CORPORATE GOVERNANCE AND ACCOUNTING SCANDALS*

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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 data set that measures the 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 nonaudit services by outside auditors. We find that the probability of restatement is lower in companies whose boards or audit committees have an independent director with financial expertise; it is higher in companies in which the chief executive officer belongs to the founding family. These relations are 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.

I.   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 the credit ratings of their debt issues, often to junk status. Many of these firms 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.[1]

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.[2] Second, Arthur Andersen, formerly one of the Big 5 audit firms, has gone out of business. Third, in July 2002, President George W. 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 United States. Finally, in November 2003, the New York Stock Exchange (NYSE) and NASDAQ adopted an additional set of corporate governance rules that apply to most companies with stock listed on these markets. The American Stock Exchange (AMEX) joined in with similar rules in December 2003.

Among their many provisions, the new law and the stock market rules together require that the board of a publicly traded company be composed of a majority of independent directors and that the board's audit committee consist entirely of independent 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 in response to the widespread outcry that followed these scandals.[3] But Bengt Holmstrom and Steven Kaplan argue that while parts of the U.S. corporate governance system failed in the 1990s, the overall system performed quite well.[4] They suggest that the risk now facing the U.S. governance system is the possibility of over-regulation in response to these extreme events. A company typically reveals serious accounting problems via a restatement of its financial reports. As of now, there is no systematic empirical evidence

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[1] See, for example, E. S. Browning & Jonathan Weil, Burden of Doubt: Stocks Take a Beating as Accounting Worries Spread beyond Enron, Wall St. J., January 30, 2002, at A1.

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

[3] See, for example, Jeanne Cummings, Jacob M. Schlesinger, & Michael Schroeder, Securities Threat: Bush Crackdown on Business Fraud Signals New Era—Stream of Corporate Scandals Causes Bipartisan Outrage, Wall St. J., July 10, 2002, at A1; Susan Milligan, House OK's Tough Action against Fraud: Public Anger Fuels a Fast Response on Corporate Crime, Boston Globe, July 17, 2002, at A1; and N.Y. Times, O'Neil Condemns Corporate Scandals, June 24, 2002, at C2.

[4] Bengt Holmstrom & Steven N. Kaplan, The State of U.S. Corporate Governance: What's Right and What's Wrong? 15 J. Applied Corp. Fin. 8 (2003).

on the effectiveness of these governance provisions in avoiding such restatements. 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 misstatement 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, and the influence of the chief executive officer (CEO) on the board.

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[5] or Securities and Exchange Commission (SEC) enforcement actions for violations of generally accepted accounting principles, or GAAP.[6] 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 misstatement of earnings is a rare and serious event in the life of a company. As Zoe-Vonna Palmrose and Susan Scholz point out, a restatement can trigger an SEC investigation, lead to replacement of top executives, and result in the firm being significantly penalized by investors.[7] Many restating firms subsequently end up in bankruptcy. Second, the measurement of earnings management is an academic construct; there is no "smoking gun" that shows that earnings were indeed manipulated by managers. On the contrary, a misstatement 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 misstatements of earnings, rather than focusing only on SEC enforcement actions, provides a larger sample of cases in which earnings were manipulated. Given its limited staff and resources, the SEC obviously cannot pursue all the cases in which earnings were manipulated. Rather, it is likely to focus its enforcement effort on egregious violations and high-

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[5] For example, April Klein, Audit Committee, Board of Director Characteristics, and Earnings Management, 33 J. Acct. Econ. 375 (2002).

[6] For example, Mark S. Beasley, An Empirical Analysis of the Relation between the Board of Director Composition and Financial Statement Fraud, 71 Acct. Rev. 433 (1996); and Patricia M. Dechow, Richard G. Sloan, & Amy Sweeney, Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC, 13 Contemp. Acct. Res. 1 (1996).

[7] Zoe-Vonna Palmrose & Susan Scholz, The Circumstances and Legal Consequences of Non-GAAP Reporting: Evidence from Restatements, 21 Contemp. Acct. Res. 139 (2004).

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 nonrestating firms. We have assembled a unique, hand-collected data set that contains detailed information on the corporate governance characteristics of these 318 firms. Our sample includes restatements by prominent firms such as Abbott Laboratories, Adelphia, Enron, Gateway, Kroger, Lucent, Rite-Aid, Tyco, and Xerox. We find no relation between the probability of restatement and board independence, audit committee independence or auditor conflicts. But we find that the probability of restatement is significantly lower in companies whose boards or audit committees include an independent director with financial expertise; it is higher in companies in which the CEO belongs to the founding family.

The remainder of this paper is organized as follows. Section II discusses the issues. Section III briefly reviews prior studies. Section IV provides details of the sample and data and describes the stock price reaction and medium-term abnormal returns around restatement announcements. Section V investigates the relation between corporate governance mechanisms and the likelihood of restatement. Section VI analyzes firms' choice of putting a financial expert on the board. Section VII examines the issue of incidence versus revelation of accounting problems. Section VIII concludes.

II. Issues

We discuss the relation between the likelihood of restatement and independence of boards and audit committees in Section II*A*, financial expertise of boards and audit committees in Section II*B*, auditor conflicts in Section II*C*, the CEO's influence on the board in Section II*D*, and other governance mechanisms in Section II*E*.

A.   Independence of Boards and Audit Committees

Independent directors are believed to be better able to monitor managers.[8] Firms with boards that are more independent also have a lower incidence of accounting fraud and earnings management.[9] Both the Sarbanes-Oxley Act and the recent stock market rules on corporate governance assume that outside directors are more effective in monitoring management.

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[8] See, for example, Michael S. Weisbach, Outside Directors and CEO Turnover, 20 J. Fin. Econ. 431 (1988); John W. Byrd & Kent A. Hickman, Do Outside Directors Monitor Managers? Evidence from Tender Offer Bids, 32 J. Fin. Econ. 195 (1992); and James A. Brickley, Jeffrey S. Coles, & Rory L. Terry, Outside Directors and the Adoption of Poison Pills, 35 J. Fin. Econ. 371 (1994).

[9] See, for example, Beasley, *supra* note 6.; Dechow, Sloan, & Sweeney, *supra* note 6; and Klein, *supra* note 5.

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, the Blue Ribbon Committee sponsored by the NYSE and NASDAQ made recommendations about the independence of audit committees. In response, the NYSE started requiring each firm to have an audit committee comprised solely of independent directors, while NASDAQ required only that independent directors comprise a majority of a firm's audit committee. AMEX strongly recommended but did not require firms to have independent audit committees. By December 2003, all three stock markets started requiring each listed firm to have an audit committee with all independent directors. April Klein finds a negative relation between audit committee independence and earnings management.[10] This finding is consistent with the idea that a 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 usually meet just a few (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. Consistent with this idea, Mark Beasley finds no difference in the composition of the audit committee between samples of fraud and no-fraud firms.[11] Similarly, even though a typical board meets more frequently (usually about six to eight times a year) than the audit committee, 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. Accordingly, Sonda Chtourou, Jean Bedard, and Lucie Courteau find no significant relation between board independence and the level of earnings management.[12] 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.[13] We examine the relation between the independence of boards and audit committees and the likelihood of earnings restatement by a firm.

[10] Klein, *supra* note 5.

[11] Beasley, *supra* note 6.

[12] Sonda M. Chtourou, Jean Bedard, & Lucie Courteau, Corporate Governance and Earnings Management (Working paper, Univ. Laval 2001).

[13] See, for example, Eugene F. Fama & Michael C. Jensen, Separation of Ownership and Control, 26 J. Law & Econ. 301 (1983); and April Klein, Firm Performance and Board Committee Structure, 41 J. Law & Econ. 275 (1998).

B.   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. By the end of 2003, all major U.S. stock markets (NYSE, NASDAQ, and AMEX) started requiring that all members of the audit committee be financially literate and that at least one member have financial expertise. The rules assume that members with no experience in accounting or finance are less likely to be able to detect problems in financial reporting. 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. Alternatively, 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 examine the relation between the financial expertise of boards and audit committees and the likelihood of earnings restatement by a firm.

C.   Auditor Conflicts

The external audit is intended to enhance the credibility of the 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 nonaudit 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.

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 nonaudit services that an auditor can offer to its audit client.[14] Richard Frankel, Marilyn Johnson, and Karen Nelson find an inverse relation between

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[14] Sarbanes-Oxley Act of 2202, 107 P.L. No. 204, 116 Stat. 745 (tit. II, Auditor Independence).

auditor independence and earnings management.[15] 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. To shed some light on this issue, we examine the relation between auditor conflicts and the likelihood of a firm restating earnings.

D.   Chief Executive Officer's Influence on the Board

A CEO's influence on the board can reduce the board's effectiveness in monitoring managers. The greater a CEO's influence on the board, the less likely the board is to suspect irregularities that a more independent board may have caught. 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, 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.[16] We examine the relation between the influence of the CEO on the board and the likelihood of earnings restatement by a firm.

E.   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.[17] Similarly, independent directors with large blockholdings on the board and audit committee also have greater incentives

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[15] Richard M. Frankel, Marilyn F. Johnson, & Karen K. Nelson, The Relation between Auditors' Fees for Non-audit Services and Earnings Management, 77 Acct. Rev. 71 (Suppl. 2002).

[16] See, for example, Anup Agrawal & Charles R. Knoeber, Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders, 31 J. Fin. Quantitative Anal. 377 (1996).

[17] See, for example, Andrei Shleifer & Robert W. Vishny, Large Shareholders and Corporate Control, 94 J. Pol. Econ. 461 (1986); Clifford G. Holderness & Dennis P. Sheehan, The Role of Majority Shareholders in Publicly Held Corporations: An Exploratory Analysis, 20 J. Fin. Econ. 317 (1988); and Anup Agrawal & Gershon N. Mandelker, Large Shareholders and the Monitoring of Managers: The Case of Antitakeover Charter Amendments, 25 J. Fin. & Quantitative Analysis 143 (1990).

to monitor managers than do other independent directors. We examine whether these mechanisms affect 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 (Price-WaterhouseCoopers, Ernst & Young, Arthur Andersen, Deloitte & 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 Big 5 firms indeed provide 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.

III.   Prior Studies on Earnings Restatements

As discussed in Section I, 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. William Kinney and Linda McDaniel analyze the stock price reaction for a sample of 73 firms that restated earnings between 1976 and 1985.[18] They find that, on average, stock returns are negative between issuance of erroneous quarterly statements and its corrections. Mark Defond and James Jiambalvo study the characteristics of a sample of 41 companies that restated their earnings from 1977 to 1988.[19] They find that restating companies had lower earnings growth before the restatement and were less likely than firms in their control sample to have an audit committee.

Palmrose, Vernon Richardson, and Scholz analyze the stock price reaction for a sample of 403 restatements of quarterly and annual financial statements announced during 1995–99.[20] They find a significant mean (median) abnormal return of about −9.2 percent (−4.6 percent) over a 2-day announcement period. The average stock price reaction is even larger than this to restatements with an indication of management fraud, restatements with more material dollar effects, and restatements initiated by auditors.

Kirsten Anderson and Teri Yohn examine a sample of 161 firms that announced a restatement of audited annual financial statements over the period 1997–99.[21] They find a mean (median) stock price drop of 3.5 percent (3.8 percent) over days (−3, +3) around the announcement of a restatement; for firms with revenue recognition problems, the drop is much bigger, about

[18] William R. Kinney, Jr., & Linda S. McDaniel, Characteristics of Firms Correcting Previously Reported Quarterly Earnings, 11 J. Acct. Econ. 71 (1989).

[19] Mark L. DeFond & James J. Jiambalvo, Incidence and Circumstances of Accounting Errors, 66 Acct. Rev. 643 (1991).

[20] Zoe-Vonna Palmrose, Vernon J. Richardson, & Susan Scholz, Determinants of Market Reactions to Restatement Announcements, 37 J. Acct. Econ. 59 (2004).

[21] Kirsten L. Anderson & Teri L. Yohn, The Effect of 10-K Restatements on Firm Value, Information Asymmetries, and Investors' Reliance on Earnings (Working paper, Georgetown Univ. 2002).

11 percent (8 percent). They also find an increase in bid-ask spreads upon such announcements.

IV. SAMPLE AND DATA

Section IV*A* describes our restatement and control samples, Section IV*B* examines the stock price reaction to restatement announcements, Section IV*C* presents medium-term abnormal stock returns for our restating and control samples, Section IV*D* describes the source and measurement of our corporate governance variables, and Section IV*E* describes the operating and financial characteristics of our sample firms.

A. 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 consists of restatements announced over the period from January 1, 2000, to December 31, 2001. We choose this sample period because the data on audit and nonaudit fees (needed to analyze auditor conflicts) are available only in proxy statements filed on February 5, 2001, or later, after revised SEC rules on auditor independence.

We identify 303 cases of restatements of quarterly or annual earnings over this 2-year period. Like Palmrose and Scholz, we only include misstatements of earnings rather than restatements for technical reasons.[22] Accordingly, we exclude retroactive restatements required by GAAP for accounting changes (such as from first-in-first-out to last-in-first-out) 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 in which 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 noncore accounts, following the work of Palmrose, Richardson, and Scholz.[23] Core accounts are accounts that affect the ongoing 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 represent noncore accounts. We attempt to discern the magnitude of the restatement

[22] Palmrose & Scholz, *supra* note 7.

[23] Palmrose, Richardson, & Scholz, *supra* note 20.

by examining the number of quarters restated and the percentage and 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 two-digit Standard Industrial Classification (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 announcement of the restatement, and (3) did not restate its earnings in the 2 years prior to the date of the restatement announcement by its matched firm. We assume that serious accounting problems tend to be self-unraveling 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 Standard & Poor's Compustat database. Out of those, we were able to find a control firm for 185 firms.[24] 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, which left us with a sample of 175 firms. Of these 175 pairs, 159 pairs of firms are listed on University of Chicago's Center for Research in Security Prices (CRSP) database and have proxy statements available. Our final sample consists of these 159 pairs of firms.

Tables 1–3 present descriptive statistics of our sample of restating firms. Table 1 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.[25] Ninety-eight (62 percent) of the cases involved a restatement of one or more of the core accounts, 56 (35 percent) involved noncore accounts, and five 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 eight cases.

Table 2 shows that the median firm in the sample has been listed by CRSP (that is, NYSE, AMEX, or NASDAQ) for about 8.7 years. The mean (median) level of original earnings in our sample is about \$35 million (\$1.4 million); on restatement, it drops to about −\$229 million (−\$.4 million). The mean

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[24] For most of the remaining 31 firms, the data on market capitalization (needed to identify control firms) are missing on Compustat.

[25] Following Palmrose, Richardson, & Scholz, *supra* note 20, the last category includes 47 cases in which the identity of the initiator could not be determined from news reports and Securities and Exchange Commission (SEC) filings.

TABLE 1

FREQUENCY DISTRIBUTION OF RESTATING FIRMS

Initiated by	N
Regulators:	
SEC	21
Department of Justice	2
Comptroller of Currency	2
Auditor	15
Company[a]	119
Total	159
Accounts restated:	
Core	98
Noncore	56
Mixed	5
Total	159
Restatements that:	
Reduce earnings	130
Increase earnings	21
Have an unknown effect	8
Total	159

NOTE.—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. SEC = Securities and Exchange Commission.
[a] Includes 47 cases in which the identity of the initiator could not be determined from news reports and SEC filings.

(median) change in earnings is −114 percent (−6 percent). The median restatement involves 4 quarters of earnings.

Table 3 shows the industry distribution of our sample firms based on their primary two-digit SIC code from Compustat. We further collapse all two-digit SIC codes into 21 industries, following the classification used by Moon Song and Ralph Walkling.[26] Of the sample of 159 restating firms, 39 are in the service sector, 26 are in 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.

B.   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 CRSP, where day 0 is the announcement date of a restatement. The stock market return is defined as the value-weighted CRSP index return. Section IV*B*1 discusses the stock price reaction to the an-

[26] Moon H. Song & Ralph A. Walkling, The Impact of Managerial Ownership on Acquisition Attempts and Target Shareholder Wealth, 28 J. Fin. & Quantitative Analysis 439 (1993).

TABLE 2

DESCRIPTIVE STATISTICS OF RESTATING FIRMS

	Mean	p-Value	Median	Wilcoxon p-Value	N
Firm age since					
CRSP listing (years)	15.15	.00	8.67	.00	159
Original earnings[a]	34.89	.21	1.45	.00	152
Restated earnings[a]	−229.34	.42	−.386	.67	155
Change in earnings[b]	−113.75%	.22	−6.42%	.01	150
Absolute change in earnings	227.48%	.02	38.61%	.00	150
Number of quarters restated	5.03	.00	4	.00	157

NOTE.—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. CRSP = Center for Research in Security Prices.

[a] The sum of net income for all quarters affected by the restatement in millions of dollars.

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

nouncement of restatements in our full sample, and Section IV*B*2 discusses it for subsamples on the basis of the type of restatement.

1.   Full Sample

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

$$e_{it} = r_{it} - r_{mt}, \tag{1}$$

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

$$\text{CAR}^i_{t_1,t_2} = \sum_{t=t_1}^{t_2} e_{it}. \tag{2}$$

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

$$\text{CAAR}_{t_1,t_2} = \frac{\sum_{i=1}^{n} \text{CAR}^i_{t_1,t_2}}{n}, \tag{3}$$

where n is the number of firms.

In first row of Table 4, the abnormal return (CAAR) over days $(-1, +1)$ is −5.6 percent. The CAAR over days $(-1, 0)$ is −4.2 percent. Both CAARs are statistically significant at the 1 percent level in two-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.

TABLE 3

INDUSTRY DISTRIBUTION OF RESTATING FIRMS

Industry and Two-Digit SIC Codes	N
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, and utilities (40–49)	12
Wholesale trade (50–51)	7
Retail trade (52–59)	11
Finance, insurance, and real estate (60–69)	26
Hotels and personal services (70–71)	0
Services (72–89)	39
Public administration and others (90–99)	1

NOTE.—The sample consists of publicly traded U.S. companies that restated their earnings during the years 2000 or 2001; they were identified using three online databases: Lexis/Nexis news library, Newspaper Source, and Proquest Newspapers. SIC = Standard Industrial Classification.

2. Subsamples

In the rest of Table 4, 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, Richardson, and Scholz, the announcement effect is worse for restatements of core accounts than for noncore accounts.[27] The CAAR over days (−1, +1) for core restatements is a statistically significant (at the 1 percent level) −7.8 percent; it is insignificant for noncore restatements. Restatements initiated by the company itself or by its auditors are bad news, with a statistically significant CAAR of −6 percent. Restatements initiated by regulators also appear to be bad news, with a CAAR of about −3.6 percent. While the CAAR here is statistically insignificant, this may be due to the small size of this subsample.

As expected, restatements involving large (greater than the sample median value) changes in earnings are worse news (with a statistically significant

[27] Palmrose, Richardson, & Scholz, *supra* note 20.

TABLE 4

Abnormal Stock Returns around Restatement Announcement

	CAAR$_{-1,0}$ (%)		CAAR$_{-1,+1}$ (%)		
	Mean	Median	Mean	Median	N
Full sample	−4.22**	−2.02**	−5.65**	−2.54**	119
Core = 0	−1.46	−0.20	−2.15	−.39	43
Core = 1	−5.73**	−2.88**	−7.77**	−3.47**	73
p-value for difference[a]	.131	.092	.097	.123	
Initiated:					
By regulators[b]	−4.55	−2.88	−3.56	−.34	17
By companies or auditors	−4.08**	−1.68**	−6.01**	−2.58**	99
p-Value for difference[a]	.936	.973	.719	.696	
Quarters restated:					
More than 4	−1.08	−.125	−2.06	−.41	35
4 or fewer	−5.53**	−2.43**	−7.45**	−3.44**	80
p-Value for difference[a]	.271	.225	.254	.119	
Restatements:[c]					
Large	−5.82	−2.41	−8.59*	−4.69*	53
Small	−2.77*	−1.94*	−2.99	−1.62	56
p-Value for difference[a]	.384	.487	.167	.236	
Earnings:					
Increase	.68	−.02	−3.99	−2.40	14
Decrease	−4.92*	−2.43**	−6.02**	−2.54**	96
p-Value for difference	.099	.245	.704	.841	

NOTE.—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 Center for Research in Security Prices value-weighted index, respectively. The cumulative abnormal return over days (t_1, t_2) is measured as

$$CAR_{t_1,t_2} = \sum_{t=t_1}^{t_2} e_{it}.$$

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

[a] 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.

[b] Regulators include the Department of Justice, the Comptroller of Currency, and the Securities and Exchange Commission.

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

* Significantly different from zero at the 5% level in the two-tailed t-test (for the mean) or the Wilcoxon test (for the median).

** Significantly different from zero at the 1% level in the two-tailed t-test (for the mean) or the Wilcoxon test (for the median).

CAAR of −8.6 percent) than smaller restatements (with an insignificant abnormal return). On average, restatements involving fewer than four quarters are bad news (with a significant CAAR of −7.4 percent), 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. Restatements resulting in an earnings decrease are bad news, with a statistically significant CAAR of −6 percent. But even restatements that result in an increase in earnings appear to be bad news, with a CAAR of about −4

percent. While this CAAR is statistically insignificant, this may be due to the small size of this subsample. The difference in abnormal returns between the two groups in each partition is statistically insignificant at the 5 percent level in two-tailed tests.

C.   *Medium-Term Abnormal Stock Returns*

We next compute abnormal stock returns over a longer period, that is, months $(-24, +12)$ around the announcement month (0) for our restatement and control samples. For each month t over the interval $(-24, +12)$, we estimate the following cross-sectional regression by ordinary least squares for our sample of restating firms:

$$r_{it} - r_{ft} = \alpha_t + \beta_{1t}(r_{mt} - r_{ft}) + \beta_{2t}\text{SMB}_t + \beta_{3t}\text{HML}_t + \beta_{4t}\text{UMD}_t + \varepsilon_{it}, \quad (4)$$

where r_{it} is the return (including dividends) on stock i over month t; r_{ft} is the 1-month Treasury bill rate in month t; r_{mt} is the month t return on the value-weighted index of all NYSE, AMEX, and NASDAQ stocks; SMB_t is the small- minus big-firm return, that is, the average month t return on portfolios of small-firm stocks minus the average month t return on portfolios of large-firm stocks; HML_t is the high minus low book/market firm return, that is, the average month t return on portfolios of high book/market stocks minus the average month t return on portfolios of low book/market stocks; UMD_t is the up minus down return, that is, the average month t return on portfolios of stocks with high prior return over months $(-12, -2)$ minus the average return on portfolios of stocks with low prior return; and ε_{it} is the error term for stock i over month t. Stock returns for the sample firms are obtained from CRSP, and returns on the four factors on the right-hand side of equation (4) and on r_{ft} are obtained from Kenneth French's Web site.[28]

The estimate of the intercept term, α_t, from equation (4) measures the average abnormal return for month t (AAR_t) for the restating sample. We then compute the cumulative average abnormal return over months $(-24, s)$ as

$$\text{CAAR}_{-24,s} = \sum_{t=-24}^{s} \text{AAR}_t. \quad (5)$$

We next repeat this procedure on the control sample. This approach applies the Ibbotson regression across time and securities (RATS) procedure to the Carhart four-factor model.[29] The Carhart model combines the Fama and French three-factor model and the Jegadeesh and Titman price momentum

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[28] Kenneth French's Web site (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

[29] Roger G. Ibbotson, Price Performance of Common Stock New Issues, 2 J. Fin. Econ. 235 (1975); Mark M. Carhart, On Persistence in Mutual Fund Performance, 52 J. Fin. 57 (1997).

factor.[30] The RATS approach allows factor sensitivities to shift each month in event time and has been used more recently by Anup Agrawal, Jeffrey Jaffe, and Gershon Mandelker.[31]

Figure 1 plots the CAARs over months (−24, +12) separately for our samples of restating and control firms. Up until month −4, the CAARs of the restating sample fluctuate around zero. Starting in month −3, the CAARs start to decline, reaching a low of about −17 percent in month −1. This pattern suggests leakage of information about accounting problems at these firms and the consequent uncertainty among investors. The CAARs continue to be negative until month +3 (−10 percent). They recover after that and hover around zero subsequently, as uncertainty is resolved and firms seem to put accounting problems behind them. For the control sample, the CAARs generally fluctuate around zero over the entire 3-year period.

D.   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 were hand collected from the latest proxy statement dated before the announcement date of a restatement. We measure these variables before the restatement announcement because firms may change the structure of their board or audit committee or replace their CEOs after restating their earnings.[32] If the data on audit and nonaudit fees are not reported in that proxy, we obtained them 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, customers, suppliers, and other service providers. The remaining directors are classified as independent. Directors with financial expertise are those with a CPA, CFA, or experience in corporate financial management (for example, as chief financial officer, treasurer, controller, or vice president of finance). This definition is similar in spirit to what the SEC later adopted.

We measure a CEO's influence on the board via dummy variables for

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[30] Eugene F. Fama & Kenneth R. French, Common Risk Factors in the Returns on Stocks and Bonds, 33 J. Fin. Econ. 3 (1993); Narasimhan Jegadeesh & Sheridan Titman, Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency, 48 J. Fin. 65 (1993).

[31] Anup Agrawal, Jeffrey F. Jaffe, & Gershon N. Mandelker, The Post-merger Performance of Acquiring Firms: A Re-examination of an Anomaly, 47 J. Fin. 1605 (1992).

[32] Sixteen of the 159 firms in our restatement sample had made another restatement announcement within the prior 2 years. Omitting these 16 firms from the sample has essentially no effect on our results.
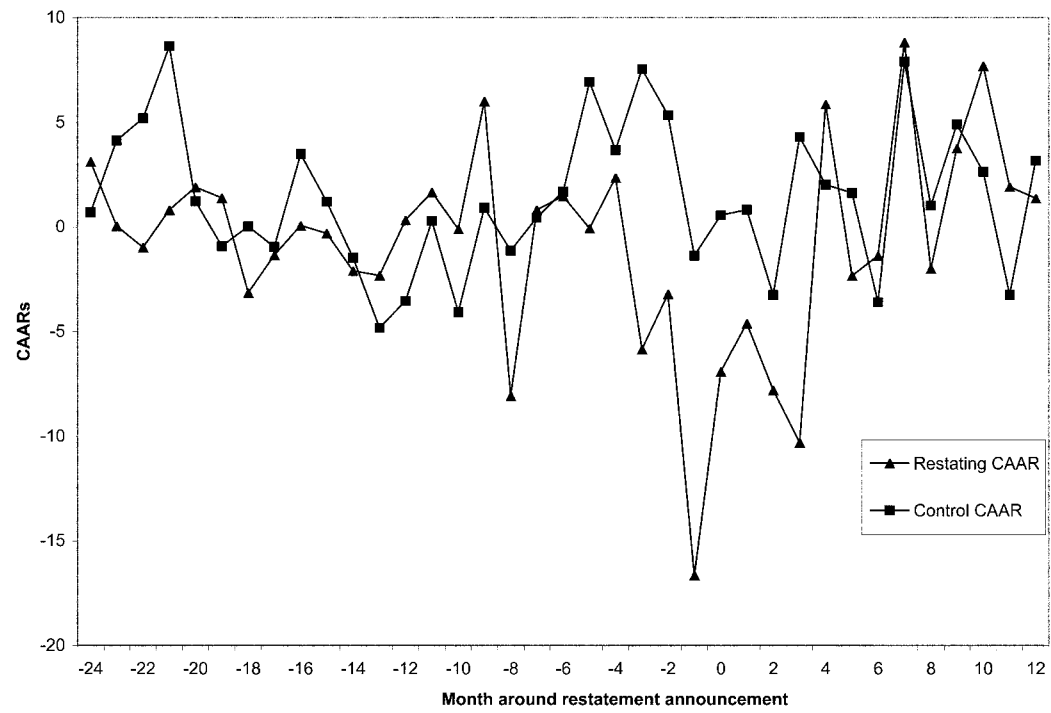
FIGURE 1.—Abnormal stock returns around restatement announcement

whether the CEO chairs the board (CEOCHAIR) and belongs to the founding family (CEOFOUND). Following Anil Shivdasani and David Yermack, we say that a CEO picks the board (CEOPB) if the CEO serves on the board's nominating committee or if the board has no such committee.[33]

We measure auditor conflicts via two variables: (1) the proportion of fees paid to auditors for nonaudit services to total fees for audit and nonaudit services (PNAUDFEE) and (2) a dummy variable for large (>$1 million) nonaudit 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).

E.   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 5. 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) people. Restating firms appear to have significantly (both statistically and economically) worse median operating performance to assets ratios (OPA) than control firms over the 2-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 a median 4-year sales growth rate of around 15 percent. Both groups seem to have moderate leverage. The median debt-to-asset ratio is about .12 (.11) for restating (control) firms.

V.   GOVERNANCE MECHANISMS AND THE LIKELIHOOD OF RESTATEMENT

This section investigates the relation between corporate governance mechanisms and the likelihood of an earnings restatement. We discuss univariate tests in Section V*A*, Pearson product-moment correlations in Section V*B*, matched-pairs logistic regressions in Section V*C*, and robustness checks in Section V*D*.

A.   Univariate Tests

We examine differences between restating and control firms' board structures in Section V*A*1, audit committees in Section V*A*2, the CEO's influence on the board in Section V*A*3, ownership structures in Section V*A*4, and outside auditors in Section V*A*5.

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[33] Anil Shivdasani & David Yermack, CEO Involvement in the Selection of New Board Members: An Empirical Analysis, 54 J. Fin. 1829 (1999).

1.   Board Structure

We present measures of board structure for the restating and control samples in panel B of Table 5. 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 percent in each sample. About 5 percent of the independent directors hold 5 percent 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 financial expertise (IDFE). The proportion of firms with at least one such director is about 18 percent in restating firms; in control firms, this proportion is more than twice as big (44 percent). This difference is statistically significant at the 1 percent level in two-tailed tests.

2.   Audit Committee

Panel C of Table 5 describes the board's audit committee for our restating and control samples. With the exception of one restating firm (Oil-Dry Company), each firm in both our samples has an audit committee. In many respects, the structure of this committee is similar for the two groups of firms. The median size of this committee is three members in each group. The mean (median) proportion of independent directors on this committee (PIDAUD) is about 94 percent (100 percent) in both groups. But there is one striking difference between the two groups. The mean proportion of firms whose audit committees include at least one independent director with financial expertise (IDFEAUD) is about 15 percent for restating firms, while it is 33 percent in control firms. This difference is statistically significant at the 1 percent level in two-tailed tests. Audit committees of companies that restate earnings are less likely to have an independent director with financial expertise than are control firms.

3.   Chief Executive Officer'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 5 shows that the CEO chairs the board in about 64 percent (62 percent) of the restating (control) firms. The CEO's median tenure on the board is 5 (7) years in restating (control) firms. The CEO belongs to the founding family in 26 percent (20 percent) of the firms in the two samples. The CEO appears to pick board members in 80 percent (82 percent) of the firms in the two groups. None of these differences are statistically significant.

4.   Ownership Structure

Restating and control firms also appear to have similar ownership structures, as can be seen from panel E of Table 5. About 81 percent (84 percent)

TABLE 5

DESCRIPTIVE STATISTICS OF RESTATING AND CONTROL FIRMS

	MEAN			MEDIAN			
VARIABLE	Restate	Control	p-Value[a]	Restate	Control	p-Value[b]	N
A. General firm characteristics:							
Firm size in year -1:							
Sales ($ millions) (SALES)	3,824	2,467	.089	348	326	.141	109
Total assets ($ millions) (ASSET)	4,219	3,724	.576	420	324	.019	135
Market value of equity ($ millions) (MCAP)	4,736	3,786	.321	205	210	.461	150
Firm value ($ millions) (FVALUE)	8,299	6,984	.350	595	468	.039	135
Number of employees (1,000s) (EMP)	13.3	9.99	.197	1.24	.953	.128	144
Operating performance:							
OPA (-1)	-3.36%	3.33%	.146	4.86%	9.39%	.007	130
OPA (-2)	-5.23%	3.00%	.223	8.57%	9.75%	.069	129
OPA (-3)	.04%	-3.07%	.524	9.56%	9.14%	.412	131
OPA	-3.06%	1.47%	.315	6.65%	9.34%	.028	128
Growth:							
Sales growth rate (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 leverage:							
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
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
Board has independent director with financial expertise = 1 if yes, 0 otherwise (IDFE)	.184	.440	<.0001	0	0	<.0001	158
Proportion of independent directors who are 5% blockholders (PID5)	.047	.049	.784	0	0	.912	158
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
Audit committee has independent director with financial expertise = 1 if yes, 0 otherwise (IDFEAUD)	.152	.329	.0004	0	0	.0003	158

Proportion of independent directors on audit committee who are 5% blockholders (PID5AUD)	.043	.051	.670	0	0	.723	158
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 = 1 if CEO serves on board's nominating committee or the committee does not exist, 0 otherwise (CEOPB)	.799	.818	.649	1	1	.653	159
E. Ownership structure:							
Proportion of 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
F. Outside auditor:							
Arthur Andersen = 1 if auditor is AA, 0 otherwise (AA)	.126	.169	.251	0	0	.255	159
Big 5 firm = 1 if auditor is Big 5 firm, 0 otherwise (BIG5)	.887	.899	.696	1	1	.703	159
Nonaudit fees/total fees (PNAUDFEE)	.487	.504	.542	.507	.524	.341	105
Audit fee/sales × 100	2.006	.341	.228	.087	.063	.264	76
Total fees/sales × 100	2.273	.608	.239	.185	.179	.311	76
Nonaudit fees > $1 million = 1 if yes, 0 otherwise (LNAUDFEE)	.305	.267	.319	0	0	.455	105

NOTE.—The restatement sample consists of 159 publicly traded firms that restated their earnings during the years 2000 or 2001; these were 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 1 year before the year of announcement of the restatement) from among all firms in its industry that did not restate their earnings over the 2-year period before the announcement date of the restating firm. Firm value is the book value of total assets minus the book value of equity plus the market value of equity. OPA(t) is the ratio of operating performance to assets for year t relative to the year of restatement, that is, the ratio of operating earnings to total assets. OPA = [OPA(-3) + OPA(-2) + OPA(-1)]/3. Sales growth rate = [(Sales(-1)/Sales(-5)]$^{1/4}$ $-$ 1. CEO = chief executive officer.

[a] For the matched pairs t-test (two-tailed).

[b] For the Wilcoxon signed ranks test (two-tailed).

of the restating (control) firms have an outside blockholder (BLOCK) who owns 5 percent or more of the outstanding equity. The median number of outside blockholders (NBLOCK) is two in each group. The CEO owns a median of 1.2 percent (1.8 percent) of the equity in restating (control) firms. None of these differences are statistically significant at the 5 percent level. Inside directors own a median of 1.9 percent and 3.2 percent of the equity in the two groups of firms. This difference has a *p*-value of .04.

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 percent and 90 percent, respectively; the proportion of companies audited by Arthur Andersen was about 13 percent and 17 percent, respectively. Nonaudit fees comprised a median of about 51 percent (52 percent) of the total fees of auditors (PNAUDFEE) in restating (control) companies. The median ratio of audit fee to sales is about .09 percent (.06 percent) in restating (control) firms. The median total fee-to-sales ratio is about .18 percent for each group. About 30 percent of the restating firms and 27 percent of the control group paid over $1 million in nonaudit fees to their outside auditors (LNAUDFEE). None of these differences are statistically significant.

B.   Correlations

Table 6 shows product-moment correlations among our main variables for the pooled sample of restating and control firms. The incidence of restatement (RESTATE) is lower in firms that have an independent director with financial expertise on the board (IDFE) or on the audit committee (IDFEAUD). The proportion of independent directors on the board (PID) is positively correlated with the proportion of such directors on the audit committee (PIDAUD). The value of PID is lower in firms in which the CEO belongs to the founding family (CEOFOUND) and is negatively correlated with the proportion of equity owned by the CEO. Not surprisingly, IDFE has a strong, positive correlation (.82) with IDFEAUD.

Firms that have an independent 5 percent blockholder (BLOCK) have boards that have larger proportions of such blockholders (PID5) and that are less likely to be chaired by the CEO (CEOCHAIR). The value of PID5 is positively correlated with the proportion of nonaudit fee paid to the outside auditor (PNAUDFEE) and negatively correlated with prior 3-year operating performance to assets ratios (OPA). Chief executive officers who chair the board are likely to own a greater proportion of the outstanding equity (PCEO) and more likely to belong to the founding family (CEOFOUND). The value of PCEO is positively (negatively) correlated to CEOFOUND (BLOCK). In addition, most of the variables are significantly correlated with firm size,

TABLE 6

PEARSON PRODUCT-MOMENT CORRELATIONS

Variable	PID	IDFE	PIDAUD	IDFEAUD	PID5	CEOCHAIR	BLOCK	CEOFOUND	PCEO	PNAUDFEE	LEMP	OPA
Incidence of restatement	.04	−.28**	.01	−.21**	−.01	.02	−.03	.08	−.02	.03	.12*	−.03
Proportion of independent directors on the board (PID)		.10	.31**	.05	.08	−.06	.06	−.16**	−.26**	−.06	.18**	−.06
Board has independent director with financial expertise (IDFE)			.07	.82**	.003	−.05	.06	.02	−.01	.04	−.14*	−.07
Proportion of independent directors on audit committee (PIDAUD)				.06	.09	−.03	−.001	.002	−.06	−.09	.09	.01
Audit committee has independent director with financial expertise (IDFEAUD)					.03	−.06	.05	.01	−.002	.03	−.13*	.04
Proportion of 5% independent blockholders on board (PID5)						−.08	.19**	.04	−.08	.14**	−.21**	−.19**
CEO chairs the board (CEOCHAIR)							−.18**	.22**	.25**	−.08	.17**	.11
Outside blockholder present (BLOCK)								−.04	−.23**	.11	−.19**	−.11
CEO belongs to founding family (CEOFOUND)									.34**	−.03	−.11	−.10
Proportion of equity owned by CEO (PCEO)										.03	−.16**	−.02
Nonaudit fee/total auditors' fees (PNAUDFEE)											−.31**	−.06
ln(Employees in 1,000s) (LEMP)												.42**

NOTE.—The sample consists of pooled observations on 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 over the 2-year period prior to the announcement date of the matched restating firms. The sample size varies from 234 to 318 across the cells depending on the availability of data. OPA = Average ratio of operating performance to total assets for 3 years preceding the year of restatement announcement. CEO = chief executive officer.

* Statistically significant at the 5% level in a two-tailed test.
** Statistically significant at the 1% level in a two-tailed test.

measured by the natural log of the number of employees (LEMP). All these correlations are statistically significant at the 5 percent level in two-tailed tests.

C. *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.[34] We estimate variants of the following model:

$$\text{RESTATE} = f(\text{PID or PIDAUD, IDFE or IDFEAUD,}$$
$$\text{PID5, CEOCHAIR, BLOCK, CEOFOUND,} \qquad (6)$$
$$\text{PCEO, PNAUDFEE, LEMP, OPA}).$$

The last two explanatory variables are control variables, while the remaining variables are the corporate governance variables that we discussed in Section V*A*. As discussed in Section II, the signs of most of these variables are empirical issues, so we use the observed signs to interpret our results.

The top section of Table 7 shows estimates of four variants of equation (6) for the full sample. The first two columns show estimates of models in which we include the proportion of independent directors on the board (PID) and the presence of an independent director with financial expertise (IDFE), together with other governance and control variables. The third and fourth columns show estimates of similar models in which we replace PID and IDFE with the corresponding variables that describe the audit committee, namely, PIDAUD and IDFEAUD. The table shows the marginal effect[35] of each explanatory variable, followed (in parentheses) by its *p*-value in two-tailed tests.

The probability of restatement is lower in firms whose boards or audit committees include an independent director with financial expertise (IDFE or IDFEAUD);[36] it is higher in firms in which the CEO belongs to the founding family. These relations are both statistically and economically significant. Firms whose boards (audit committees) include an independent di-

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[34] For a detailed exposition of this technique, see David W. Hosmer & Stanley Lemeshow, Applied Logistic Regression (2d ed. 2000). The results are similar when we use the usual (nonmatched pairs) logistic procedure, so they are not reported in a table.

[35] For a continuous explanatory variable, the marginal effect is computed as the partial derivative of outcome probability with respect to the differenced variable, evaluated at the means of other differenced variables. For a binary explanatory variable, the marginal effect is 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 values of one and zero for the restating and control firms, respectively, and each of the other variables takes the same value for the two firms.

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

TABLE 7

MATCHED-PAIRS LOGISTIC REGRESSIONS OF INCIDENCE OF RESTATEMENT

Independent Variable	(1)	(2)	(3)	(4)
Full sample:				
PID	.07 (.78)	.18 (.54)		
IDFE	−.32 (.00)	−.30 (.00)		
PIDAUD			.14 (.65)	.05 (.89)
IDFEAUD			−.25 (.00)	−.21 (.04)
PID5	.35 (.37)	.24 (.59)	.38 (.34)	.23 (.62)
CEOCHAIR	.03 (.64)	.06 (.52)	.02 (.77)	.09 (.35)
BLOCK	.01 (.90)	−.03 (.81)	−.03 (.77)	−.03 (.77)
CEOFOUND		.34 (.01)		.30 (.02)
PCEO		−.27 (.51)		−.31 (.48)
Nonaudit fees/total fees		.32 (.15)		.36 (.11)
ln (Employees in 1,000s)	.05 (.07)	.06 (.10)	.06 (.06)	.06 (.11)
OPA	−.23 (.09)	−.18 (.32)	−.17 (.19)	−.21 (.27)
p-Value for likelihood ratio test	.000	.006	.007	.069
Max rescaled R^2	.308	.344	.202	.256
N (pairs)	120	82	119	81
Sample with earnings increase cases omitted:				
PID	−.18 (.54)	.02 (.93)		
IDFE	−.36 (.00)	−.38 (.00)		
PIDAUD			−.07 (.82)	−.13 (.74)
IDFEAUD			−.29 (.00)	−.29 (.02)
PID5	.37 (.39)	.27 (.53)	.35 (.42)	.21 (.67)
CEOCHAIR	−.01 (.89)	−.04 (.79)	−.03 (.76)	.01 (.92)
BLOCK	−.07 (.53)	−.22 (.12)	−.09 (.40)	−.17 (.20)
CEOFOUND		.43 (.01)		.36 (.03)
PCEO		−.22 (.56)		−.27 (.53)
Nonaudit fees/total fees		.38 (.09)		.47 (.07)
ln (Employees in 1,000s)	.08 (.01)	.08 (.05)	.08 (.02)	.07 (.09)
OPA	−.29 (.03)	−.23 (.18)	−.18 (.16)	−.21 (.27)
p-Value for likelihood ratio test	.000	.002	.002	.034
Max rescaled R^2	.392	.462	.274	.345
N (pairs)	100	66	99	65

NOTE.—The dependent variable is RESTATE; it equals one for restating firms and zero for control firms. Independent variables are as defined in Table 6. 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 2-year period before the announcement date of the restating firm. Each cell shows the marginal effect of the explanatory variable followed (in parentheses) by its p-value in a two-tailed test. For a continuous explanatory variable, the marginal effect is computed as the partial derivative of outcome probability with respect to the differenced variable, evaluated at other differenced variable means. For binary explanatory variables, the marginal effect is 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 one and zero for the restating and control firms, respectively, and each of the other variables takes the same value for the two firms. CEO = chief executive officer.

rector with financial expertise are about .31 (.23) less likely than other firms to restate earnings. Similarly, firms in which the CEO belongs to the founding family are about .32 more likely to restate.[37] None of the other variables is statistically significant.

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[37] For a more detailed analysis of managers' incentives to misreport financial information, see Natasha Burns & Simi Kedia, The Impact of Performance-Based Compensation on Misreporting, J. Fin. Econ. (in press, 2005).

In the bottom section, we present the corresponding results for the subsample where we exclude restatements that result in an increase in earnings. While investors tend to get nervous any time there is an indication of "funny accounting" in a firm, restatements that result in an earnings increase are arguably less serious than other restatements. While the sample size reduces, the results essentially mirror those for the full sample, in terms of sign, statistical significance, and magnitude of the coefficient estimates. One difference is that firm size seems to matter for this subsample: larger firms are more likely to restate. Overall, these results are consistent with the idea that the presence of an independent director with financial expertise on the board or the audit committee helps companies avoid serious accounting problems that can force them to restate earnings. Independent directors with financial expertise appear to be valuable in providing oversight of a firm's financial reporting practices.

D.   Robustness Checks

We next examine the robustness of our results in Section V*C* to several potential issues: controls for other governance variables, inclusion of other control variables, whether restatements denote a serious accounting problem, the timing of measurement of the explanatory variables, and whether our results are driven by technology firms, small firms, NYSE-listed firms, or by the prior stock price performance of restating firms.

1.   Other Governance Variables

We next examine whether the remaining corporate governance variables discussed in Section II are related to the probability of a company restating earnings. These variables include other measures of a CEO's influence on the board and dummies for Arthur Andersen, a Big 5 auditor, and large (>$1 million) nonaudit fees paid to auditors. When we add these variables to the right-hand side of our logistic regressions in Table 7, none of them are statistically significant; their addition does not change the main results found earlier in Table 7. (These results are not shown in a table to save space.)

2.   Other Control Variables

The logistic regressions reported in Table 7 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, the desire to raise outside financing at low cost can lead firms to manipulate earnings in

the first place.[38] 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, which is measured in two ways: prior 4-year sales growth rate and the ratio of firm value to total assets measured 1 year before the announcement of a restatement. None of these variables are 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 7.

3. Is a Restatement a Serious Episode?

As discussed in Section IV*A*, our sample consists of generally more serious, rather than technical, cases of restatements. Nevertheless, the sample includes some cases in which firms restated owing 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.[39] Our sample contains eight such cases. Omitting them from the sample does not change our main results in Table 7. The results are also quite similar when we omit restatements involving noncore accounts in addition to Staff Accounting Bulletin 101 cases.

4. Timing of Measurement of the Explanatory Variables

In the logistic regressions in Section V*C*, 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 the beginning date of this period 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 subsample, our governance and control variables are measured as of the year before the first year restated

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[38] Dechow, Sloan, & Sweeney, *supra* note 6.

[39] Revenue Recognition in Financial Statements, Securities and Exchange Commission, Staff Accouting Bulletin No. 101, 17 C.F.R. 211 (1999). Although Brian Rountree finds that, on average, stock prices decline on the announcement of such restatements also. See Brian Rountree, The Response to Changes in Revenue Recognition Rules (Working paper, Univ. North Carolina 2003).

or during that year. We reestimate our Table 7 regressions for this subsample. The results are essentially unchanged.

5.   Technology Firms versus Other Firms

For reasons discussed in Section IV*A*, our sample consists of restatements announced during 2000 and 2001. This is a relatively short time period that coincides with the crash of technology stocks in March 2000 and its aftermath. This raises the possibility that our sample may be dominated by technology stocks and, consequently, our results may not be representative of restatements in general. Fifty of the 159 firms in our sample are technology firms.[40] An additional two firms are Internet firms.[41]

We thus examine whether our results are driven by restatements involving technology and Internet firms, for which 2000 and 2001 was an unusual period. We partition our sample of restatements into two groups: technology and Internet firms versus other firms. We then reestimate the four models in the top section of Table 7 separately for each subsample. The results are generally similar to those in the top section of Table 7 for each subsample. The coefficient estimate of IDFE or IDFEAUD is negative for each subsample in all four models. For technology firms, it is statistically significant only in models 1 and 3; for other firms, it is statistically significant in all four models. The coefficient estimate of the CEOFOUND variable, which is only included in models 2 and 4, is positive in both models for both subsamples; it is statistically significant only for technology firms. The null hypothesis of equality of the coefficients of IDFE, IDFEAUD, or CEOFOUND across the two subsamples cannot be rejected at the 5 percent level in any of the four models. (To save space, these results are not shown in a table.) This evidence does not support the idea that our results are driven by technology and Internet firms.

6.   Small versus Large Firms

The benefit of an independent financial expert on the board or audit committee may be more important for smaller firms whose boards may otherwise lack financial skill; the effect may be negligible in larger firms that already have more sophisticated and knowledgeable boards. While the logistic regressions in Table 7 control for firm size via the natural log of Employees as well as several other variables (see Section V*D*2), that does not capture

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[40] We use the definition of technology stocks in Tim Loughran & Jay R. Ritter, Why Has IPO Underpricing Changed over Time? 33 Fin. Mgmt. 5, app. 4 (2004), except that we add the drug/biotechnology industry (SIC codes 2833, 2834, 2835, and 2836) to that list.

[41] We identify Internet firms using the list in John R. M. Hand, Profits, Losses and the Nonlinear Pricing of Internet Stocks, app. A (Working paper, Univ. North Carolina 2000).

the differential effect of the IDFE or IDFEAUD variable for small and large firms.

To examine this possibility, we partition our sample of restatements into two groups. The small-firm subsample consists of firms with sales equal to the sample median or lower; the large-firm subsample consists of the remaining firms. We then estimate separate logistic regressions similar to those in the top section of Table 7 for each subsample. The coefficient estimate of the IDFE or IDFEAUD variable is negative for both subsamples in all four models. In models 1 and 3, this coefficient is statistically significant for both small and large firms; in models 2 and 4, it is significant only for large firms. The null hypothesis of equality of the coefficient between the two subsamples cannot be rejected at the 5 percent level in any of the four models. (To save space, these results are not shown in a table.) Our results do not support the idea that independent financial expertise on the board or audit committee matters only for small firms.

7.   The Effect of Prior Stock Performance

As discussed in Section IV*A*, our control sample is matched on market capitalization at the end of the year before the year of announcement of the restatement. Figure 1 shows that over the 24 months before the announcement month, the restating firms' stocks perform worse than the control sample. So at the time of matching, our control firms might be smaller than restating firms on the basis of other measures of firm size.[42] While the regressions in the top section of Table 7 are robust to controls for various measures of firm size (see Section V*D*2), we nonetheless examine whether these results are sensitive to controlling for the average abnormal stock return (AAR) over the prior 24 months.[43] When we add AAR as an additional explanatory variable in the logistic regressions of the top section of Table 7, its coefficient is statistically insignificant. More important, there is essentially no change in the sign, statistical significance, or magnitude of the coefficients of the IDFE, IDFEAUD, or CEOFOUND variables. The results are similar when we control for AAR over the prior 6 months instead of the prior 24 months. (To save space, these results are not shown in a table.) Thus, our main result in Table 7 is not sensitive to controlling for prior stock performance.

8.   Is There a New York Stock Exchange Effect?

As discussed in Section II*A*, over our sample period, only NYSE required its listed firms to have completely independent audit committees. Conse-

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[42] There is some evidence of this in panel A of Table 5.

[43] To measure average abnormal stork return (AAR) for each firm in our restating and control samples, we estimate a time-series regression similar to equation (4) in Section IV*C* over months $(-24, -1)$, except that the α and β terms now have subscripts i instead of t. The estimate of the intercept term from this regression, α_i, measures AAR for firm i.

quently, is the probability of restatement lower for firms listed on NYSE? And does the negative relation between the probability of restatement and IDFE or IDFEAUD disappear after we control for a potential NYSE effect? The answer to both questions is "no." When we add a binary dummy variable for an NYSE-listed firm as an explanatory variable to the logistic regressions in the top section of Table 7, the coefficient of the NYSE dummy is negative but statistically insignificant, with p-values between .64 and .97. The sign, statistical significance, and magnitude of the coefficient estimates of the IDFE, IDFEAUD, and CEOFOUND variables are essentially unchanged. (To save space, these results are not shown in a table.)

VI.   Why Do Some Firms Put a Financial Expert on the Board?

Our most significant finding in Section V is that firms whose boards include an independent financial expert are less likely to restate. This finding is consistent with the idea that such directors are effective in providing oversight of a firm's financial reporting practices. A caveat that the paper shares with most of the literature on corporate governance is that board structure, and corporate governance mechanisms in general, are endogenous. While we do not know of a good instrument for the choice of an independent financial expert on the board, we provide an analysis of this choice.

First, small firms may benefit more from putting such an expert on the board. Larger firms may already have more knowledgeable and sophisticated boards. We use the natural logarithm of sales as a measure of firm size. Second, such directors may be picked by better-managed firms, which are less likely to have accounting problems. We use prior firm performance, measured by the average ratio of operating performance to total assets (OPA) or the average abnormal stock return (AAR) over the prior 3 years as alternate measures of management quality.[44]

Third, high-growth firms are likely to have greater financial needs, which requires financial expertise in the boardroom. We measure growth as the geometric mean of sales growth rate (SGR) over years $(-5, -1)$. Fourth, more leveraged firms are likely to have a greater need for external financing, which requires boardroom financial expertise. We measure financial leverage as D/V, the ratio of long-term debt to firm value. Fifth, firms that are more capital intensive are likely to have a greater need for financial expertise on the board. We use ASSET/Employees, the ratio of total assets to number of employees, as a measure of capital intensity. Sixth, Randall Kroszner and Philip Strahan argue that firms with greater stock volatility should have greater asymmetric information problems in trying to obtain external finance,

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[44] To compute AAR, we estimate a time-series version of equation (4) in Section IVC, after replacing the subscripts of the α and β terms by i instead of t. We estimate this regression for each firm in the two samples over months $(-36, -1)$. The term AAR is the estimate of the intercept term, α, from this regression.

TABLE 8

LOGISTIC REGRESSIONS OF THE INCIDENCE OF A FINANCIAL EXPERT ON THE BOARD

Independent Variable	(1)		(2)		(3)		(4)	
ln Sales ($ millions)	−.05	(.02)	−.03	(.06)	−.05	(.02)	−.03	(.07)
Prior 3-year OPA	.28	(.19)			.29	(.18)		
Prior 3-year abnormal stock return			2.37	(.04)			2.37	(.04)
SGR	.003	(.96)	−.03	(.63)	.006	(.93)	−.03	(.64)
D/V	−.09	(.63)	.002	(.99)	−.09	(.65)	.002	(.99)
Total assets per employee ($ millions)	.03	(.10)	.02	(.14)	.03	(.10)	.02	(.14)
Stock volatility over months (−48, −1)	−.57	(.20)	−1.01	(.03)	−.54	(.23)	−1.00	(.03)
Firm age from date of CRSP listing (in months)					.00	(.76)	.00	(.95)
Board size	.003	(.84)	−.004	(.74)	.002	(.86)	−.005	(.74)
Intercept	.67	(.42)	1.02	(.23)	.65	(.44)	1.01	(.23)
p-Value for likelihood ratio test	.056		.050		.086		.081	
Pseudo R^2	.049		.049		.049		.049	
N	228		234		228		234	

NOTE.—The dependent variable is IDFE, which equals one for a company whose board has an independent director with financial expertise and zero otherwise. Independent variables are as defined in Table 5. 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 2-year period before the announcement date of the restating firm. The regressions are performed on the pooled sample of firms. The cell for the intercept term shows the coefficient estimate. All other cells show the marginal effect of the explanatory variable and are computed as partial derivatives of the outcome probability, evaluated at other variable means. Values in parentheses are p-values for two-tailed tests. CRSP = Center for Research in Security Prices.

which requires financial expertise.[45] We measure stock volatility as σ_s, the standard deviation of stock returns over months (−48, −1).

Seventh, younger firms, which tend to have greater financing needs, are likely to have a greater need for financial expertise. We measure firm age from the date of listing on CRSP. Finally, we control for board size in the regression because larger boards are more likely to include a board member of any type, including a financial expert, other things being the same. We estimate the following logistic regression for our pooled sample of restating and control firms:

$$IDFE = f(LSALES, \text{ OPA or AAR, SGR, } D/V, \tag{7}$$
$$ASSET/Employees, \sigma_s, \text{ Firm age, Board size}).$$

Table 8 shows estimates of four variants of equation (7). The first two models do not include the firm age variable, while the next two models do.

[45] Randall S. Kroszner & Philip E. Strahan, Bankers on Boards: Monitoring, Conflicts of Interest and Lender Liability, 62 J. Fin. Econ. 415 (2001).

We measure firm performance by OPA in models 1 and 3 and by AAR in models 2 and 4. The table shows the marginal effect of each explanatory variable, followed (in parentheses) by its *p*-value. The three variables that are statistically significant are the natural log of sales, prior abnormal stock return, and (in models 2 and 4) stock volatility. Consistent with our expectations, smaller firms and firms with better prior stock performance are more likely to put an independent financial expert on the board. The magnitudes of these effects are nontrivial. A 1-standard-deviation increase in $\ln$ Sales results in a reduction in the probability of incidence of an independent financial expert on the board by .07 to .12, depending on the model. Similarly, a 1-standard-deviation increase in AAR results in an increase of about .14 in the probability that the board will have an independent financial expert.

VII.   Incidence versus Revelation of Accounting Problems

As discussed in Section IV*A*, our tests assume that serious accounting problems tend to be self-unraveling and force a firm to revise 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 issue 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 financial expert 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[46] 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.

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

VIII.   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. First, in July 2002, the United States adopted the Sarbanes-Oxley Act, which applies to all public companies with stock traded in the United States. Second, at the end of 2003, the NYSE, NASDAQ, and AMEX all adopted new sets of corporate governance rules that apply to most of their listed companies. Among their many provisions, the Sarbanes-Oxley Act and the new stock market rules together require that a company's board have a majority of independent directors and that the board's audit committee consist entirely of independent directors, have at least one member with financial expertise,[47] and restrict the types of nonaudit services that the outside auditor can provide. As of now, there is no systematic empirical evidence on the effectiveness of these governance provisions in avoiding serious accounting problems at companies, as manifested in a restatement of earnings. 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, use of an independent financial expert on the board or audit committee, use of independent directors with large blockholdings on the board or audit committee, conflicts facing outside auditors, 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 data set measuring the 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 the extent to which outside auditors provide nonaudit services to a firm. Interestingly, the use of Arthur Andersen or another Big 5 audit firm is also unrelated to this probability. We find that the probability of restatement is significantly lower in companies whose boards or audit committees include an independent financial expert; it is higher in companies whose CEO belongs to the founding family. The magnitudes of these relations are quite large. For a firm whose board (audit committee) includes a financial expert, the probability of restating is about .31 (.23) lower than that for a control firm without such a director, after controlling for other things. Similarly, the probability of restatement is about .32 higher in firms in which the CEO belongs to the founding family. These

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[47] The NYSE, AMEX, and NASDAQ now require their listed companies to have an independent financial expert on the audit committee (and therefore on the board). The Sarbanes-Oxley Act does not require this, but it requires a company to disclose annually whether its audit committee includes such a member; if it does not, the company needs to explain why.

relations are 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.

Because our study requires data on auditor conflicts, our sample consists of restatements announced during 2000 and 2001. This is a relatively short period that coincides with the crash of technology stocks and its aftermath. Our evidence in Section V*D*5 does not support the idea that our results are driven by the one-third of the sample firms that are in technology and Internet sectors. Nonetheless, whether our results are representative of the long run is an open question that we leave for future research.

BIBLIOGRAPHY

Agrawal, Anup; Jaffe, Jeffrey F.; and Mandelker, Gershon N. "The Postmerger Performance of Acquiring Firms: A Re-examination of an Anomaly." *Journal of Finance* 47 (1992): 1605–21.

Agrawal, Anup, and Knoeber, Charles R. "Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders." *Journal of Financial and Quantitative Analysis* 31 (1996): 377–97.

Agrawal, Anup, and Mandelker, Gershon N. "Large Shareholders and the Monitoring of Managers: The Case of Antitakeover Charter Amendments." *Journal of Financial and Quantitative Analysis* 25 (1990): 143–62.

Anderson, Kirsten L., and Yohn, Teri L. "The Effect of 10-K Restatements on Firm Value, Information Asymmetries, and Investors' Reliance on Earnings." Working paper. Washington, D.C.: Georgetown University, 2002.

Beasley, Mark S. "An Empirical Analysis of the Relation between the Board of Director Composition and Financial Statement Fraud." *Accounting Review* 71 (1996): 433–65.

Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees. *Report and Recommendations*. New York: New York Stock Exchange and Nasdaq, 1999.

Brickley, James A.; Coles, Jeffrey S.; and Terry, Rory L. "Outside Directors and the Adoption of Poison Pills." *Journal of Financial Economics* 35 (1994): 371–90.

Browning, E. S., and Weil, Jonathan. "Burden of Doubt: Stocks Take a Beating as Accounting Worries Spread beyond Enron." *Wall Street Journal,* January 30, 2002.

Burns, Natasha, and Kedia, Simi. "The Impact of Performance-Based Compensation on Misreporting." *Journal of Financial Economics* (in press, 2005).

Byrd, John W., and Hickman, Kent A. "Do Outside Directors Monitor Managers? Evidence from Tender Offer Bids." *Journal of Financial Economics* 32 (1992): 195–221.

Carhart, Mark M. "On Persistence in Mutual Fund Performance." *Journal of Finance* 52 (1997): 57–82.

Chtourou, Sonda M.; Bedard, Jean; and Courteau, Lucie. "Corporate Governance and Earnings Management." Working paper. Montreal: Université Laval, 2001.

Cummings, Jeanne; Schlesinger, Jacob M.; and Schroeder, Michael. "Securities Threat: Bush Crackdown on Business Fraud Signals New Era—Stream of Corporate Scandals Causes Bipartisan Outrage." *Wall Street Journal,* July 10, 2002.

Dechow, Patricia M.; Sloan, Richard G.; and Sweeney, Amy. "Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC." *Contemporary Accounting Research* 13 (1996): 1–36.

DeFond, Mark L., and Jiambalvo, James J. "Incidence and Circumstances of Accounting Errors." *Accounting Review* 66 (1991): 643–55.

Fama, Eugene F., and French, Kenneth R. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics* 33 (1993): 3–56.

Fama, Eugene F., and Jensen, Michael C. "Separation of Ownership and Control." *Journal of Law and Economics* 26 (1983): 301–25.

Frankel, Richard M.; Johnson, Marilyn F.; and Nelson, Karen K. "The Relation Between Auditors' Fees for Non-audit Services and Earnings Management." *Accounting Review* 77, Suppl. (2002): 71–105.

Hand, John R. M. "Profits, Losses and the Non-linear Pricing of Internet Stocks." Working paper. Chapel Hill: University of North Carolina, 2000.

Holderness, Clifford G., and Sheehan, Dennis P. "The Role of Majority Shareholders in Publicly Held Corporations: An Exploratory Analysis." *Journal of Financial Economics* 20 (1988): 317–46.

Holmstrom, Bengt, and Kaplan, Steven N. "The State of U.S. Corporate Governance: What's Right and What's Wrong?" *Journal of Applied Corporate Finance* 15 (2003): 8–20.

Hosmer, David W., and Lemeshow, Stanley. *Applied Logistic Regression*. 2d ed. New York: John Wiley & Sons, 2000.

Ibbotson, Roger G. "Price Performance of Common Stock New Issues." *Journal of Financial Economics* 2 (1975): 235–72.

Jegadeesh, Narasimhan, and Titman, Sheridan. "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *Journal of Finance* 48 (1993): 65–91.

Kinney, William R., Jr., and McDaniel, Linda S. "Characteristics of Firms Correcting Previously Reported Quarterly Earnings." *Journal of Accounting and Economics* 11 (1989): 71–93.

Klein, April. "Firm Performance and Board Committee Structure." *Journal of Law and Economics* 41 (1998): 275–303.

Klein, April. "Audit Committee, Board of Director Characteristics and Earn-

ings Management." *Journal of Accounting and Economics* 33 (2002): 375–400.

Kroszner, Randall S., and Strahan, Philip E. "Bankers on Boards: Monitoring, Conflicts of Interest and Lender Liability." *Journal of Financial Economics* 62 (2001): 415–52.

Loughran, Tim, and Ritter, Jay R. "Why Has IPO Underpricing Changed over Time?" *Financial Management* 33 (2004): 5–37.

Milligan, Susan. "House OK's Tough Action against Fraud: Public Anger Fuels a Fast Response on Corporate Crime." *Boston Globe*, July 17, 2002.

New York Times. "O'Neil Condemns Corporate Scandals." June 24, 2002.

Palmrose, Zoe-Vonna; Richardson, Vernon J.; and Scholz, Susan. "Determinants of Market Reactions to Restatement Announcements." *Journal of Accounting and Economics* 37 (2004): 59–89.

Palmrose, Zoe-Vonna, and Scholz, Susan. "The Circumstances and Legal Consequences of Non-GAAP Reporting: Evidence from Restatements." *Contemporary Accounting Research* 21 (2004): 139–80.

Rountree, Brian. "The Response to Changes in Revenue Recognition Rules." Working paper. Chapel Hill: University of North Carolina, 2003.

Securities and Exchange Commission. "The Numbers Game: Remarks by Chairman Arthur Levitt at New York University Center for Law and Business." September 28, 1998. http://www.sec.gov/news/speech/speecharchive/1998/spch220.txt.

Shivdasani, Anil, and Yermack, David. "CEO Involvement in the Selection of New Board Members: An Empirical Analysis." *Journal of Finance* 54 (1999): 1829–53.

Shleifer, Andrei, and Vishny, Robert W. "Large Shareholders and Corporate Control." *Journal of Political Economy* 94 (1986): 461–88.

Song, Moon H., and Walkling, Ralph A. "The Impact of Managerial Ownership on Acquisition Attempts and Target Shareholder Wealth." *Journal of Financial and Quantitative Analysis* 28 (1993): 439–57.

Weisbach, Michael, S. "Outside Directors and CEO Turnover." *Journal of Financial Economics* 20 (1988): 431–60.