earnings increase	.68	-.02	-3.99	-2.40	14
Earnings decrease	-4.92[b]	-2.43[a]	-6.02[a]	-2.54[a]	96
p-value for difference	.099	.245	.704	.841	

[1]The p-value shown under the means is based on the t-test for the difference between two independent samples; the one shown under the medians is for the Wilcoxon test.

Table 2 (cont.)

[2]Large restatements are cases where the absolute percentage change in earnings due to restatement is greater than the sample median value of 38.61%; the remaining cases are small restatements.

[a,b]Denotes whether significantly different from zero at the 1% and 5% levels, respectively, in the 2-tailed t-test (for the mean) and the Wilcoxon test (for the median).

Table 3

Descriptive Statistics of Restating and Control Firms

The table shows the mean and median values for matched samples of restating and control firms and tests for differences between the two groups. The restatement sample consists of 159 publicly traded firms that restated their earnings during the years 2000 or 2001, identified using news announcements reported in Lexis/Nexis, Newspaper Source, and Proquest Newspaper databases. Each restating firm is matched with a control firm that has the closest size (market capitalization at the end of the fiscal year ended one year before the year of the restatement) from among all firms in its industry that did not restate its earnings over the two-year period before the announcement date of the restating firm.

Table 3 (cont.)

Variable	Mean			Median			Sample Size
	Restate	Control	p-value[1]	Restate	Control	Wilcoxon p-value[2]	
Panel A: General Firm Characteristics							
Firm size[3]:							
Sales ($million) (SALES)	3,824	2,467	.089	348	326	.141	109
Total assets ($million) (ASSET)	4,219	3,724	.576	420	324	.019	135
Market value of equity ($mil) (MCAP)	4,736	3,786	.321	205	210	.461	150
Firm value[4] ($million) (FVALUE)	8,299	6,984	.350	595	468	.039	135
Number of employees ('000s) (EMP)	13.3	9.99	.197	1.24	.953	.128	144
Operating performance:							
OPA[5] (-1)	-3.36%	3.33%	.146	4.86%	9.39%	.007	130
OPA[5] (-2)	-5.229%	3.00%	.223	8.57%	9.75%	.069	129
OPA[5] (-3)	0.045%	-3.07%	.524	9.56%	9.14%	.412	131
OPA[6]	-3.06%	1.47%	.315	6.65%	9.34%	.028	128
Growth:							
Sales growth rate[7] (SGR)	25.33%	26.02%	.920	15.64%	15.32%	.920	105
Firm value/ Total assets (V/A)	2.65	2.67	.923	1.19	1.38	.206	135
Financial Leverge:							
Long term debt/Total assets (D/A)	.189	.207	.509	.120	.107	.816	135
Long term debt/Firm value (D/V)	.149	.142	.688	.074	.077	.638	135
Panel B: Board Structure							
Board size (BDSIZE)	7.94	8.29	.183	7	8	.126	159
Proportion of independent directors (PID)	.691	.677	.409	.714	.714	.367	159

Table 3 (cont.)

Variable	Mean			Median			Sample Size
	Restate	Control	p-value[1]	Restate	Control	Wilcoxon p-value[2]	
Independent director with accounting background =1 if yes, 0 otherwise (IDAC)	.184	.440	<.0001	0	0	<.0001	158
Proportion of independent directors who are 5% blockholders (PID5)	.047	.049	.784	0	0	.912	158
Panel C: Audit Committee							
Audit committee size (NAUD)	3.32	3.27	.586	3	3	.603	158
Proportion of independent directors (PIDAUD)	.943	.941	.945	1	1	.547	158
Independent director with accounting background =1 if yes, 0 otherwise (IDACAUD)	.152	.329	.0004	0	0	.0003	158
Proportion of independent directors who are 5% blockholders (PID5AUD)	.043	.051	.670	0	0	.723	158
CEO on audit committee = 1 if yes, 0 otherwise (CEOAUD)	.025	.025	1.0	0	0	1.0	158
CFO on audit committee = 1 if yes, 0 otherwise (CFOAUD)	.019	.101	.006	0	0	.009	158
Panel D: CEO's Influence on the Board							
CEO chairs the board (CEOCHAIR)	.639	.620	.748	1	1	.749	158
CEO tenure on board in years (CEOTENBD)	8.51	9.81	.196	5	7	.333	159
CEO belongs to the founding family =1 if yes, 0 otherwise (CEOFOUND)	.264	.195	.101	0	0	.102	159
CEO picks the board[8] (CEOPB)	.799	.818	.649	1	1	.653	159

Table 3 (cont.)

Variable	Mean			Median			Sample Size
	Restate	Control	p-value[1]	Restate	Control	Wilcoxon p-value[2]	
Panel E: Ownership Structure							
Proportion of outstanding equity owned by:							
CEO (PCEO)	.072	.080	.570	.012	.018	.229	150
Inside directors (PINS)	.088	.114	.140	.019	.032	.040	150
Outside blockholder present (BLOCK)	.811	.836	.529	1	1	.534	159
Number of outside blockholders (NBLOCK)	2.29	2.22	.723	2	2	.996	159
Panel F: Outside Auditor							
Arthur Andersen = 1 if auditor is AA, 0 otherwise (AA)	.126	.169	.251	0	0	.255	159
Big 5 firms = 1 if auditor is Big 5 firm; 0 otherwise (BIG5)	.887	.899	.696	1	1	.703	159
Non audit fees / Total fees (PNAUDFEE)	.487	.504	.542	.507	.524	.341	105
Non audit fees > $1 million = 1 if yes, 0 otherwise (BIGCONSULT)	.305	.267	.319	0	0	.455	105

[1]For the matched pairs t-test (2-tailed).
[2]For the Wilcoxon signed ranks test (2-tailed).
[3]For the fiscal year ended one year before the year of the restatement.
[4]Firm value = Book value of total assets – Book value of equity + Market value of equity
[5]OPA(t) = Operating performance to assets for year t relative to year of restatement = Operating earnings / Total Assets
[6]OPA = [OPA(-3) + OPA(-2) + OPA(-1)] / 3
[7]Sales growth rate =$[(Sales(-1) / Sales(-5)]^{1/4} - 1$
[8]Equals 1 if the CEO serves on the board's nominating committee or if no nominating committee exists; 0 otherwise.

Table 4

Correlations

The table shows Pearson product-moment correlations. The sample consists of publicly traded U.S. companies that restated their earnings during the years 2000 or 2001, and an industry-size matched sample of control firms that did not restate their earnings over the two year period prior to the announcement date of the matched restating firms. Sample size varies from 248 to 318 across the cells depending upon the availability of data.

Variable[1]	PID	IDAC	PIDAUD	IDACAUD	CFOAUD	PNAUDFEE	AA	LEMP	OPA[1]
Presence of restatement	.043	-.277[a]	.005	-.209[a]	-.157[a]	-.031	-.062	.118[b]	-.033
Proportion of independent directors on the board		.101	.308[a]	.045	.020	.059	-.027	.185[a]	-.061
Board has independent director with accounting background			.068	.817[a]	.183[a]	-.042	.044	-.144[b]	-.067
Proportion of independent directors on audit committee				.057	-.162[a]	.089	.001	.088	.009
Audit committee has independent director with accounting background					.238[a]	-.032	.020	-.135[b]	.040
CFO serves on audit committee						-.008	.042	-.062	.030
Non-audit fee/Total auditors' fees							.011	.306[a]	.062
Audited by Arthur Andersen								.051	.059
ln (Employees '000)									.423[a]

[a,b,c] Denote statistical significance at the 1%, 5% and 10% levels, respectively, in 2-tailed tests.

[1]OPA = Average ratio of operating performance to total assets for three years preceding the year of restatement announcement.

Table 5

Matched-pairs Logit Regressions for the Full Sample

The dependent variable is RESTATE; it equals 1 for restating firms and 0 for control firms. The sample consists of publicly traded U.S. companies that restated their earnings during the years 2000 or 2001, and an industry-size matched sample of control firms that did not restate their earnings over the two year period before the announcement date of the restating firm. Shown in parentheses below the coefficient estimates are p-values for 2-tailed tests. Marginal effects of the variables of interest that are statistically significant are shown in square brackets below the p-values. These effects are computed as the difference between two cases in the probability of the restating firm being classified correctly out of a given pair of firms. In the first case, each explanatory variable takes the same value for the two firms. In the second case, the explanatory dummy variable of interest takes the value of 1 and 0 for the restating and control firms, respectively, and each of the other variables takes the same value for the two firms.

Panel A

Independent Variable	1	2	3	4	5	6	7
Proportion of independent directors	.12 (.90)						
Board has independent director with accounting background		-1.37 (.00) [-.297]					
Proportion of independent directors on audit committee			-.26 (.82)				
Audit committee has independent director with accounting background				-.94 (.01) [-.219]			
CFO serves on audit committee					-1.56 (.02) [-.326]		
Non-audit fee/Total auditors' fees						-1.2 (.16)	
Audited by Arthur Andersen							-.23 (.56)
ln (Employees '000)	.28 (.01)	.22 (.06)	.28 (.01)	.21 (.06)	.29 (.01)	.24 (.06)	.29 (.01)
Operating Performance to Assets	-.99 (.05)	-.97 (.08)	-.99 (.05)	-.70 (.18)	-1.13 (.03)	-.98 (.19)	-.99 (.05)
p-value (LR test)[2]	.03	.000	.03	.001	.001	.09	.022
Max rescaled R^2	.098	.282	.098	.180	.172	.10	.102
Sample Size (Number of pairs)	121	121	121	121	121	83	122

Table 5 (cont.)

Panel B

Independent Variable	1	2	3	4
Proportion of independent directors	.76 (.49)	.32 (.78)		
Board has independent director with accounting background	-1.30 (.00) [-.286]	-1.52 (.00) [-.320]		
Proportion of 5% independent blockholders on the board	1.38 (.41)	1.51 (.37)		
Proportion of independent directors on audit committee			-.26 (.83)	.17 (.89)
Audit committee has independent director with accounting background			-.75 (.04) [-.179]	-1.05 (.00) [-.241]
Proportion of 5% independent blockholders on audit committee			.10 (.92)	.26 (.80)
CFO serves on audit committee	-1.16 (.12)		-1.28 (.08)	
CEO chairs the board		.138 (.64)		.09 (.76)
Outside blockholder present		.05 (.90)		-.05 (.90)
ln (Employees in '000)	.23 (.06)	.22 (.07)	.22 (.06)	.20 (.09)
Operating Performance to Assets	-.97 (.09)	-.98 (.09)	-.84 (.12)	-.69 (.20)
p-value (LR test)[1]	.000	.000	.002	.009
Max rescaled R^2	.320	.308	.217	.193
Sample Size (Number of pairs)	120	120	121	120

[1]P-value for the likelihood ratio test.

Table 6

Matched-pairs Logit Regressions for the Sub-sample of More Serious Cases

The dependent variable is RESTATE; it equals 1 for restating firms and 0 for control firms. The sample consists of publicly traded U.S. companies that restated their earnings during the years 2000 or 2001, and an industry-size matched sample of control firms that did not restate their earnings over the two year period before the announcement date of the restating firm. Restatements that result in an increase in earnings and restatements caused by SAB 101 are excluded. Shown in parentheses below the coefficient estimates are p-values for 2-tailed tests. Marginal effects of the variables of interest that are statistically significant are shown in square brackets below the p-values. These effects are computed as the difference between two cases in the probability of the restating firm being classified correctly out of a given pair of firms. In the first case, each explanatory variable takes the same value for the two firms. In the second case, the explanatory dummy variable of interest takes the value of 1 and 0 for the restating and control firms, respectively, and each of the other variables takes the same value for the two firms.

Table 6 (cont.)

Independent Variable	1	2	3	4
Proportion of independent directors	-1.68 (.25)	-1.46 (.32)		
Board has independent director with accounting background	-2.02 (.00) [-.383]	-2.16 (.00) [-.397]		
Proportion of 5% independent blockholders on the board	2.22 (.30)	1.86 (.38)		
Proportion of independent directors on audit committee			-.86 (.58)	.09 (.96)
Audit committee has independent director with accounting background			-1.28 (.01) [-.282]	-1.56 (.00) [-.326]
Proportion of 5% independent blockholders on audit committee			.60 (.59)	.63 (.58)
CFO serves on audit committee	-1.67 (.16)		-1.78 (.11)	
CEO chairs the board		-.17 (.65)		-.34 (.32)
Outside blockholder present		-.10 (.83)		-.38 (.39)
ln (Employees in '000)	.46 (.01)	.44 (.01)	.32 (.03)	.32 (.03)
Operating Performance to Assets	-1.71 (.02)	-1.67 (.02)	-.95 (.11)	-.85 (.16)
p-value (LR test)[1]	.000	.000	.000	.000
Max rescaled R^2	.486	.460	.340	.316
Sample Size (Number of pairs)	98	99	98	98

[1]P-value for the likelihood ratio test.