

## **CORPORATE LOBBYING AND FRAUD DETECTION**

**Frank Yu and Xiaoyun Yu\***

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\* Frank Yu is at the China Europe International Business School, email: fyu@ceibs.edu, telephone: (8621)2890-5614. Xiaoyun Yu is at the Kelley School of Business, Indiana University, email: xiyu@indiana.edu, telephone: (812)855-3521, and the Shanghai Advanced Institute of Finance, Shanghai Jiaotong University. We are grateful for helpful comments from Utpal Bhattacharya, John Boyd, Alexander Butler, Chun Chang, Stuart Gillan, Simi Kedia, Robert Kieschnick, Paul Malatesta (the editor), Zacharias Sautner, Irina Stefanescu, Jun Yang, Ivy Zhang, Luigi Zingales, an anonymous referee, and the seminar participants at the Cheung Kong Graduate School of Business Finance Research Summer Camp, China Europe International Business School, Nanyang Technological University of Singapore, National University of Singapore, Rice University, University of Miami, University of Texas at Dallas, the 18th Annual Financial Economics and Accounting Conference, the 2009 Western Finance Association Annual Meeting, and the 2009 China International Conference in Finance. We thank Alexander Dyck, Adair Morse, and Luigi Zingales for kindly providing the fraud data and Nicholas Korsakov for editorial assistance. All errors are our own.

## **Abstract**

This paper examines the relation between corporate lobbying and fraud detection. Using data on corporate lobbying expenses between 1998 and 2004, and a sample of large frauds detected during the same period, we find that firms' lobbying activities make a significant difference in fraud detection: compared to non-lobbying firms, firms that lobby on average have a significantly lower hazard rate of being detected for fraud, evade fraud detection 117 days longer, and are 38% less likely to be detected by regulators. In addition, fraudulent firms on average spend 77% more on lobbying than non-fraudulent firms, and spend 29% more on lobbying during their fraudulent periods than during non-fraudulent periods. The delay in detection leads to a greater distortion in resource allocation during fraudulent periods. It also allows managers to sell more of their shares.

Keywords: Corporate lobbying, corporate fraud, corporate governance

JEL: G3; K4

# CORPORATE LOBBYING AND FRAUD DETECTION

## I. Introduction

Corporations have been one of the most important players in lobbying activities. Take Enron, for example: since its creation in 1985, lobbying had been a key part of Enron's strategy. The company maintained in-house high-profile lobbyists and hired top lobbying firms. It had spent more than \$5 million on lobbyists since 1997 and was registered to lobby in 28 states by the year of 2002. Before its fall as the biggest bankruptcy in the history of the United States, Enron had gained favorable treatment by lobbying Congress, federal and state governments, and various regulatory agencies on 49 occasions.<sup>1</sup> These include the removal of price controls on natural gas, the allowance of certain types of debt off the book, and the blocking of government regulation on its derivatives trading. John Dean, a former Counsel to President Richard Nixon, argued that Enron's lobbying activities and campaign contributions "...may have help slow detection if its troubles, and helped the company fly under the radar for as long as was possible given what now appear to be some egregious accounting and business practices".<sup>2</sup>

Enron is not the only corporation that has been active in lobbying. In 2005 alone, \$2.14 billion was spent on lobbying by corporations and industry groups. More than half of former

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<sup>1</sup> "A most favored corporation: Enron prevailed in federal and state lobbying efforts 49 times." (The Center for Public Integrity Report, January 6, 2003). The report concludes that "(Enron's) successful efforts to deregulate electricity and natural gas markets paved the way to its rise, and the exemptions it won from regulatory scrutiny may have contributed to its collapse. Lobbying was a critical component in both the company's rise and fall."

<sup>2</sup> "Some questions about Enron's campaign contributions: Did Enron successfully buy influence with the money it spent?" (Findlaw's Legal News and Commentary, January 18, 2002).

congressmen or senate members work as lobbyists hired by corporations.<sup>3</sup> Given the significant financial and human resources allocated to corporate lobbying, what impact does lobbying have on corporate governance? In this paper, we investigate how lobbying affects corporate governance in the context of fraud detection.

Being able to detect fraud in a timely manner is an indication of the overall effectiveness of a corporate governance system. We observe that firms like Enron and WorldCom spent millions on lobbying and were able to avoid detection and continue their misconduct for years. These anecdotes suggest that lobbying may directly or indirectly affect economic agents who are designed to uncover fraud. In this paper we seek to understand the effect of lobbying activities on fraud detection by asking the following questions: Is there a systematic link between corporate lobbying and fraud detection? Are fraudulent firms more likely to spend more on lobbying? And how is the involvement in lobbying activities associated with fraud detection and the welfare of economic agents, such as managers?

Using data on corporate lobbying expenses between 1998 and 2004, and a set of large corporate frauds detected during the same period, we find that corporate lobbying makes a significant difference in fraud detection. Fraudulent firms involved in lobbying activities have a significantly lower hazard rate of being detected than fraudulent firms not involved in lobbying, after controlling for factors such as firm size, book to market ratio, motivation for fraud, type of detecting agents, and industry fixed effect. On average, fraudulent firms involved in lobbying are able to evade detection 117 days longer—and even longer after we control for firm size and industry. Further, fraudulent firms involved in lobbying are 38% less likely to be detected by regulators than those not involved in lobbying.

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<sup>3</sup> Source: <http://www.politicalmoneyline.com>.

We find that fraud is associated with a systematically higher level of lobbying expense. Fraudulent firms on average spend significantly more on lobbying than non-fraudulent firms. To mitigate the problem of omitted variables, we adopt the difference-in-difference analysis and find that fraudulent firms increase their lobbying expenses after they commit fraud.

Lastly, we explore the welfare implications of delay in fraud detection on both firms and their managers. We first document evidence that delay in fraud detection affects the private benefits of managers. During the fraudulent period, insider sales of shares of firms with lobbying activities are significantly higher than those of firms without lobbying. By contrast, there is no difference in insider purchases during fraudulent period between the two types of firms, nor is there any difference in insider trading activities during non-fraudulent periods. The delay in fraud detection seems to benefit managers by giving them more time to sell their shares before the decline in the value of firm occurs when fraud surfaces.

Kedia and Philippon (2009) find that distortion of the allocation of economic resources arises from the overinvestment of firms during their periods of suspicious accounting. In the context of fraud detection, we explore how the delay in detection affects the degree of distortion by fraudulent firms. Compared to firms that do not lobby, those that lobby tend to invest and hire more excessively during their fraudulent periods. By contrast, there is no difference in expansion activities between the two types of firms before or after fraudulent periods. Our findings suggest that delay in fraud detection exacerbates the resource misallocation in the economy.

Our study sheds light on the recent debate about whether to improve the transparency in corporate political spending. Many firms have argued against detailed disclosure of political spending, citing objections such as the possibility of revelation of corporate strategy to competitors,

distractions to management, and negligible impact on shareholder values.<sup>4</sup> Our results suggest that political spending does affect the welfare of investors and that there is a need for more transparency in corporate political spending. Our results, however, should not be interpreted as evidence that the delay in fraud detection itself is the only motivation and consequence of lobbying, or that corporate lobbying is inefficient in general. Since our study focuses on examining the effect of lobbying on fraud detection, boarder issues such as why firms lobby and what type of firms are more likely to commit fraud, are left for future research.

Our paper is the first, of which we are aware, to empirically investigate how corporate lobbying affects corporate governance. Since lobbying helps build and sustain political connections, our findings are related to the literature on the impact of political connections. Most studies focus on how political connections affect firms' value or stock returns (e.g., Roberts (1990), Fisman (2001), Jayachandran (2006), Fan, Wong, and Zhang (2007), Aggarwal, Meschke, and Wang (2009), Cooper, Gulen, and Ovtchinnikov (2009), and Faccio and Parsley (2009)). Several studies explore the effect of political connections on firms' financing and operations (e.g., Agrawal and Knoeber (2001), Johnson and Mitton (2003), Gupta and Swenson (2003), Khwaja and Mian (2005), Faccio, Masulis, and McConnell (2006), and Claessens, Feijen, and Laeven (2008)). By contrast, relatively few papers have directly studied the relationship between political connections and corporate governance systems. However, this relationship can be important since a large body of law and finance literature emphasizes that the legal system is fundamental to investor protection (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000)), yet in practice corporations can significantly influence the operating efficiency and objectivity of a legal system. Our study attempts to explore

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<sup>4</sup> "Shining light on corporate political gifts" (The New York Times, December 16, 2005) and "Does your company keep political secrets?" (Fortune, May 31, 2006).

the effect of political connections on governance by examining the relation between corporate lobbying and fraud detection.

Our paper is also related to the literature on corporate fraud. Most empirical research on corporate fraud has focused on either the role of executive compensation or corporate governance characteristics. A number of papers link fraud to equity compensation for executives (e.g., Burns and Kedia (2006), Efendi, Srivastava, and Swanson (2007), Peng and Röell (2008), and Johnson, Ryan, and Tian (2009)). Other papers link fraud to corporate boards lacking independence or financial and accounting expertise, or business conditions (e.g., Beasley (1996), Dechow, Sloan, and Sweeney (1996), Agrawal and Chadha (2005), and Wang, Winton, and Yu (2009)). On the other hand, relatively few papers have directly studied the detection of fraud. Dyck, Morse, and Zingales (2009) examine which monitoring devices are more effective in detecting fraud. Wang (2009) studies the interaction between corporate investment decisions and fraud detection. There is also literature in accounting focusing on the role of auditors in preventing and detecting fraud (see, e.g., Francis (2004)) and on the role of financial analysts in reducing earnings manipulations (Yu (2008)). By contrast, our study contributes by suggesting that corporate lobbying is another factor that affects fraud detection.

The rest of the paper is organized as follows. Section II provides a brief description of corporate lobbying. Section III describes the construction of our data sample. Section IV examines whether fraudulent firms that lobby can evade detection longer than fraudulent firms that do not lobby. Section V tests whether fraudulent firms are more likely to spend more on lobbying than non-fraudulent firms. Section VI explores the welfare implications of delay in fraud detection. Section VII concludes the paper.

## II. Background on Corporate Lobbying

### A. The Lobbying Disclosure Act of 1995

Lobbying is the practice of attempting to directly influence the actions of government to follow policies desired by lobbyists. According to the Lobbying Disclosure Act of 1995 (LDA), which governs the disclosure of lobbying, a *lobbying contact* is any oral or written communication (including an electronic communication) to an executive branch official or a legislative branch official that is made on behalf of a client with regard to the formulation, modification, or adoption of federal laws, executive orders, or government contracts, etc.<sup>5</sup>

The Lobbying Disclosure Act of 1995 was signed into law on December 19, 1995 and took effect on January 1, 1996. It requires any firm or organization whose lobbying expenses exceed \$20,000 semi-annually to register with the Secretary of the Senate and the Clerk of the House of Representatives within 45 days after it first makes a lobbying contact. The registration also applies to any lobbyist whose total income for lobbying activities on behalf of a client it represents exceeds \$5,000. The enactment of the LDA reflects legislative efforts to bring accountability and transparency to lobbying practices in the United States. The law was later amended substantially by the Honest Leadership and Open Government Act of 2007, which further strengthens public disclosure requirements concerning lobbying activities and funding.

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<sup>5</sup> Specifically, the communication is with regard to (a) the formulation, modification, or adoption of federal legislation (including legislative proposals), (b) the formulation, modification, or adoption of federal rule, regulation, executive order, or any other program, policy, or position of the United States government; (c) the administration or execution of a federal program or policy (including the negotiation, award, or administration of a federal contract, grant, loan, permit, or license); or (d) the nomination or confirmation of a person for a position subject to confirmation by the Senate. For details, please see <http://lobbyingdisclosure.house.gov/lda.html>.



## **B. Corporate Lobbying Activities**

Lobbying is one of the most prominent ways for corporations to influence legislation. For example, in the 1997-1998 election cycle, expenditures on lobbying were \$2.6 billion, more than nine times the campaign contributions given by political action committees (PACs) (Milyo, Primo, and Groseclose (2000)). Expenditures on lobbying in the United States reported to the federal government totaled \$1.45 billion in 1999. In comparison, PACs contributed \$259.8 million and soft money contributions totaled nearly \$500 million in the year 2000 election cycle (Baron (2002)).<sup>6</sup>

Corporations' lobbying expenses are usually applied towards in-house lobbyists or specialized lobbying firms. Corporations can also spend on gifts, meals, and provide free trips for legislators. For example, in the past five years, congress members have received more than \$18 million in travel benefits provided by private organizations. More than half of the representatives and senators who leave office become lobbyists. Since 1998, about 250 former congress members and federal agency chiefs have become lobbyists. These lobbyists usually have inside connections to current members in Congress and can provide corporations with access to legislators.

In general, since corporate lobbying activities are associated with a firm's business strategy, culture, even ethics, and confers a multitude of advantages, lobbying can potentially make fraud more difficult to uncover. First, corporations can directly influence fraud detection by regulators by lobbying watchdogs such as the Securities and Exchange Commission (SEC) and the Government

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<sup>6</sup> In contrast to campaign contributions, lobbying is less dependent on election cycles. It allows corporations to target specific legislations and agencies in addition to the representatives and senators. Unlike campaign contribution, where the location is shown to be a primary determinant (Wright (1985)), any corporations can hire a lobbyist regardless of location.

Accountability Office (GAO).<sup>7</sup> Second, corporations lobby for favorable regulation rules. Examples include Enron’s lobbying to allow certain types of debt off the books and to block regulation of its trading in energy derivatives. Third, since bad performance usually triggers fraud detection, fraudulent firms can reduce detection risk by gaining favorable business conditions through lobbying. For example, Global Crossing lobbied to block competition for building a transpacific fiber-optical cable, preventing rivals from dominating the market.<sup>8</sup> Enron lobbied for removing price controls on natural gas and for de-regulation of the electric utility industry. Last, but not least, corporations use their lobbying ties to obtain political intelligence to help them better react to incoming policy changes. A recent example is the hiring of lobbyists by several hedge fund managers for tips and predictions regarding market-moving information through their political connections.<sup>9</sup>

### **III. Sample Selection**

#### **A. The Lobbying Sample**

The Lobbying Disclosure Act of 1995 requires that firms spending more than \$20,000 on direct lobbying activities semi-annually must file with the Senate’s Office of Public Records (SOPR) and the Clerk of the House of Representatives. Starting in 1998, Political Money Line (PML) of Congressional Quarterly Inc. has maintained a database of the semi-annual expense records that

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<sup>7</sup> For example, according to the Center of Public Integrity, 309 corporations and organizations attempted to influence GAO investigations between 1998 and 2004.

<sup>8</sup> “Global Crossing tossed more cash around town than Enron” (Business Week, February 11, 2002).

<sup>9</sup> “Hedge funds hire lobbyists to gather tips in Washington” (The Wall Street Journal, December 8, 2006).

companies, labor unions, and other organizations have spent to lobby Congress and federal agencies, based on their lobbying disclosure reports filed with SOPR.

We construct the lobbying sample using lobby spending information obtained from PML. The sample period starts from the second half of 1998 and ends in the first half of 2005. To compute a firm's annual lobby spending, we sum its mid-year and year-end lobbying expenditures. In the case where a private subsidiary of a publicly-traded parent company lobbies, we attribute its lobby spending to the parent firm. After matching with COMPUSTAT, we have 2,053 firm-year observations over 8 years.

One limitation of the data is that we are unable to observe the indirect lobbying efforts through individual firms' contributions to industrial organizations who lobby on their behalf. Since industry associations normally do not disclose the source of their funding, we are unable to collect this information on indirect lobby spending by individual firms, and thus may underestimate some firms' actual lobbying expenses and intensity. Nevertheless, the lobbying sample suggests that indirect lobbying efforts through industrial organizations appear to be small compared to direct lobbying activities. Take the energy industry for example. In 2001, the total lobby spending by the industry was about \$55 million, among which \$4.2 million was contributed by the energy industry organizations. In addition, an industry association's lobbying activities tend to be related to industry characteristics, and its operations, to industry leaders. Our control for industry fixed effect and firm size in all our tests should help reduce this potential bias.

Another limitation of the data is that LDA only requires corporations to provide information on total lobbying expenses—not a detailed break-down of expenses in each lobbying area. It is difficult to directly measure towards which channels corporations divert the most money. Nevertheless, LDA requires companies to report which government agents they contacted for each

individual lobbying issue. This enables us to use the frequency of contact as an alternative proxy for lobbying effort, with the assumption that the frequency of contact is positively correlated to the money spent and time used by lobbyists and management.

Throughout the paper, we label firms that are engaged in lobbying activities in the sample period as “lobbying firms” and firms that are not engaged in lobbying as “non-lobbying firms”.

## **B. The Fraud Sample**

We obtain a sample of large frauds from Dyck, Morse, and Zingales (2009), who assemble the sample based on companies that are subject to lawsuits from the Stanford Securities Class Action Clearinghouse.<sup>10</sup> To control for frivolous lawsuits, they restrict the sample period to 1996-2004, after the passage of the Private Securities Litigation Reform Act of 1995 which was designed to reduce frivolous lawsuits. They exclude all cases where the judicial review process leads to their dismissal. In addition, they restrict the sample to corporate frauds with a settlement amount of at least \$2.5 million, a threshold level of payment suggested by previous studies that helps separate frivolous lawsuits from meritorious ones. To reduce the problem of undetected fraud, they restrict the sample to corporate frauds with assets of at least \$750 million in the year before the fraud is detected, as large firms are subject to more intense public scrutiny and lawyers have a stronger incentive to uncover their fraudulent activities.

The final sample of Dyck, Morse, and Zingales (2009) contains 239 frauds detected between 1996 and 2004. It also contains manually collected information on each fraud and its detection, such as: the motivation of the fraud, the economic agent that first brought the fraud to light, and the date

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<sup>10</sup> For a detailed description of the sample construction and related references, please see Dyck, Morse, and Zingales (2009).

when fraud was committed and the date when fraud was detected. In this study, we exclude frauds detected before 1998 due to lack of lobbying information. Our final fraud sample contains 205 frauds detected between 1998 and 2004. For most of the frauds, we are also able to collect information from the Stanford Securities Class Action Clearinghouse on settlement amounts for law suits following fraud detection.

For firms in the lobbying sample and the fraud sample, we obtain accounting data, such as the book values of assets and equity, from COMPUSTAT. Stock prices and daily returns are from CRSP. For our insider trading analysis, we obtain insider trading information from the Thomson Financial Insider Filing database.

### **C. Descriptive Statistics**

Table 1 presents the summary statistics of the lobbying sample. Panel A reveals that an average (median) firm spends \$2.03 million (\$1.17 million) on lobbying each year during our sample period. Since lobbying expenses are generally not tax deductible, the actual cost is higher than other types of deductible corporate expenses.<sup>11</sup> Panel A also indicates that lobbying expenses tend to be stable over time, as the yearly fluctuation is usually smaller than 10%. Table 1 Panel B shows that firms tend to lobby on a regular basis: 47% of firms lobbied every year in the 8-year period, and 73% of firms lobbied at least 5 out of 8 years.

Table 1 Panel C describes how frequently government agencies are contacted by our sample firms for the period of 1999-2005. We manually collect the names of government agencies being contacted by every organization from the LDA Records Database, available from the website of the

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<sup>11</sup> See <http://www.efile.com/tax-deduction/employee-expense-deduction/employment-deductions/>

United States Senate, with records starting from 1999.<sup>12</sup> We classify a legal or regulatory entity identified in the database based on the following categories: Federal Legislation, Agencies for Economic and Trade Activities, Administrations, Regulators for Financial Activities, and Criminal Investigation Agencies.<sup>13</sup> We then merge it with our lobbying sample.

Panel C presents lobbying intensity by fraudulent firms and non-fraudulent firms in our sample toward a particular government entity. Columns 1 and 2 report the number of lobbying contacts conducted by an average firm per year. Fraudulent firms contact government agencies much more frequently than non-fraudulent firms (109.7 times per firm per year versus 70.6 times per firm per year). Among all government entities, the legislation agents (Senate and House of Representatives) rank top on the list, and account for about one third of all the lobbying contacts (32.7 contacts by an average fraudulent firm per year versus 23.4 contacts by a non-fraudulent firm). The agencies for economic and trade activities rank the second (15.9 times by a fraudulent firm versus 8.6 times by a non-fraudulent firm). The frequency of contact with agencies responsible for

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<sup>12</sup> The LDA Record Database can be accessed at [http://www.senate.gov/legislative/Public\\_Disclosure/LDA\\_reports.htm](http://www.senate.gov/legislative/Public_Disclosure/LDA_reports.htm).

<sup>13</sup> Specifically, Federal Legislation includes: United States Senate, House of Representatives, and Congressional Budget Office. Agencies for Economic and Trade Activities include: Department of Commerce, Council of Economic Advisers (CEA), Federal Trade Commission (FTC), International Trade Administration (ITA), National Economic Council (NEC), Overseas Private Investment Corp (OPIC), Patent and Trademark Office (PTO), U.S. Trade Representative (USTR), Trade and Development Agency (TDA), U.S. International Trade Commission, and the Export-Import Bank of the United States. Administrations include: President of the United States, Vice President of the United States, and Department of State. Regulators for Financial Activities include: Commodity Futures Trading Commission, Office of the Comptroller, Securities & Exchange Commission (SEC), the Government Accountability Office (GAO), the Federal Reserve System, Internal Revenue Service (IRS), and the Department of Treasury. Criminal Investigation Agencies include: Federal Bureau of Investigation (FBI), Department of Justice, and Department of the Interior.

regulating financial activities (including SEC, GAO, and IRS), as well as criminal investigation agencies, is relatively low. While firms can directly lobby agencies that are responsible for regulating financial and criminal activities, they appear to more likely lobby legislative entities such as the Senate and House, who oversee the operations of these agencies. In addition, we observe a positive and significant correlation of 44% ( $p = 0.00$ ) between the frequency of contact with government agencies per firm per year and the dollar amount of its lobby spending.

Next, we explore whether there is a different focus between fraudulent and non-fraudulent firms in our sample in terms of which government entities to lobby. Column 3 of Panel C reports the number of contacts targeted at a given government agency as a fraction of the total number of lobbying contacts conducted by all fraudulent firms. Column 4 reports this fraction based on the total number of lobbying contacts by all non-fraudulent firms. We observe that while fraudulent firms lobby more frequently than non-fraudulent firms, there is no systemic difference in government entities that lobbying activities are focused on between the two types of firms. Both types of firms exhibit similar patterns as to which agency they are more likely to lobby.

Table 2 reports the descriptive statistics for the fraud sample. Panel A reports the frequency of frauds by the year when fraud occurred. A majority of the frauds—about 77%—are committed during the period of 1998-2001. Panel B reports the frequency of frauds by the year when fraud was detected. A significant fraction of frauds—over 45%—are detected between 2001 and 2002, a time coinciding with a significant stock market decline.

Panel C describes the characteristics of firms in our fraud sample. Compared to fraudulent firms not involved in lobbying activities, those that lobby are significantly larger in terms of market capitalization and asset base. They also have a higher book to market ratio, although the difference is not statistically significant. These results are consistent with our prior that big and well-

established firms have a greater incentive to lobby, while small and growth firms are less likely to lobby.

Panel C provides preliminary evidence that it takes longer to detect fraud for firms involved in lobbying activities. The duration of fraud—calculated as the number of days between the time when a firm commits a fraud and the time when the fraud is detected—is 594 days for an average firm that does not lobby. By contrast, the average is 711 days for firms that do lobby—an additional 117 days ( $p = 0.10$ ), or 20% more time. Using median instead of mean, it takes 93 more days ( $p = 0.03$ ), or 22% more time, to detect frauds from firms that lobby.

Panel C also shows that the settlement amount for fraudulent firms that lobby is on average more than twice the amount for those that do not lobby. This suggests that lobbying intensity is associated with fraud severity.

Table 2 Panel D reports the industry distribution of frauds in our sample. Similar to previous studies, we observe that fraud occurrences tend to cluster within industries. Among fraudulent firms that do not lobby, 50% of frauds occur in the three Fama-French 10 industries: Finance (23%), Hi-Tech (16%), and Wholesale and Retail (11%). Among fraudulent firms that lobby, 13% of them occurred in the Telecommunication industry, followed by 11% in Healthcare and 10% in Hi-Tech. In addition, 32% of frauds in the non-lobbying group and 22% of frauds in the lobbying group occurred in regulated industries.

#### **IV. Do Lobbying Firms Evade Detection Longer?**

Does corporate lobbying have any impact on fraud detection? We explore this question from three perspectives. First, we conduct a regression analysis to examine whether it takes longer to detect fraud by firms that are involved in lobbying activities. Next, we use survival analysis to



examine whether fraudulent firms that lobby have a higher probability of evading detection than fraudulent firms that do not lobby. Finally, we investigate which economic agents capable of detecting fraud have been impacted the most by lobbying activities.

### **A. Days Taken to Detect Fraud**

We define “days taken to detect fraud” as the length (number of days) of the period from the commission of a fraud to the detection of a fraud. Panel C of Table 2 reveals that on average, it takes 117 additional days to detect fraud for firms that are involved in lobbying activities. To measure a firm’s lobbying effort, we use a dummy for lobbying activities—a variable equal to 1 if a firm is involved in lobbying during the sample period and 0 otherwise—as well as average lobbying expenses. We then regress days taken to detect fraud on the dummy for lobbying activities. Since Panels C and D of Table 2 reveal that lobbying firms differ from non-lobbying firms in market capitalization, book to market ratio, and industry distributions, we control for size, book to market ratio and industry fixed effect (Fama-French 10 industries) in our regressions.<sup>14</sup>

Column 1 Table 3 reports the results. The coefficient associated with the dummy for lobbying activities is positive and significant. On average it takes 349 more days to detect fraud for a lobbying firm than for a non-lobbying firm in the same industry with similar size and book to market ratio.

Since not all frauds are equally important and some frauds are more severe than others, we also follow Dyck, Morse and Zingales (2009) and run value-weighted (VW) regressions using the

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<sup>14</sup> In untabulated regressions, we also try adding control variables such as abnormal stock return before detection, board size (as a control for corporate governance), the number of business segments and the number of geographic segments of the firm (as a control for business complexity of the firm). The results remain unchanged.

settlement amount as weight. We use the log version of settlement amount due to the skewness of the distribution. If the settlement amount information is missing, we use the value of median settlement amount. Column 2 reports the results based on value-weighted regression. We observe a similar finding as in the equal-weighted (EW) regression: the dummy for lobbying activities continues to be positively and significantly related to the days taken to detect fraud.

Instead of using the dummy for lobbying activities, we also use average semi-annual lobbying expenses to measure a firm's lobbying efforts. Columns 3 and 4 present the results based on equal- and value-weighted regressions, respectively. Again, the coefficient is positive for both equal-weighted (168.04) and value-weighted (128.06) regressions, and is significant at the 5% level. The results suggest that a million dollar increase in semi-annual lobbying expenses is associated with approximately 4 to 5 more months to detect a fraud.

Dyck, Morse, and Zingales (2009) classify the agent who first detected a fraud into one of eight types: regulators, analysts, blockholders, employees and other stakeholders, firm, insiders, media, and professional services. They show that the type of detecting agent affects the speed of detection. In addition to industry- and firm-specific characteristics, we control for the fixed effect of the type of agents who first detected the fraud. We also control for the timing of fraud detection by including the fixed effect of the year of detection. Columns 5 through 8 report the results. We observe that the additional control variables do not alter our findings. Both the dummy for lobbying activities and the average annual lobbying expenses continue to be positively and significantly related to a longer time to detect fraud in equal- and value-weighted regressions.

## B. Survival Analysis

Table 3 shows that it takes longer time to detect fraud by firms that are involved in lobbying activities. In this subsection we use survival analysis and explicitly examine whether fraudulent firms that lobby have a higher rate of evading detection than fraudulent firms that do not lobby.

We first estimate the proportion of fraudulent firms evading detection up until a given time and plot the real survival curves using the Kaplan-Meier method, a non-parametric approach that estimates a survivor function without covariates and compute the conditional survival probability. Figure 1 presents the plot based on Kaplan-Meier survival estimates for fraudulent firms' rate of evading detection. Throughout the entire fraudulent period, the red solid line for lobbying firms is above the grey dashed line for non-lobbying firms. This suggests that in any given day lobbying firms have a higher rate of evading detection than non-lobbying firms.

Next, we examine the effect of lobbying on the probability of evading fraud detection by taking into account other factors that could potentially affect the probability of evading fraud detection at a given time, such as size and industry effect. We estimate two regression models for the survival analysis: Cox's Proportional Hazard Model and Weibull Regression.<sup>15</sup> In each of the regression specifications, the dependent variable is the hazard rate of being detected for fraud. Our variables of interest are the dummy for lobbying activities and average lobby spending (in millions of dollars), respectively. In addition to controlling for firm size, book to market ratio, and Fama-

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<sup>15</sup> Cox regression is a widely used semi-parametric method for survival analysis. Unlike the Kaplan-Meier approach, it estimates a survivor function with covariates using a proportional hazard model, which does not require a specific underlying probability distribution, but assumes the hazard ratio to be constant. Weibull regression specifies the Weibull distribution, which does not require failure rates to remain constant but allows them to change smoothly over time.

French 10 industry fixed effect, we include the fixed effects of different types of agents who detect the fraud and fraud motivation based on the classifications in Dyck, Morse, and Zingales (2009).<sup>16</sup>

Columns 1 through 4 of Table 4 present the results from the Cox regression. All the coefficients are reported in the unexponentiated form. Column 1 shows that the coefficient associated with the dummy for lobbying activities is negative and significant, suggesting that lobbying is associated with a lower hazard rate of being detected for fraud. Column 2 presents the results of the Cox regression with additional controls for the fixed effects of fraud motivation and type of agents who detect the fraud. We observe the same result—lobbying reduces the hazard rate of fraud being detected. Columns 3 and 4 use average annual lobbying expenses instead of the lobbying dummy as the key independent variable. Our evidence suggests that the amount of lobbying expense also reduces the hazard rate of being detected for fraud. After we account for detection type and fraud motivation fixed effects, the coefficient associated with average lobbying expenses is significant at least at the 10% level.

Columns 5 through 8 of Table 4 report the results from the Weibull regression. The results are similar to those from the Cox regression: lobbying activities reduce firms' hazard rate of being detected, and the more money firms spend on lobbying, the lower the hazard rate.

To summarize, our results suggest that compared to fraudulent firms that do not lobby, fraudulent firms that are involved in lobbying activities have a higher probability to avoid being detected for fraud.

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<sup>16</sup> Dyck, Morse, and Zingales (2009) classify each fraud into one of the six motivations for fraud: personal profit, selling off shares of a division or firm, merger/acquisition, organic growth, industry downturn, and firm value enhancement. They show that fraud detection is associated with the type of detecting agents and the nature of the fraud.

When analyzing the effect of corporate lobbying, one limitation is that due to data restrictions, we are unable to explore other aspects of corporate fraud besides fraud detection, such as the length of litigations and settlement arrangements, which could also be affected by lobbying activities. Another limitation is that we do not observe frauds that were not caught during the sample period, and cannot directly test whether lobbying affects the probability of fraud detection. However, by restricting our attention to large firms' frauds, this problem is less severe: due to intense public scrutiny, the ability to sue based on previous misconduct, and the strong incentives to sue by plaintiff lawyers, there are fewer undetected frauds for large firms (Dyck, Morse, and Zingales (2009)). In addition, we can view frauds that were not caught as firms having very long fraud durations that exceed our sample period. Our results can then be seen as a sub-sample analysis with detection time truncated at 2004. The third limitation is the potential omitted variable problem since some potential difference between lobbying firms and non-lobbying firms can affect fraud detection. While our controls for size, book to market, and industry fixed effect in the analyses help to mitigate the impact of potential omitted variables, it is still difficult to fully address this concern without a good instrument variable that affects only lobbying but has no effect on fraud detection during the sample period.

### **C. Type of Detecting Agents**

Dyck, Morse, and Zingales (2009) identify the economic agents that first detected fraud for each case in their sample. They classify the type of agents into eight categories: regulators, analysts, blockholders, employees and other stakeholders, firm, insiders, media, and professional services.

For example, a fraud is defined as being detected by a regulator if the agent who discovered fraud is an industry regulator, or is from a federal investigative agency, trade organization, or the SEC.<sup>17</sup>

So far, we have shown that corporate lobbying is associated with a longer period to uncover fraud and a higher probability of evading fraud detection. We now examine economic agents upon which lobbying activities have the most impact. We conjecture that lobbying has a strong effect on detection by regulators since it mainly targets at government agents.

Panel A of Table 5 reports the fraction of frauds detected by each type of economic agent classified in Dyck, Morse, and Zingales (2009). Overall, 34 out of 205 fraud cases, or 17% of frauds in our sample, are detected by regulators. We then break down our fraud sample into the lobbying sub-sample and the non-lobbying sub-sample, based on whether or not a sample firm is engaged in lobbying activities. We observe that the lobbying sub-sample has a lower fraction of frauds detected by regulators. In the non-lobbying sub-sample, 19% of frauds were caught by regulators. Based on the number of frauds detected, regulator is ranked next to the firm (22%) as the most effective agent in discovering corporate fraud. For the lobbying sub-sample, however, 12% of frauds were caught by regulators, representing a 38% decrease in detection rate by regulator compared to the non-lobbying sub-sample. Regulators only rank the 4th among all the eight types of parties, falling behind firm, media, and analysts in terms of the fraction of frauds being detected.

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<sup>17</sup> A fraud is considered as detected by a *blockholder* if the agent who discovered the fraud is an equity holder, a bank, or a short-seller. A fraud is considered as detected by *employees and other stakeholders* if the agent who brought the fraud to light is an employee, supplier, client, or competitor. Similarly, an agent who uncovered a fraud belongs to *professional services* if the agent is an auditor, a law firm, a rating agency, or an agent who provides other professional services. In addition, a fraud detector is classified as an *insider* if he or she is a board member, new manager, officer or director. For a description of this classification and the identity of each fraud detector, see Dyck, Morse, and Zingales (2009).

Next, we regress the dummy of whether the fraud is detected by a particular type of agent against the dummy for lobbying activities, controlling for size and industry fixed effect. Panel B of Table 5 reports the results from the cross-sectional linear probability regression. Column 1 of Panel B presents the results for whether the fraud is detected by regulators. We observe that the coefficient associated with the dummy for lobbying activities is negative (-0.14) for regulators ( $p = 0.068$ ). This indicates that controlling for industry and firm size, lobbying is associated with a lower probability of a fraud being detected by regulators.

The remaining columns of Panel B present the results of the regressions testing whether lobbying affects the probability of being detected by other types of monitors. We do not observe a significant relation between lobbying and fraud detection by other types of economic agents, as none of the coefficients associated with the dummy for lobbying activities is significant.

## **V. Do Fraudulent Firms Spend More on Lobbying Expenses?**

Our analyses based on the fraud sample have shown there is a difference in fraud detection between firms that are (or are not) involved in lobbying activities. If lobbying helps corporations to conceal fraud and evade detection, then we should also expect to observe a link between the amount of lobby spending and corporate fraud. In this section, we shift our focus to the lobbying sample; we investigate whether fraudulent firms spend more on lobbying than non-fraudulent firms, and whether they spend more on lobbying during the fraudulent periods than non-fraudulent periods.

### **A. Fraudulent vs. Non-fraudulent Firms**

We first explore whether fraudulent firms spent more on lobbying expenses than non-fraudulent firms in a panel regression framework. For our lobbying sample, we define a firm-year

observation as being within a “fraudulent period” if the time period is later than the time when fraud took place and earlier than the time when the fraud was detected, and as being within a “non-fraudulent period” otherwise. We define a firm-year observation as a “fraudulent firm” if a firm is in its fraudulent period, and otherwise as a “non-fraudulent firm”.

Panel A of Table 6 presents the summary statistics of lobbying expenses within the lobbying sample. On average, a non-fraudulent firm spends \$1.97 million on lobbying each year over the sample period, while a fraudulent firm spends \$3.48 million, a 77% difference. The difference is also statistically significant, as the  $p$ -value from the  $t$ -test based on unequal variance is 0.00.

Next, in a panel regression, we regress annual lobbying expenses against the dummy for fraud, controlling for size, book to market of equity ratio, as well as industry and year fixed effects. The dummy for fraud is equal to 1 if a firm is in its fraudulent period and 0 otherwise. Since our tests are based on the entire lobbying sample, which is much larger than the fraud sample, we are able to use a more refined industry control in which industry classification is based on a sample firm’s first 2-digit SIC code. Our results remain unchanged if we use Fama-French 10 industries. All the standard errors in regressions are clustered at the firm level.

Table 6 Panel B reports the panel regression results. Column 1 shows that for the entire lobbying sample, the coefficient for the fraud dummy is positive (457.08) and highly significant. This indicates that each year, an average fraudulent firm spends \$457,080 more on lobbying than a non-fraudulent firm of similar size and book to market ratio, within the same industry.

Since Dyck, Morse, and Zingales (2009) limit their sample to frauds with assets of at least \$750 million to screen out frivolous lawsuits, we re-estimate the above regression, restricting the lobbying sample to only include firms with annual assets exceeding \$750 million. This restriction results in little reduction—3.4%—in the size of the lobbying sample, as a majority of firms in our



lobbying sample are large firms. We observe similar results from Column 2 of Panel B: large fraudulent firms spend \$472,040 more than large non-fraudulent firms every year.

As a robustness check, we also conduct a cross-sectional version of the above test. In the cross-sectional regression, a firm is defined as a fraudulent firm if it is detected for fraud during the entire sample period, and as a non-fraudulent firm otherwise. The results are similar to those from the panel regressions and hence are not reported.

### **B. Does Change in Fraud Status Affect Lobbying Expenses?**

Table 6 provides evidence that fraudulent firms spend significantly more on lobbying than non-fraudulent firms during the period of 1998-2004. Nevertheless, it is possible that other factors may affect both lobby spending and corporate fraud. To mitigate the problem of omitted variables, we examine the time-series variation in the lobbying expenses of fraudulent firms. We ask the question: do firms spend more on lobbying during their fraudulent periods than non-fraudulent periods?

In our fraud sample, there are 57 firms that are involved in lobbying activities during the period of 1998-2004. For each of these fraudulent firms, we calculate its annual lobbying expenses by summing its mid-year and year-end lobbying expenditures. If we do not observe its lobbying information in a given year, we assume the lobbying expense in that year is zero.

Panel A of Table 7 compares the annual lobbying expenses of fraudulent firms between their fraudulent and non-fraudulent periods. On average, a fraudulent firm spends \$1.61 million on lobbying each year during its non-fraudulent period, but spends \$2.08 million—29% more—on

lobbying each year during its fraudulent period.<sup>18</sup> The difference is also statistically significant ( $p = 0.04$ ).

Panel B of Table 7 reports the results of multivariate panel regression. In Column 1, we regress annual lobbying expenses on the dummy for fraud, controlling for firm and year fixed effects. Adding firm fixed effect absorbs all the cross-sectional variations and allows us to examine time-series variation separately. By controlling for year fixed effect in addition to firm fixed effect, all the time-series variations in lobbying expenses come from the difference between fraudulent period and non-fraudulent period. The results indicate that an average firm spends significantly more—an additional \$446,810—each year during its fraudulent period than non-fraudulent period.

Next, we regress the change of annual lobbying expenses on the change in fraud status. For a given year  $t$ , we define “change in lobby spending” as the difference in a fraudulent firm’s lobbying expenses between year  $t$  and year  $t - 1$ . “Change in fraud status” is a dummy variable equal to 1 when a firm moves from non-fraudulent period to fraudulent period, -1 when it moves from fraudulent period to non-fraudulent period, and 0 otherwise.

Column 2 of Panel B reports the results based on the above difference-in-difference analysis. We observe that controlling for firm fixed effect and year fixed effect, a change in fraud status is positively associated with the change in lobby spending. This implies that after a firm commits fraud, it increases its lobbying expenses significantly; when a firm moves from fraudulent period to non-fraudulent period, it decreases its lobby spending.

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<sup>18</sup> The results reported in Table 6 are based on the time-series analyses within the fraud sample, which involves observations in the periods when the lobbying expenses of a fraudulent firm are zero. It differs from the sample in Table 7, which consists of all lobbying firms and does not contain any firm-year observations with zero lobbying expenses.

To summarize, Tables 6 indicates that among firms that are involved in lobbying activities, fraudulent firms spend significantly more on lobbying expenses than non-fraudulent firms. Table 7 indicates that among fraudulent firms that lobby, they spend more on lobbying during their fraudulent periods than non-fraudulent periods. These findings thus provide evidence in support of our previous results that corporate lobbying affects fraud detection.

## **VI. Welfare Consequences of Delay in Fraud Detection**

Various studies have documented the negative welfare consequences associated with corporate frauds (e.g., Palmrose and Scholz (2004), Goldman, Peyer, and Stefanescu (2007), Karpoff, Lee, and Martin (2008), Kedia and Philippon (2009), Gande and Lewis (2009)). The recent legislative and regulatory changes such as the Sarbanes Oxley Act in response to the emergence of corporate frauds suggest that the existence and continuation of such frauds constitute costs to investors and the general public. Our finding that fraudulent firms engaged in lobbying activities are able to evade detection significantly longer suggests that a delay in fraud detection increases such costs. While there are many ways to identify and measure these costs, a comprehensive analysis on the costs and benefits associated with corporate fraud is beyond the scope of this paper. Instead, in this section we focus on how delay in detection affects the personal gains of managers and the resource misallocation by fraudulent firms.<sup>19</sup>

Researchers have documented a sharp decline in share price when fraud surfaces (e.g., Karpoff, Lee, and Vondracik (1999)). Since it takes longer to discover fraud for firms that are engaged in lobbying activities, one party that can potentially benefit from the delay in detection is

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<sup>19</sup> We thank the referee for suggesting the tests for resource misallocation.

the managers of these firms, who would have more time to sell their shares before the decline in the value of the firm occurs.

Kedia and Philippon (2009) also document evidence that in order to pool with high productivity firms, low productivity firms invest and hire excessively during periods of suspicious accounting. As a result, their over expansion distorts the allocation of economic resources in the economy. A natural extension from Kedia and Philippon (2009) is that the longer the fraudulent period lasts, the greater distortion in resource allocation.

In what follows, we investigate how delay in fraud detection affects managers' personal gains and firms' expansions. Specifically, we analyze the trading activities of insiders, as well as investment and hiring behaviors of fraudulent firms, before, during, and after the fraudulent periods, respectively. Similar to Kedia and Philippon (2009), we define "before fraudulent period" ("after fraudulent period") as a 2-year period prior to the year when fraud is committed (after the year when fraud is detected).

### **A. Insider Trading during Fraudulent Period**

We collect insider trading information for fraudulent firms from the Thomson Financial Insider Trading Database. For each firm, we follow Peng and Röell (2008) and calculate the aggregate dollar values of sales and purchases of the firm's shares by insiders (such as CEOs, COOs, CFOs, presidents, directors, and chairmen of the board), respectively.

We compare insider trading activities between fraudulent firms that are involved in lobbying activities and those that are not. With lobbying activities leading to a delay in fraud detection, insiders from fraudulent firms that lobby should be able to sell significantly more shares during a fraudulent period than those from firms that do not. On the other hand, since the delay in fraud

detection occurs only during a fraudulent period, lobbying activities should not affect the difference in insider trading during non-fraudulent periods.

We first regress the log of cumulative dollar value of insider sales of the firms' shares against the dummy for lobbying activities over each of the three periods. Columns 1 through 3 of Table 8 report the results. We observe that the coefficient associated with the dummy for lobbying activities is positively and significantly related to insider sales during the fraudulent period (Column 2). This indicates that controlling for industry, detection year, firm size, and book to market ratio, the aggregate insider sales of shares during the fraudulent period are significantly more for firms that are involved in lobbying activities than for firms that are not.

By contrast, the dummy for lobbying activities is not significant for either pre-fraud period (Column 1) or post-fraud period (Column 3). There is no significant difference in insider sales between firms that lobby and those that do not lobby before fraud is committed, nor after fraud is detected. These results suggest that while lobbying activities are associated with a delay in fraud detection, which allows insiders to sell more shares, the delay itself, and therefore the effect of lobbying activities, are limited only to the fraudulent period.

Next, we utilize a two-stage regression approach to investigate whether the delay in fraud detection is the underlying factor affecting the difference in insider sales during the fraudulent period between lobbying firms and non-lobbying firms. In the first stage, we regress duration of fraud against the dummy for lobbying activities and compute the predicted fraud duration, which gives us duration of fraud driven by the lobbying activities of fraudulent firms. In the second stage, we include the predicted fraud duration in the regression of insider sales over the fraudulent period.

Column 4 of Table 8 reports the results. We find that predicted fraud duration is positively related to cumulative insider sales of firms' shares, and the relationship is significant at the 10%

level ( $p = 0.082$ ). We interpret this as evidence consistent with the argument that delay in fraud detection, arising from fraudulent firms' lobbying activities, allows insiders to sell more of their shares before the decline in share value once the fraud is detected.

Instead of insider sales, we next repeat the same set of analyses for insider purchases of the shares of fraudulent firms. Columns 5 through 8 of Table 8 report the results. Unlike insider sales, we observe no significant difference in cumulative insider purchases during the fraudulent period between lobbying firms and non-lobbying firms, as neither the dummy for lobbying activities, nor the predicted fraud duration is significantly related to insider purchases over this period (Columns 6 and 8). Despite a longer fraudulent period for firms that are involved in lobbying activities, insiders of these firms do not purchase significantly more shares than firms that do not lobby.

To summarize, compared to insiders of firms that do not lobby, those from firms that are involved with lobbying activities sell more, but do not purchase more, shares during the fraudulent period. These results provide supporting evidence that delay in fraud detection benefits managers of fraudulent firms by allowing them to profit from selling more shares before fraud is detected.

## **B. Overinvestment**

In this sub-section we investigate the effect of delay in detection on resource misallocation by fraudulent firms. Following Kedia and Philippon (2009), we measure a firm's investment activities by computing its capital expenditure, scaled by net plant, property, and equipment (PPE), during its fraudulent period as well as pre- and post-fraud periods. We measure its hiring activities by computing the employment growth rate over each of the three periods.

We employ an approach similar to the one used for insider trading analysis. Table 9 reports the results from fixed effect regression and two-stage analysis for capital expenditure (Columns 1

through 4) and for employment growth (Columns 5 through 8). When examining the direct link between lobbying activities and the distortion of resource allocation, Table 9 reveals that during the fraudulent period, the coefficient for the dummy for lobbying activities is positively and significantly related to capital expenditure (Column 2) and employment growth (Column 6). This suggests that compared to firms that do not lobby, firms involved in lobbying activities invest more in projects and hire more employees during their fraudulent periods.

Again, since the delay in fraud detection occurs only during the fraudulent period, the effect of lobbying activities should be limited to this period as well. Table 9 confirms that during non-fraudulent periods, there is no significant difference in either capital spending or employment growth between the two types of fraudulent firms. The coefficient for the dummy for lobbying activities is not significant before fraud is committed (Columns 1 and 5), nor is it significant after fraud is detected (Columns 3 and 7).

Lastly, in the two-stage regression analysis, we investigate whether delay in fraud detection contributes to the difference in resource misallocation between lobbying firms and non-lobbying firms. We first regress duration of fraud against the dummy for lobbying activities, and then include the predicted fraud duration in the second stage regression of capital spending and employment growth. Columns 4 and 8 of Table 9 show that predicted fraud duration, which captures fraud duration driven by lobbying activities, is significantly and positively related to capital expenditure and employment growth during a fraudulent period.

The results in Table 9 indicate that the effect of delay in fraud detection is not limited to personal gains for managers of fraudulent firms through their insider selling. Since fraudulent firms tend to invest and hire more aggressively during their fraudulent periods (Kedia and Philippon

(2009)), any delay in fraud detection also contributes to a greater distortion in the allocation of economic resources.

Our findings also shed light on the weak incentive of corporate insiders to blow the whistle on fraudulent activities of their firms as documented in Dyck, Morse and Zingales (2009). The presence of private benefits of delaying fraud detection accrued to insiders and employees (through higher investment expansion and employment growth) helps explain the negative consequences faced by corporate whistleblowers. By bringing the fraud to light and removing the excess cash that otherwise would have been spent by the firm, insiders' whistle-blowing imposes clear short term costs on executives and their colleagues.

## **VII. Conclusions**

This study explores the connection between corporate lobbying activities and fraud detection. Using lobbying expenses data from 1998 to 2004, we provide evidence that spending on lobbying makes a significant difference in fraud detection: firms involved in lobbying have a significantly lower hazard rate of being detected for fraud and are able to evade detection 117 days longer than firms not involved in lobbying. Fraudulent firms involved in lobbying activities are 38% less likely to be detected by regulators. In addition, fraudulent firms spend 77% more on lobbying expenses than non-fraudulent firms, and spend 29% more on lobbying during their fraudulent periods than non-fraudulent periods. The delay in detection leads to a greater distortion in resource allocation stemming from more aggregative investment and hiring by firms during their fraudulent periods. It also allows managers to sell more of their shares.

A majority of the existing studies on the effect of political connections have focused on asset prices. Our paper contributes to this literature by providing evidence on how political connections



may affect corporate governance in the context of fraud detection. It also contributes to the literature on corporate fraud by identifying a new factor—corporate lobbying—that is significantly associated with fraud detection. Lastly, while law and finance literature has recognized the important role of the legal system for corporate governance, the legal/regulation system is usually treated as exogenous in empirical international studies. Since lobbying activities are known to affect legislation, our evidence that lobbying has consequences on corporate governance raises the question of the validity of the exogenous assumption of the legal system in international studies.

We also wish to point out that our results should not be interpreted as evidence of the inefficiency of corporate lobbying in general. In fact, lobbying is one of the main means by which various groups promulgate their views to legislators. Just as a corrupted election does not invalidate an entire voting system, our evidence in this study imposes no implication that we should ban corporate lobbying. Instead, our findings shed light on the recent debate about whether to improve the transparency in corporate political spending. By providing evidence that political spending does affect the welfare of investors, our study suggests a need for more transparency in corporate political spending.

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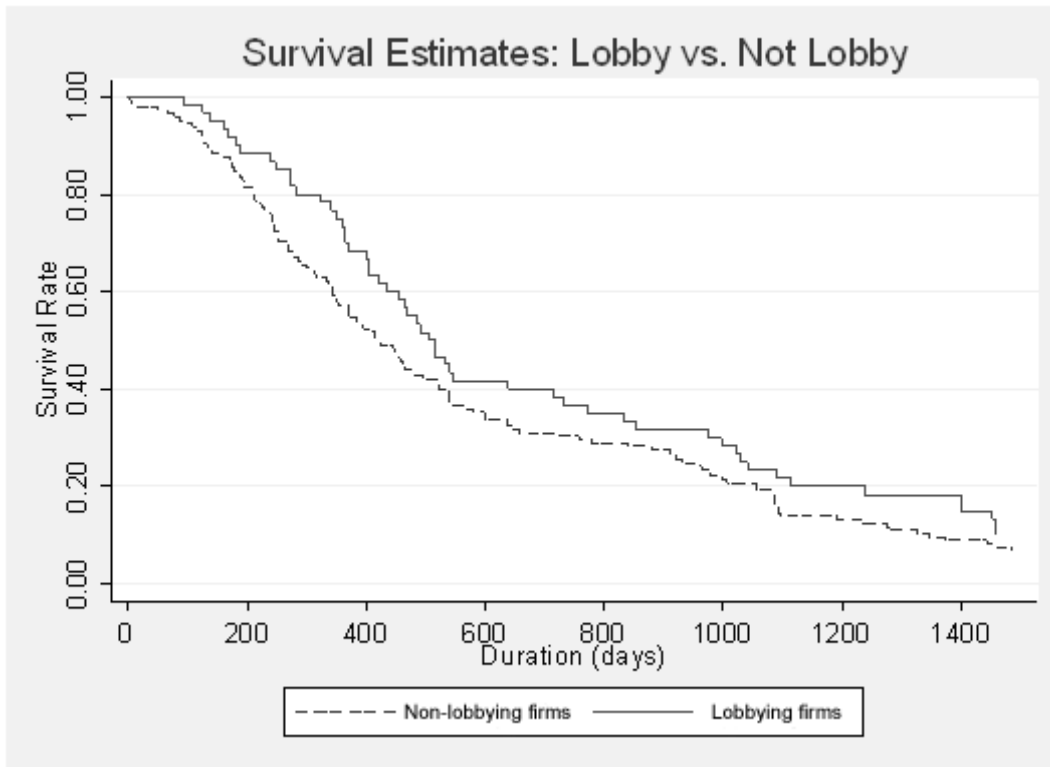
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**Figure 1: Survival Estimates of Fraudulent Firms: Lobby versus Not Lobby**

The figure below presents the plot based on Kaplan-Meier survival estimates for fraudulent firms' rate of evading detection during the sample period of 1998-2004. The red solid line is the probability of evading detection up until a given time for fraudulent firms that lobby. The grey dashed line is the probability of evading detection up until a given time for fraudulent firms that do not lobby.



**Table 1: Summary Statistics for the Lobbying Sample**

The sample period for the lobbying sample is 1998-2005. The sample consists of 2,053 firm-year observations that are involved in lobbying activities. Information regarding these firms and their lobbying expenditures is from the Political Money Line of Congressional Quarterly Inc. and the United State Senate LDA database.

**Panel A: Annual Lobby Spending**

A firm's annual lobby spending (in thousand dollars) is the sum of its mid-year and year-end lobbying expenditures. In the case where a private subsidiary of a publicly-traded parent company lobbies, we attribute its lobbying expenditure to the parent firm.

Year	Mean	Median	25 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile	STD	# of Firms
1998	2,213.28	1,320	800	2,840	2,555	211
1999	1,894.71	1,120	660	2,480	1,970.66	242
2000	1,986.54	1,140	660	2,453.35	2,209.44	240
2001	1,926.71	1,140	598	2,695.95	2,120.87	251
2002	2,081.24	1,230	690	2,375	2,279.13	245
2003	1,985.61	1,138.95	620	2,220	2,367.86	280
2004	1,955.75	1,110.34	640	2,180	2,450.60	304
2005	2,199.17	1,335.60	760	2,590	2,549.87	280
Total	2,027.32	1,167	680	2,480	2,324.62	2,053



**Table 1 continued.**

**Panel B: Frequency of Lobbying Activities**

This panel reports the number of years a sample firm has spent on lobbying. A firm is counted as spending on lobbying in a given year if it files at least one report with the Secretary of the Senate and the Clerk of the House of Representatives in that year.

Number of years of spent on lobbying	# of Firms	% of Total
8	968	47.15%
7	210	10.23%
6	132	6.43%
5	190	9.25%
4	168	8.18%
3	153	7.45%
2	144	7.01%
1	88	4.29%
Total	2,053	100%

**Table 1 continued.**

**Panel C: Which Government Agencies do Firms Lobby?**

The sample contains firms that are involved in lobbying activities between 1999 and 2005. We define a firm as a fraudulent firm if it is detected for fraud between 1996 and 2004. We obtain the information on government agencies from the LDA Records Database, available from the website of the United States Senate with records starting from 1999. We classify a legal or regulatory entity based on the following categories: Federal Legislation, Agencies for Economic and Trade Activities, Administrations, Regulators for Financial Activities, and Criminal Investigation Agencies. The detailed classifications are described in footnote 13. Columns 1 and 2 report the average annual lobbying frequency (number of contacts) to a government entity by a fraudulent firm and a non-fraudulent firm, respectively. Column 3 reports the lobbying frequency targeted to a government entity as a fraction of total number of contacts by fraudulent firms during the sample period. Column 4 reports the lobbying frequency targeted to a government entity as a fraction of total number of contacts by non-fraudulent firms during the sample period.

**Table 1 continued.**

Government Entities	# of Annual Contact		% of Contact	
	Fraudulent firms	Non-Fraudulent firms	Fraudulent firms	Non-Fraudulent firms
	(1)	(2)	(3)	(4)
<b>Legal and Regulatory Entities</b>				
Federal Legislation	32.7	23.4	30%	33%
Agencies for Economic and Trade Activities	15.9	8.6	14%	12%
Administrations	11.3	7.2	10%	10%
Regulators for Financial Activities	6.6	5.3	6%	7%
Criminal Investigation Agencies	4.0	1.9	4%	3%
<b>Industry Regulators</b>				
Military, Defense, and National Security	7.9	3.8	7%	5%
Department of Agriculture (USDA)	1.6	0.8	1%	1%
Department of Education	0.6	0.5	1%	1%
Energy	3.2	3.2	3%	4%
Transportation	6.0	3.2	5%	5%
Healthcare and Medical	5.5	3.0	5%	4%
Labor	1.9	1.7	2%	2%
Technology	3.0	1.8	3%	3%
Environment	3.5	3.0	3%	4%
<b>Others</b>	6.0	3.1	5%	4%
<b>Total</b>	<b>109.7</b>	<b>70.6</b>	<b>100%</b>	<b>100%</b>

**Table 2: Summary Statistics for the Fraud Sample**

The fraud sample is from Dyck, Morse, and Zingales (2009) and consists of 205 frauds detected between 1998 and 2004. The sample is based the Stanford Securities Class Action Clearinghouse and is restricted to firms with assets of at least \$750 million in the year before the fraud is detected, and with settlements of at least \$2.5 million. Duration of fraud is the number of days over a fraudulent period, where a fraudulent period is defined as the period between the time when a firm commits a fraud and the time when the fraud is detected.

**Panel A: Number of Frauds by Year when Fraud Begins**

This panel reports the annual frequency and the average duration of fraud based on the year when a fraud is committed.

Year when Fraud Begins	Count	% of Total	Duration of Fraud (# of days)	
			Mean	Median
1995	3	1.46%	1,297	1,400
1996	1	0.49%	930	930
1997	19	9.27%	830	599
1998	40	19.51%	730	520
1999	42	20.49%	827	987
2000	42	20.49%	572	436
2001	33	16.10%	421	437
2002	14	6.83%	298	253
2003	10	4.88%	305	293
2004	1	0.49%	126	126
Total	205	100%	633	456

**Table 2 continued.**

**Panel B: Number of Frauds by Year when Fraud is Detected**

This panel reports the annual frequency and the average duration of fraud based on the year when a fraud is detected.

Year when Fraud is Detected	Count	% of Total	Duration of Fraud (# of days)	
			Mean	Median
1998	21	10.24%	411	288
1999	23	11.22%	393	350
2000	23	11.22%	410	252
2001	33	16.10%	460	400
2002	60	29.27%	756	641
2003	28	13.66%	1,038	924
2004	17	8.29%	766	459
Total	205	100%	633	456

**Table 2 continued.**

**Panel C: Characteristics of Fraudulent Firms: Lobbying versus Non-Lobbying**

The sample is based on Dyck, Morse and Zingales (2009) and contains large frauds detected between 1998 and 2004. The sample size reduces to 197 frauds due to the data requirements from COMPUSTAT. Market value and book value of equity are in the year before fraud detection. Book to market is the book to market value of equity in the year before fraud detection. Duration of fraud is the number of days over a fraudulent period, where fraudulent period is defined as the period between the time when a firm commits a fraud and the time when the fraud is detected. The last column reports *p*-values testing the difference in mean between fraudulent firms that are involved in lobbying activities and those that do not lobby.

	Lobbying		Non-lobbying		<i>p</i> -value
	Mean	Median	Mean	Median	
Market value of equity (in million dollars)	38,777.09	20,377.38	5,825.54	1,677.09	0.00
Book value of equity (in million dollars)	11,902.49	6,569.38	1,743.31	699.35	0.00
Book to market ratio	0.88	0.28	0.58	0.40	0.38
Assets (in million dollars)	53,206.34	24,917.91	9,530.54	2,541.22	0.00
Duration of fraud (# of days)	711.12	510	594.17	417	0.10
Settlement amount (in million dollars)	513.29	78.5	195.51	19	0.00

**Panel D: Industry Distribution of Fraudulent Firms: Lobbying versus Non-Lobbying**

The sample is based on Dyck, Morse and Zingales (2009) and contains large frauds detected between 1998 and 2004. The sample size reduces to 197 frauds due to the data requirements from COMPUSTAT. The industries are defined according to the Fama-French 10 industries. Regulated industries include the Utility and Finance industries. The remaining eight industries are grouped into unregulated industries.

	Lobbying		Non-lobbying	
	Count	% of Total	Count	% of Total
<b>Fama-French 10 Industries</b>				
Consumer products	2	3%	10	7%
Manufacturing	4	6%	9	7%
Energy	1	2%	3	2%
High Tech	10	16%	22	16%
Telecommunication	13	21%	6	4%
Wholesale and retail	3	5%	15	11%
Healthcare	11	18%	12	9%
Finance	7	11%	31	23%
Utility	6	10%	12	9%
Others	5	8%	14	10%
<b>Regulated Industries</b>	<b>13</b>	<b>22%</b>	<b>43</b>	<b>32%</b>
<b>Unregulated Industries</b>	<b>49</b>	<b>78%</b>	<b>92</b>	<b>68%</b>
<b>Total</b>	<b>62</b>	<b>100%</b>	<b>135</b>	<b>100%</b>

### **Table 3: Does it Take Longer to Detect Fraud from Firms Involved in Lobbying Activities?**

This table reports the results from multivariate cross-sectional regressions. The sample period is 1998-2004. A lobbying firm is defined as a firm that is engaged in lobbying activities during the sample period, and a non-lobbying firm is a firm that is not engaged in lobbying activities. The dependent variable is days taken to detect fraud, which is the number of days over a fraudulent period, where a fraudulent period is defined as between the time when a firm commits a fraud and the time when the fraud is detected. Dummy for lobbying activities is a variable equal to 1 if a firm is engaged in lobbying activities during the sample period, and 0 otherwise. Average lobby spending is the average semi-annual lobbying expenses (in million dollars) that a lobbying firm spent during the sample period. Size is the log value of market value of equity in the year before fraud detection. Book to market ratio is the book to market value of equity in the year before fraud detection. Detection year is equal to 1 if a firm is detected for fraud in a particular year and 0 otherwise. Type of detecting agents is one of the eight categories of the parties who first detected a fraud: regulators, analysts, blockholders, employees and other stakeholders, firm, insiders, media, and professional services. The industry classification of each company is defined by the Fama-French 10 industries. We use settlement amount as weight for value-weighted (VW) regressions. Standard errors are in parentheses. \*\*, \*, and + indicate significance at 1%, 5%, and 10% levels, respectively.



**Table 3 continued.**

	EW	VW	EW	VW	EW	VW	EW	VW
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Lobbying Activities	349.19** (92.07)	258.93* (118.75)			257.35** (83.41)	188.85* (94.89)		
Average Lobby Spending			168.04** (57.72)	128.06* (59.07)			109.31* (54.36)	98.28* (47.01)
Book to Market	-10.72 (16.13)	-19.36* (9.11)	-4.66 (16.24)	-14.14 <sup>+</sup> (7.72)	-2.72 (14.92)	-7.44 (7.67)	2.07 (15.03)	-3.91 (6.74)
Size	-57.32* (22.53)	-60.50* (29.82)	-41.10 <sup>+</sup> (21.86)	-48.14 <sup>+</sup> (24.43)	-59.89** (21.56)	-62.96* (24.22)	-46.52* (21.55)	-56.23* (22.45)
Constant	987.38** (175.85)	1,067.39** (233.82)	903.00** (175.65)	1,005.93** (203.80)	1,022.86** (214.56)	1,153.19** (316.65)	978.11** (221.53)	1,157.61** (303.93)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Detection Year Fixed Effect	No	No	No	No	Yes	Yes	Yes	Yes
Detection Agent Fixed Effect	No	No	No	No	Yes	Yes	Yes	Yes
Number of Observations	192	192	192	192	189	189	189	189
R-squared	0.15	0.13	0.19	0.18	0.19	0.18	0.37	0.35

#### **Table 4: Do Lobbying Firms Evade Detection Longer?**

The sample period is 1998-2004. The dependent variable is the hazard ratio for Cox regression (Columns 1 through 4) and for Weibull regression (Columns 5 through 8), respectively. Dummy for lobbying activities is equal to 1 if the firm is involved in lobbying activities during the sample period and 0 otherwise. Average lobby spending is the annual average lobbying expenses (in million dollars) a firm has occurred during the sample period. Size is the log value of market value of equity in the year before fraud detection. Book to market is the book to market value of equity in the year before fraud detection. Type of detecting agents is one of the eight categories of the parties who first detected a fraud: regulators, analysts, blockholders, employees and other stakeholders, firm, insiders, media, and professional services. Fraud motivation is one of the six motivations for fraud: personal profit, selling off shares of division or firm, merger/acquisition, organic growth, industry downturn, and firm value enhancement. The industries are defined according to the Fama-French 10 industries. The coefficients reported are in unexponentiated form. Standard errors are in parentheses. \*\*, \*, and + indicate significance at 1%, 5%, and 10% levels, respectively.

**Table 4 continued.**

	Cox Regression				Weibull Regression			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Lobbying Activities	-0.63** (0.20)	-0.69** (0.21)			-0.68** (0.20)	-0.77** (0.21)		
Average Lobbying Expense			-0.12 <sup>+</sup> (0.06)	-0.14* (0.07)			-0.12 <sup>+</sup> (0.06)	-0.17* (0.07)
Book to Market	0.03 (0.05)	0.01 (0.05)	0.02 (0.04)	-0.00 (0.04)	0.03 (0.05)	0.00 (0.05)	0.02 (0.04)	-0.00 (0.05)
Size	0.14** (0.05)	0.13* (0.06)	0.10* (0.05)	0.11* (0.06)	0.15** (0.05)	0.15** (0.06)	0.12* (0.05)	0.14* (0.06)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Detection Agent Fixed Effect	No	Yes	No	Yes	No	Yes	No	Yes
Fraud Motivation Fixed Effect	No	Yes	No	Yes	No	Yes	No	Yes
Number of Observations	192	192	192	192	192	192	192	192
Prob. > $\chi^2$	0.00	0.00	0.02	0.00	0.00	0.01	0.03	0.00

**Table 5: What Type of Detection that Corporate Lobbying Reduces?**

The sample period is 1998-2004. A lobbying firm is defined as a fraudulent firm that is engaged in lobbying activities in the sample period, and a non-lobbying firm is a fraudulent firm that is not engaged in lobbying activities.

**Panel A: Fraud Detecting Agents and Frequency of Detection**

This panel reports the frequency of different type of agents that discovered fraud for lobbying firms and non-lobbying firms, respectively. Fraud detectors are entities that first uncovered the fraud, and are based on the classifications of Dyck, Morse, and Zingales (2009): regulators, analysts, blockholders, employees and other stakeholders, firm, insiders, media and professional services. Rank is the ranking based on the number of frauds detected by a particular agent among all the eight types.

Fraud Detectors	Non-Lobbying Firms			Lobbying Firms		
	Count	% of Total	Rank	Count	% of Total	Rank
Regulators	26	18.98%	2	8	11.76%	4
Analysts	12	8.76%	6	10	14.71%	3
Blockholders	5	3.65%	8	1	1.47%	8
Employees & other stakeholders	21	15.33%	3	7	10.29%	6
Firm	30	21.90%	1	15	22.06%	1
Insiders	16	11.68%	5	8	11.76%	4
Media	7	5.11%	7	13	19.12%	2
Professional services	20	14.60%	4	6	8.82%	7
Total	137	100%		68	100%	

**Table 5 continued.****Panel B: Cross-Sectional Linear Probability Regression**

This panel reports the results from cross-sectional linear probability regressions for each type of fraud detectors. The dependent variable is a dummy variable equal to 1 if the fraud is detected by a particular type of party and 0 otherwise. Dummy for lobbying activities is equal to 1 if a firm is engaged in lobbying activities during the sample period, and 0 otherwise. Size is the log value of asset in the year before fraud detection. The industry classification of each company is defined by the Fama-French 10 industries. Standard errors are reported in parentheses. \*\*, \*, and + indicate significance at 1%, 5%, and 10% levels, respectively.

	Regulators	Media	Firm	Professional services	Insiders	Blockholders	Employees & other stakeholders	Analysts
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Lobbying Activities	-0.14 <sup>+</sup> (0.08)	0.01 (0.08)	-0.02 (0.09)	0.02 (0.07)	0.06 (0.07)	-0.01 (0.03)	0.05 (0.07)	0.03 (0.08)
Size	0.03 (0.03)	0.03 <sup>+</sup> (0.02)	0.02 (0.02)	0.02 (0.02)	-0.06* (0.03)	0.00 (0.01)	-0.04 <sup>+</sup> (0.02)	0.01 (0.02)
Constant	0.00 (0.22)	-0.20 (0.15)	0.07 (0.21)	-0.02 (0.16)	0.72** (0.24)	0.02 (0.05)	0.43* (0.20)	-0.01 (0.14)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	159	159	159	159	159	159	159	159
R-squared	0.14	0.05	0.03	0.09	0.10	0.05	0.06	0.07

**Table 6: Do Fraudulent Firms Spend More on Lobbying Expenses?**

The sample contains firms that were involved in lobbying activities during the period of 1998-2004. We define a firm-year observation as in a fraudulent period if the time period is later than the time when fraud took place and earlier than the time when the fraud was detected and as in a non-fraudulent period otherwise. We define a firm-year observation as a fraudulent firm if a firm is in its fraudulent period, and otherwise as a non-fraudulent firm. A firm's annual lobby spending is the sum of its mid-year and year-end lobbying expenditures.

**Panel A: Annual Lobby Spending between Fraudulent Firms and Non-Fraudulent Firms**

This panel compares average annual lobby spending (in thousands of dollars) between fraudulent firms and non-fraudulent firms. The *t*-test of difference in average annual lobbying expenses between fraudulent and non-fraudulent firms is based on uneven variance.

	Mean	Median	25th percentile	75th percentile	STD	N
Fraudulent lobbying firms	3,477	2,870	960	5,320	2,912	85
Non-fraudulent lobbying firms	1,965	1,158	680	2,320	2,276	1,968
T-test: fraudulent vs. non-fraudulent lobbying firms			$p = 0.00$			

**Table 6 continued.****Panel B: Multivariate Panel Regression**

This panel reports the results from multivariate panel regression. Dummy for fraud is a variable equal to 1 if a firm is in its fraudulent period and 0 otherwise. Size is the log value of market value of equity in the year before fraud detection. Book to market is the book to market value of equity in the year before fraud detection. The industry classification of each company is defined by the first 2 digits SIC codes. Robust standard errors clustered at firm-level are in parentheses. \*\*, \*, and + indicate significance at 1%, 5%, and 10% levels, respectively.

	Full Sample	Assets $\geq$ 750M
Dummy for fraud	457.08** (159.66)	472.04** (160.71)
Book to market ratio	-2.17+ (1.13)	-2.55* (1.23)
Size	292.24** (38.23)	307.96** (40.60)
Constant	-1,613.77** (347.27)	-1,761.19** (376.17)
Industry Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes
Number of Observations	1,741	1,679
R-squared	0.39	0.41

**Table 7: Do Fraudulent Firms Spend More on Lobbying during Fraudulent Period?**

**Panel A: Annual Lobby Spending for Fraudulent Firms**

The sample contains fraudulent firms that were involved in lobbying activities during the sample period of 1998-2004. If a fraudulent firm lobbies in a particular year, its annual lobbying expenses are computed by summing its mid-year and year-end lobbying expenditures; if it does not lobby in a particular year, we treat its lobbying expenditure in that year as zero.

Period	Mean	Median	25 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile	STD	N
Fraudulent period	2,082	772	0	3,148	2,824	142
Non-fraudulent period	1,610	660	0	2,320	2,367	266

**Panel B: Multivariate Panel Regression**

The dependent variable is annual lobby spending (Column 1) and change in lobby spending (Column 2), respectively. Change in lobby spending is defined as the change in annual lobbying expenses (in thousand dollars) from previous year. Dummy for fraud is equal to 1 if a firm is in its fraudulent period and 0 otherwise. Change in fraud status is equal to 1 when a firm moves from a non-fraudulent period to a fraudulent period, -1 when a firm moves from a fraudulent period to a non-fraudulent period, and 0 otherwise. Robust standard errors clustered at firm-level are in parentheses. \*\*, \*, and + indicate significance at 1%, 5%, and 10% levels, respectively.

	Annual Lobby Spending	Change in Lobby Spending
	(1)	(2)
Dummy for Fraud	446.81** (126.25)	
Change in Fraud Status		464.01** (133.23)
Constant	1,991.31** (175.53)	140.18 (155.17)
Firm Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes
Number of Observations	408	357
R-squared	0.79	0.16



**Table 8: Welfare Consequences of Delay in Fraud Detection—Insider Trading**

Insider trading data are from the Thomson Financial Insider Trading Database. During is the time within a fraudulent period, where a fraudulent period is the period after a fraud is committed and before it is detected. Before and after refer to a 2-year period prior to, and a 2-year period after the fraudulent period, respectively. The dependent variable is the log of cumulative dollar sales of shares by insiders over each of the three periods (Columns 1 through 4), and the log of cumulative dollar purchases of shares by insiders over each of the three periods (Columns 5 through 8), respectively. Dummy for lobbying activities equals 1 if a firm is engaged in lobbying activities during the sample period, and 0 otherwise. Fraud duration is the number of days within a fraudulent period. Predicted fraud duration is the predicted value of fraud duration when we regress fraud duration against the dummy for lobbying activities. The industries are defined according to the Fama-French 10 industries. Standard errors are in parentheses. \*\*, \*, and + indicate significance at 1%, 5%, and 10% levels, respectively.

**Table 8 continued.**

	Insider Sales				Insider Purchase			
	Before	During	After	During	Before	During	After	During
	FE	FE	FE	2SLS	FE	FE	FE	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Lobbying Activities	0.05 (0.77)	1.86 <sup>+</sup> (0.98)	0.36 (0.76)		-0.79 (0.61)	0.78 (0.64)	-0.45 (0.57)	
Predicted Fraud Duration				0.01 <sup>+</sup> (0.01)				0.00 (0.00)
Book to Market	-3.36** (0.86)	-0.37 (0.39)	-0.41 (0.27)	-0.37 (0.39)	-0.68 (0.69)	0.34 (0.26)	-0.16 (0.20)	0.34 (0.26)
Size	0.40 <sup>+</sup> (0.22)	0.55 <sup>+</sup> (0.29)	0.62** (0.23)	0.55 <sup>+</sup> (0.29)	0.45* (0.17)	0.47* (0.19)	0.60** (0.17)	0.47* (0.19)
Constant	13.63** (1.82)	9.95** (2.61)	10.64** (2.04)	4.14 (2.80)	12.21** (1.45)	10.34** (1.70)	9.69** (1.52)	7.91** (1.83)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Detection Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	175	170	158	170	175	170	158	170
R-squared	0.31	0.27	0.26	0.27	0.19	0.22	0.22	0.22

**Table 9: Welfare Consequences of Delay in Fraud Detection—Overinvestment**

Capital expenditure and employment data are from the COMPUSTAT Database. During is the time within a fraudulent period, where a fraudulent period is the period after a fraud is committed and before it is detected. Before and after refer to a 2-year period prior to, and a 2-year period after the fraudulent period, respectively. The dependent variable is capital expenditure scaled by net property, plant and equipment over each of the three periods (Columns 1 through 4), and employment growth over each of the three periods (Columns 5 through 8), respectively. Employment growth is computed as 100 times the cumulative employment growth rate in a given period. Dummy for lobbying activities equals 1 if a firm is engaged in lobbying activities during the sample period, and 0 otherwise. Fraud duration is the number of days within fraudulent period. For Columns 4 and 8, predicted fraud duration is the predicted value of fraud duration when we regress fraud duration on the dummy for lobbying activities. The industries are defined according to the Fama-French 10 industries. Standard errors are in parentheses. \*\*, \*, and + indicate significance at 1%, 5%, and 10% levels, respectively.

**Table 9 continued.**

	Capital Expenditure				Employment Growth			
	Before FE	During FE	After FE	During 2SLS	Before FE	During FE	After FE	During 2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Lobbying Activities	6.74 (5.12)	29.99** (10.55)	0.23 (5.54)		39.08 (32.90)	48.72 <sup>+</sup> (28.79)	1.71 (6.83)	
Predicted Fraud Duration				0.15** (0.05)				0.25 <sup>+</sup> (0.15)
Book to Market	-20.01* (8.81)	6.60 (4.79)	6.91 (6.06)	6.60 <sup>+</sup> (3.94)	-53.67 (48.94)	10.23 (12.58)	-13.30** (3.51)	10.23 (12.58)
Size	-9.87** (1.68)	-9.26** (2.85)	-0.69 (1.66)	-9.26** (2.70)	-27.65** (8.74)	-8.35 (8.61)	-2.28 (2.00)	-8.35 (8.61)
Constant	129.01** (16.57)	114.43** (27.30)	33.93* (14.71)	25.07 (25.02)	317.88** (73.35)	102.16 (75.98)	24.18 (18.25)	-42.99 (79.81)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Detection Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	173	189	167	189	173	189	167	189
R-squared	0.51	0.35	0.28	0.35	0.14	0.10	0.20	0.10