

Financial Statement Fraud: A Review From the Era Surrounding the Financial Crisis

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Introduction

Researchers have studied past financial reporting fraud cases to identify the recipes that precipitate fraudulent events with the goal of helping organizations prevent or deter this devastating behavior. Because each fraud is unique, this research field is varied and yields many subtopics. We add to extant literature by providing a historical description of fraud trends and directions for exploring some of the subtopics. The passage of the Sarbanes-Oxley Act and the Dodd-Frank Wall Street Reform and Consumer Protection Act, along with the fallout from these events and others during the global financial crisis was expected to affect future fraud behavior. The data collected from the chosen time frame for the current study provides descriptive details that can be compared to previously issued reports of fraudulent activity.

Two organizations, well-known for their research and reports on fraud and related company characteristics that date back as far as 1987, are the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and the Association of Certified Fraud Examiners (ACFE). COSO's *Fraudulent Financial Reporting* papers (Beasley, Carcello, and Hermanson, 1999; Beasley et al., 2010) analyze financial reporting frauds that resulted in an Accounting and Auditing Enforcement Release (AAER) by the United States Securities and Exchange Commission (SEC) from 1987 to 2007. The objectives of these reports were to identify cases of alleged fraudulent financial statements, examine firm and management characteristics, and provide insights for prevention, deterrence, and detection of financial

reporting fraud. Since 1996, the ACFE has published a series of reports titled *Report to the Nations*. The 11th edition (issued in 2020) analyzes 2,504 occupational fraud cases (from 125 countries) investigated between January 2018 and September 2019 (ACFE, 2020). The ACFE reports compile information regarding the methods, detection processes, firm and personnel characteristics, and the case results from three major categories of occupational frauds: asset misappropriation, corruption, and financial statement fraud.

The purpose of this study is to build on previous works by analyzing and presenting the characteristics of firms accused by the SEC of Generally Accepted Accounting Principles (GAAP) violations involving frauds that occurred in the time period surrounding the financial crisis (2007 to 2008) and the implementation requirements of the Sarbanes-Oxley Act and the Dodd-Frank Act to propose a future research agenda. The data used in the analysis were collected from enforcement releases issued by the SEC between October 2006 and September 2016 and include 162 fraud occurrences by public firms that intentionally reported false financial statements. The fraud cases occurred prior to the issuance of the related AAER with the timing of the first year of fraud (as cases can span over multiple years) ranging from 1991 to 2013. Accordingly, these frauds occurred before, during, and after the crisis and are a sample of financial reporting frauds. We are uncertain of the entire population of fraud occurrences since some were not investigated by the SEC and documented by AAERs.

As an extension of the 1999 and 2010 reports by COSO, we also share the objectives of their work: 1) "to provide a basis for recommendations to improve the corporate financial reporting environment in the U.S." [Beasley, Carcello and Hermanson, 1999, p. 4] and 2) "to provide insights related to preventing, deterring, and detecting fraudulent financial reporting" (Beasley, Carcello, et al., 2010, p. 1). This article provides insights for future research and fills the knowledge gap about the most recent decade of fraudulent activity. We capture data from fraud cases that occurred around the two most recent and substantial regulations for public companies, Sarbanes-Oxley and Dodd-Frank. Expanding the trend analysis of financial statement fraud within our study provides the necessary descriptive details to develop new studies and to further this body of knowledge.

The number of AAERs issued by the SEC declined from a high of 230 during 2007 to a low of 85 during 2012. During the decade of this research, the “Business Services” industry and the “Financial Services” industry were harmed by fraud in 25 percent and 17 percent of cases, respectively, which is different from the “Computer Hardware and Software” and “Other Manufacturing” industries that were most affected in the previous COSO reports. CEOs and/or CFOs were involved in 75 percent of fraud cases, which is lower than the percentages from the COSO reports. In addition, fraud case duration appears to be increasing when compared with data from previous COSO reports. Lastly, the percentage of fraud investigations of firms listed on over the counter (OTC) markets in this study is double the percentage found in the 2010 COSO report.

From these comparisons to prior decades, we learn about differences (fraud frequency shifts in industries, executive involvement in frauds, fraud duration increases, and increasing fraud frequency in OTC markets) that deserve further evaluation, providing research opportunities for academics. In addition, this research benefits audit practitioners by identifying the clients/industries where fraud occurs more frequently and the attributes of perpetrators for use in discussions that occur in audit planning meetings. Regulators can examine fraudulent activity trends to assess the impact that regulations have had on fraud behavior and can also consider the need for new regulation.

Some SEC AAERs reviewed during this study were issued against high-profile firms and executives. The largest fraud scheme in dollars is reported in AAER #2728, filed in 2007 (Securities and Exchange Commission, 2007), involving Federal Home Loan Mortgage Corporation (“Freddie Mac,” a shareholder-owned government-sponsored organization). The corporation was accused of fraudulent earnings management practices that misreported net income from 2000 to 2002 with a combined effect on net income of \$6.464 billion. Freddie Mac’s highest misrepresentation occurred in 2002 and amounted to a 43 percent change in the originally reported net income. The company lost its “Steady Freddie” reputation, was ordered to pay a \$50 million civil penalty, and the top four executives were fined a total of approximately \$790,500.

The longest fraud case in duration is reported in AAER #2930, filed in 2009 (Securities and Exchange Commission, 2009), involving First Bank Mortgage’s former president, who single-handedly hid \$35 million dollars of collateralized loans from third-party brokerage firms (via repurchase transactions), reporting the amounts as gains from trading mortgage-backed securities. The SEC reported that the “scheme to misstate net income occurred from at least 1990 through April 2008” and was only discovered after the president was terminated for poor performance. This career fraudster was sentenced to one year and one day in federal prison and was ordered to repay more than \$24 million. Other fraud cases in this study include well-known technology firms, such as Apple and Dell, and popular brands like ConAgra Foods, Krispy Kreme Doughnuts, and Carter’s clothing for children.

Regulation, theory, and literature are presented in the next section. The third section presents a discussion of the sample, including a description of the population and sources of information. The fourth and fifth sections document the descriptive statistics and the conclusion, respectively.

Regulation, Theory, and Literature

Regulation

The principal statutory regulation for fraudulent financial reporting in publicly traded companies in the United States is 17 CFR 240.10b-5, a provision of the Securities Exchange Act of 1934, 15 USC § 78a. According to this regulation, to “engage in any act, practice or course of business, which operates or would operate as a fraud or deceit upon any person, in connection with a purchase or sale of any security” is unlawful. A mission of the SEC is to protect investors, and the Division of Enforcement has the authority to investigate possible violations of the federal securities laws. These investigations can result in the issuance of AAERs when accounting and auditing misconduct by companies, individual CPAs, or audit firms is identified.

The Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204, 116 Stat. 745, Section 404 brought significant changes to financial reporting and auditing by highlighting fraud prevention with an external evaluation of firms’ internal controls. Section 704 provides guidance using the SEC’s study of enforcement actions to identify areas that are most susceptible to fraud. AS 2401 (PCAOB, n.d.) describes auditor responsibilities and provides direction (e.g., documented brainstorming sessions to discuss fraud risks and red flags) in achieving objectives regarding the consideration of a risk of a material misstatement due to fraud.

Theory

COSO's Fraud Risk Management Executive Summary (Committee of Sponsoring Organization of the Treadway Commission, 2016, viii) defines fraud as "any intentional act or omission designed to deceive others, resulting in the victim suffering a loss and/or the perpetrator achieving a gain." Using the COSO definition, this article presents literature and examines data on intentionally misreported financial statements. We begin with theories that are used to explain fraud behavior.

One of the most well-known theories, the fraud triangle, explains the factors (opportunity, pressure, and rationalization) involved when someone commits fraud (Cressey, 1953). The fraud diamond theory suggests that there is a fourth element of fraud, "capability" (Wolfe and Hermanson, 2004), which involves personal traits and abilities that are necessary for a fraudster to orchestrate the scheme. Crumbley and Ariail (2020) developed a Venn diagram fraud model that explains four overlapping dimensions of motivation: greed, non-financial, altruism, and social. Other psychology theories that help explain fraudulent behavior include the Cognitive Dissonance Theory (Festinger, 1957) that explores rationalization and the General Strain Theory (Broidy, 2001) that addresses pressure. The ACFE report (2020) categorizes the seven most common behavioral red flags for occupational frauds: living beyond means; financial difficulties; unusually close relationship with vendor or customer; excessive control issues; unusual irritability, suspiciousness, or defensiveness; a general "wheeler-dealer" attitude involving shrewd or unscrupulous behavior; and recent divorce or family problems.

Literature

Scholarly Works. This section provides research articles that summarize relevant fraud literature between 2008 and 2018. Hogan et al. (2008) reviewed audit literature for the Public Company Accounting Oversight Board (PCAOB), discussing works related to the fraud triangle, the role of auditors in fraud detection, and areas that are considered high-risk. Using the high-risk areas identified by the PCAOB, the authors synthesized studies involving revenue recognition, significant or unusual accruals, related parties, fair value estimates, quarterly financial information, and unusual journal entries. Trompeter et al. (2013), sponsored by the Auditing Section of the American Accounting Association, extended the fraud-related auditing literature of Hogan et al. (2008) through 2011. The extension adds reviews of literature in other disciplines including criminology, ethics, finance, organizational behavior, psychology, and sociology. The authors suggest that "attitude/rationalization" is the least studied element of the fraud triangle. Trompeter et al. (2014) continued their work by reviewing literature in this area with a focus on insights that can benefit both research and practice.

Abdullahi and Mansor (2015) reviewed the fraud triangle and the fraud diamond literature to identify future avenues of study and suggested that more research is needed to understand the impact of "capability" on fraud behavior. West and Bhattacharya (2016) reviewed fraud-related information systems literature that used data mining methods, with an emphasis on computational intelligence-based techniques. Amiram et al. (2018) summarized fraud literature from law, accounting, and finance journals with a goal of establishing a common language for researchers. These examples provide support for the prominence of fraud research and the cross-disciplinary nature of this important topic. Descriptive analysis of prior fraud cases and the trends in fraudulent activity over time often provide the motivation for future studies.

COSO and ACFE Reports. The studies that follow are those that this article extends. In its first report, COSO (Beasley, et al., 1999) randomly selected and examined 204 cases of fraudulent financial reporting (from AAERs) occurring between 1987 and 1997 (hereinafter referred to as COSO's 1999 report). In a more recent report, COSO (Beasley, et al., 2010) documented 347 instances of fraudulent financial reporting from AAERs issued during 1998 to 2007 (hereinafter referred to as COSO's 2010 report). Currently, COSO is not working on a report that goes beyond 2007; therefore, the current study provides information for the subsequent decade.

The ACFE (2020) *Report to the Nations* includes survey data from members who investigated various occupational fraud cases between January 2018 and September 2019. Of the cases investigated and reported by their membership, 10 percent are financial statement frauds with a median loss of \$954,000. Fleming et al. (2016) used the data from the ACFE's surveys from 2004 to 2014 to analyze financial reporting fraud by public firms and private firms, noting differences in fraud methods, magnitude, and detection by type of firm. In another study, Bishop, Hermanson, and Riley (2017) used the data from the ACFE's surveys from 2002 to 2013 to highlight the unique dimensions of collusive fraud, a fraud that is often more difficult to prevent. In the sections that follow, we compare firm, fraud, perpetrator, and auditor characteristics for frauds that occurred in the era surrounding the financial crisis to the previously listed longitudinal reports furnished by COSO and the ACFE.

Data Sample

Data Sources

The initial sample was drawn from the database of AAERs developed by the University of California, Berkeley's Center for Financial Reporting and Management (Dechow et al., 2011).¹ The database (hereinafter referred to as the "AAER database") contains the SEC's enforcement releases that were issued from May 1982 through September 2016 involving misstatement events affecting quarterly and annual financial statements (i.e., violations of GAAP reporting). The AAER database is a subset of the AAERs.² The full set of AAERs also contains violations by public accounting firms and certified public accountants.

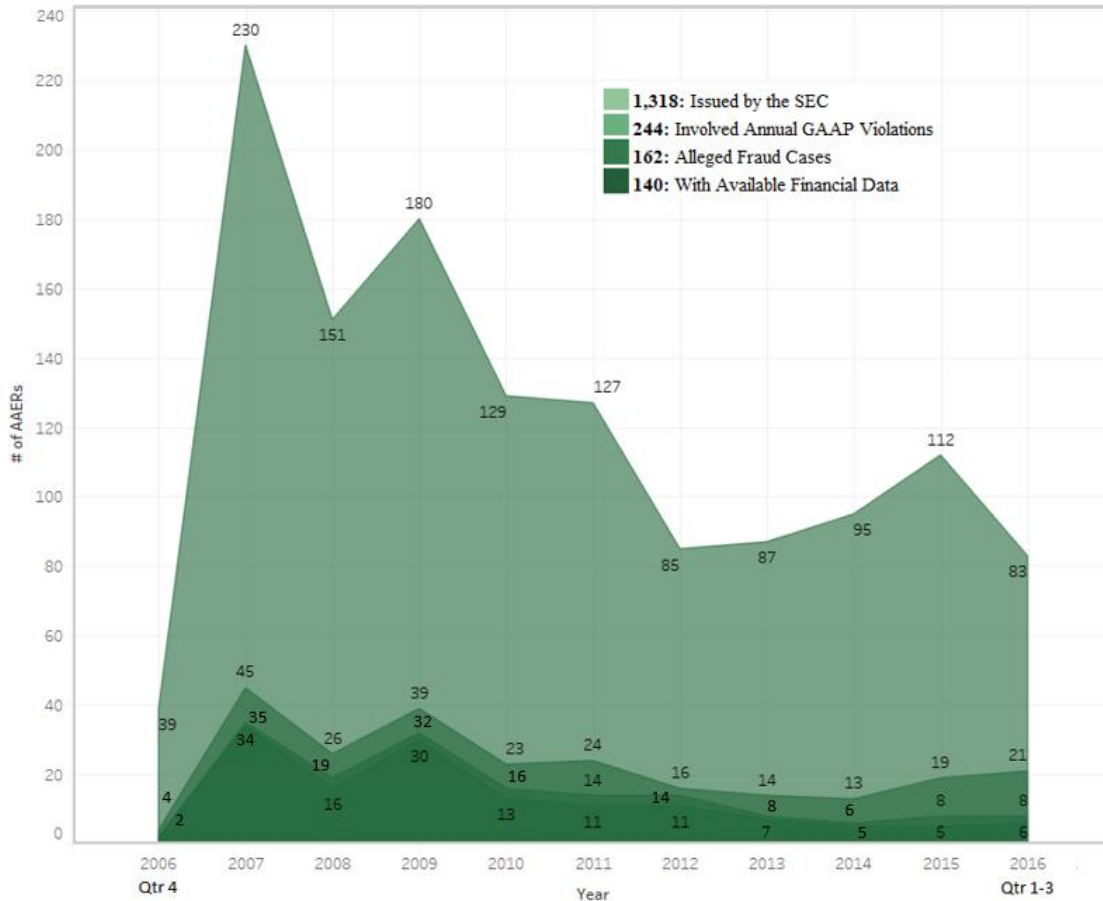
The scope of this study is limited to the annual misstatements from the AAER database for the ten-year period from October 2006 through September 2016 (the era surrounding the financial crisis). Figure 1 displays the total number of AAERs (1,318) issued by year. Of the 1,318 AAERs, 244 contain GAAP violations involving fraudulent annual financial statements. Other types of violations, not included in this study, include AAERs that fell under Rule 102(e), which authorizes the SEC to discipline professionals for misconduct; violations of books and records; and Foreign Corrupt Practices Act (FCPA) violations (Floyd Advisory, 2017). We also recognize that our scope is limited based on what the SEC decides to investigate. For example, the largest bankruptcy in the United States during the time of this study that was entangled with the financial crisis was Lehman Brothers Holdings, Inc., yet an AAER was not issued by the SEC, and this violation was handled via private securities class actions. The SEC was not confident that they could prove that Lehman Brothers violated United States laws in their accounting practices (Eaglesham and Rappaport, 2011). In contrast, Thornburg Mortgage, the seventh largest U.S. bankruptcy during the time of this research; was investigated by the SEC, and AAER #3370 was issued in 2012 (Securities and Exchange Commission, 2012).

The number of AAERs issued reached its peak in 2007 and dropped to its low point in 2012. A few potential reasons for the decline in the number of AAERs issued may be due to leadership changes at the SEC (2009 brought a new chairman), the financial crisis, the release of new accounting regulations, or other reasons. The decline in AAERs issued may also be due, in part, to the House Appropriations Committee cutting the SEC's fiscal 2012 budget by \$222.5 million, even though the SEC was already underfunded and its workload was increased by the Dodd-Frank Act, Pub. L. No. 111-203, H.R. 4173, which became law on July 21, 2010 (Stewart, 2011). COSO's 2010 report noted 1,335 individual AAERs issued by the SEC from January 1998 to December 2007. COSO's 1999 report noted that they read more than 800 AAERs from 1987 to 1997—beginning with AAER #123 and ending with AAER #1004—yet we are unable to quantify the individual AAERs issued during this time as the oldest AAER on the SEC website is #1190, issued on October 18, 1999.

Figure 1: Number of AAERs by Year

1. Currently, this dataset is maintained at the University of Southern California's Marshall School of Business, within the Leventhal School of Accounting.

2. See Dechow et al. (2011) for database development procedures and Karpoff et al. (2017) for a discussion about how this database differs from other sources of accounting irregularities.



Sample of Fraud Firms

The AAER database includes all SEC investigations (totaling 244, as shown in Figure 1) of alleged accounting and/or auditing misconduct. To ensure that the initial sample of firms included in this study were only firms that engaged in fraudulent financial statement activity, textual analysis similar to that used by Perols and Lougee (2011) was performed on the AAER documents for explicit reference to “Section 10(b),” “Rule 10b-5,” or “fraud.” This process uncovered 162 financial statement fraud firms that were recipients of enforcement actions by the SEC. Use of this selection method results in a low Type I error rate (relative to other methods of selecting fraud firms) since the SEC has already identified and documented the cases as fraud. However, we recognize that the population may not be complete because some frauds go undetected by the SEC or are not selected by the SEC for investigation.

Data Collection Process

We read the AAERs and documented data regarding fraud firm characteristics, perpetrators, and auditors. We also collected supporting financial data from Compustat, which was available for 140 of the 162 fraud firms in the initial sample. Because not every type of descriptive datum was available for all 162 fraud firms, sample sizes vary in the tables and figures. For example, data on firms’ financial characteristics were collected from Compustat for periods before, during, and after the fraud for different types of analysis. These data were not available for every time period and organization.

The issuance date for AAERs is typically a few years after the fraudulent activity occurred. The delay depends on when the fraud is discovered and on the duration of the investigation. In the sample of fraud firms, the median fraud duration, defined as the fraudulent act’s longevity and the fraudulent reporting time span found in the financial statements, is 36 months.

Descriptive Statistics and Analysis of Firms

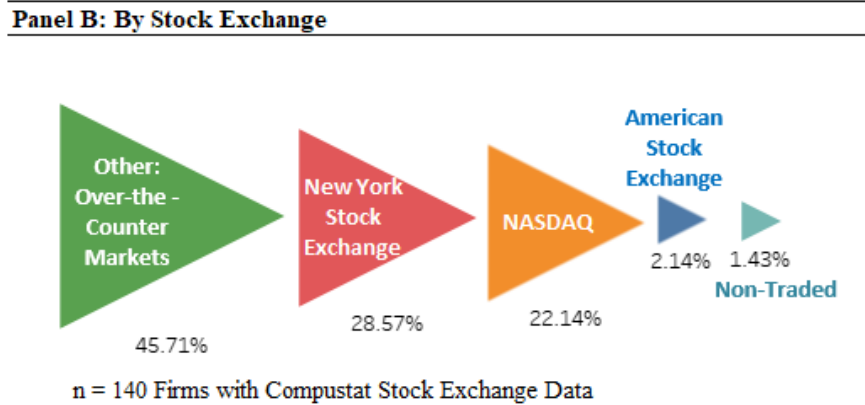
Fraud Firm Characteristics

Fraud occurrence varies by industry, exchange listing, and location. In Table 1, Panel A, 140 fraud firms (those with Compustat data) are presented by Standard Industrial Classification (SIC) code. Fraud presence by industry is relatively similar with the exception of “Business Services,” which was affected by the largest percentage (25) of cases. The “Services” industry is the largest SIC division in number per the North American Industry Classification System (NAICS), over three times the size of the next largest industry, “Retail Trade.”

Table 1: Fraud AAERs by Industry and Stock Exchange

Panel A: By Industry		
Two-Digit SIC code	Industry Description	Percent of Total
13	Oil and Gas Extraction	2.86%
20	Food and Kindred Products	3.57%
28	Chemicals and Allied Products	2.86%
35	Industrial and Commercial Machinery and Computer Equipment	8.57%
36	Electronic and Other Electrical Equipment and Components	9.29%
37	Transportation Equipment	3.57%
38	Measuring, Photographic, Medical, and Optical Goods, and Clocks	3.57%
51	Wholesale Trade, Nondurable Goods	2.86%
60	Depository Institutions	6.43%
63	Insurance Carriers	4.29%
67	Holding and Other Investment Offices	2.14%
73	Business Services	25.00%
80	Health Services	2.14%
99	Nonclassifiable Establishments	3.57%
	Other Industries	19.29%
	n = 140 Firms with Compustat SIC Code Data	100.00%

Note : Firms with two or less cases are grouped in "Other Industries." The industries with only one case are: Agricultural Production-Livestock and Animal Specialties (02), Coal Mining (12), Construction-General Contractors & Operative Builders (15), Apparel, Finished Products from Fabrics & Similar Materials (23), Printing, Publishing and Allied Industries (27), Rubber and Miscellaneous Plastic Products (30), Primary Metal Industries (33), Miscellaneous Manufacturing Industries (39), Automotive Dealers and Gasoline Service Stations (55), Apparel and Accessory Stores (56), Amusement and Recreation Services (79), Social Services (83), and Engineering, Accounting, Research, and Management Services (87). The industries with two cases are: Communications (48), Electric, Gas and Sanitary Services (49), Food Stores (54), Miscellaneous Retail (59), Nondepository Credit Institutions (61), Security & Commodity Brokers, Dealers, Exchanges & Services (62), and Insurance Agents, Brokers and Service (64).



The “Business Services” sector, comprising advertising agencies, computer programming services, and building cleaning and maintenance services, and others, contains the largest number of establishments in the “Services” industry. The large number of fraud cases falling in the “Business Services” sector may be due to the size of the sector and industry.

The “Financial Services” industry (defined herein as SIC codes 60-69) also had a large number of fraud cases—17 percent.³ Several industry sectors had only one or two cases of fraudulent activity, which can be seen at the bottom of Table 1, Panel A, under the title “Other Industries.” COSO’s 1999 and 2010 reports did not use SIC code to classify firms by industry. Using their own industry classifications, both COCO reports found that the industries affected most frequently included “Computer Hardware and Software” and “Other Manufacturing.”

In Table 1, Panel B, fraud firms are classified by exchange listing. The majority, 46 percent, of fraud firms are listed on Other/OTC markets. Another 29 percent and 22 percent are listed on the New York Stock Exchange and the NASDAQ, respectively. The composition of firms in the current study differs from COSO’s 2010 report that shows 50 percent of fraud firms trading on the NASDAQ, 23 percent on the New York Stock Exchange, and 23 percent on “Other” markets. However, COSO’s earlier report (1999) shows 78 percent of fraud firms as trading in “Over-the-Counter Markets,” which includes NASDAQ, and 15 percent on the New York Stock Exchange. The current study shows an increase in the percentage of AAERs issued for companies that traded in over-the-counter markets and a decrease in the percentage of AAERs issued for companies traded on the NASDAQ.

The geographic locations of fraud firms’ headquarters in the current study are shown in Figure 2 by state/province, not by state of incorporation. California has the highest number of fraud cases, followed by Texas, New York, Massachusetts, and Florida. The sample also includes 15 cases involving firms that are not headquartered in the United States, from locations such as Canada, the Cayman Islands, India, Ireland, Puerto Rico, and Switzerland. The geographic distribution of fraud cases in the current study is similar to the COSO’s 1999 and 2010 reports that list California, New York, Texas, and Florida as the states with the highest number of fraud related AAERs. Understandably, many frauds occur in large states with higher levels of economic activity. Using gross domestic product (GDP), a measure of size based on the amount of goods and services provided in the state, we found that GDP is a strong predictor of the number of frauds investigated in a state $\beta = 0.00001$, $t(32) = 12.91$, $p < .001$. GDP explained a significant proportion of variance in fraud investigation frequency, adjusted $R^2 = .84$, $F(1, 32) = 166.79$, $p < .001$.

Figure 2: Fraud AAERs by Location

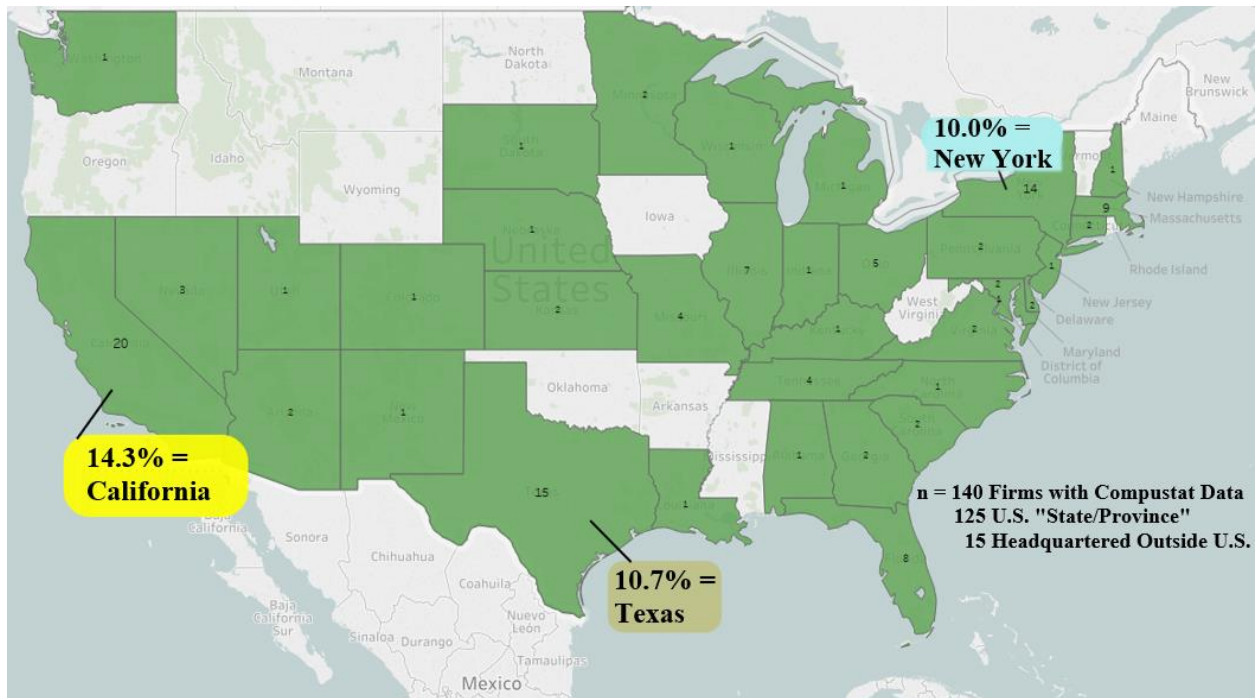


Table 2 reports financial and nonfinancial measures of the firms in the sample, including total assets, total revenue, net income (loss), net cash flow from operating activities, and number of employees the year prior to the first fraud year. Total assets, a proxy for firm size, is greater in the current sample than in the COSO studies. Mean (median) total assets is

3. This amount represents all sectors in this industry. Some sectors are listed individually in Table 1, Panel A. Others are included in the “Other Industries” classification because only one or two cases of fraud were found.

\$12.588 billion (\$322.0 million) in the current study. These amounts compare to mean (median) total assets of \$5.772 billion (\$93.1 million) in the COSO’s 2010 report and \$533 million (\$15.7 million) in the 1999 COSO report. Total revenues and net income (loss) for fraud firms in the current study are also greater than in the COSO 2010 report. Revenues are more than double the median from the COSO’s 2010 report, and median net income is more than six times the median from COSO’s 2010 report. These findings suggest that firms committing fraud are growing or that more large firms are committing fraud.

Table 2: Financial Measures of the Sample Firms

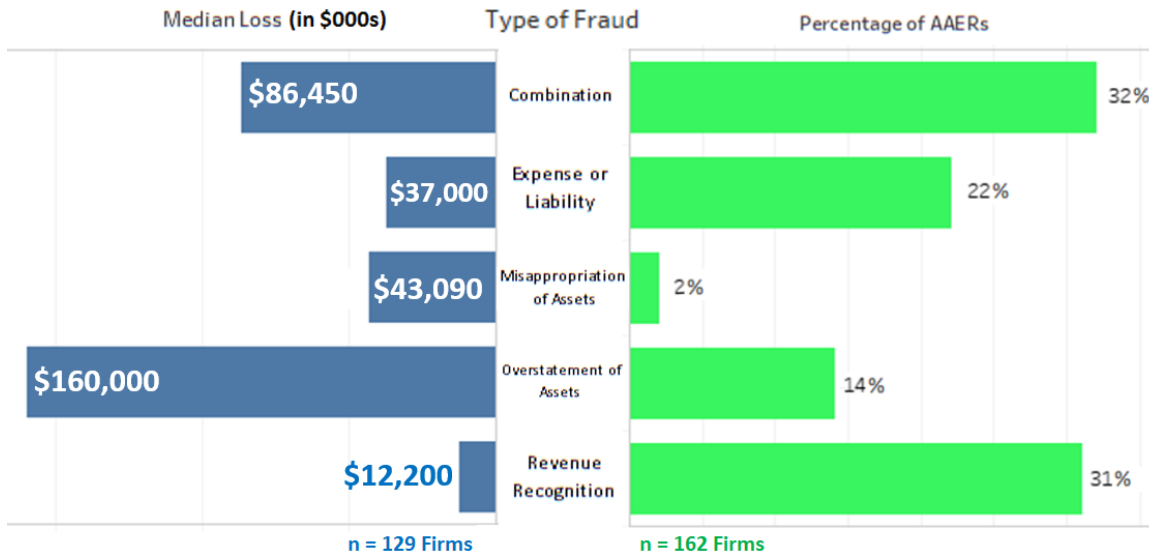
(in \$000s)	Total Assets	Total Revenue	Net Income (Loss)	Operating Activities - Net Cash Flow	Number of Employees
Mean	\$ 12,588,164	\$ 3,850,273	\$ 226,756	\$ 367,436	14,248
Median	\$ 322,048	\$ 212,890	\$ 5,481	\$ 11,625	939
Minimum Value	\$ 77	\$ 747	\$ (2,957,000)	\$ (7,484,000)	5
1st Quartile	\$ 87,881	\$ 62,279	\$ (7,785)	\$ (1,085)	232
3rd Quartile	\$ 2,560,257	\$ 1,207,328	\$ 41,505	\$ 81,353	4,742
Maximum Value	\$ 575,244,000	\$ 130,685,000	\$ 14,118,000	\$ 29,488,000	316,303
Quantity of Firms	136	137	135	131	123

Fraud Magnitude (in Dollars), Duration, and Number of Employees Impacted

Figure 3 classifies fraud cases by type and presents the magnitude (in \$000s) of the fraud for each category. Multiple acts of fraud often occur in financial statement fraud cases. Approximately one-third of cases in the current study involve multiple fraud types, and the median fraud amount for those cases is \$86.5 million. When only one type of fraud was detected, revenue recognition was the most commonly detected fraud. The median fraud amount of \$12.2 million, however, is the lowest. Similarly, COSO’s 2010 and 1999 reports found that 61 percent and 50 percent of the fraud cases, respectively, involved improper revenue recognition, based on the count of cases (not dollar magnitude). The median cumulative misstatement was \$10.3 million in COSO’s 2010 report and \$4.4 million in COSO’s 1999 report.

This study found that the next highest number of fraud case detections is for under-reporting liabilities/expenses and overstating assets (22 and 14 percent of cases, respectively). The median fraud amounts are \$37 million and \$160 million, respectively. Although only 14 percent of cases overstated assets, the highest median fraud amount, \$160 million, occurred in these cases. Similarly, both COSO reports found that the next two highest types of fraud by count of cases were overstatement of assets and understatement of expenses/liabilities. The median cumulative misstatement for overstating assets was \$7.9 million in COSO’s 2010 report and \$4.9 million in COSO’s 1999 report.

Figure 3: Median Fraud Amount and Percentage of Cases by Type of Fraud



To illustrate fraud severity (the data were available in the AAER documents for 129 firms), Table 3 displays the total fraud amount and various statistics, such as the mean, median, maximum, and minimum. To highlight the gravity of the fraud amounts relative to financial performance and size, the net income (loss) and revenues from Table 2 are included in Table 3. Over the duration of the sample period (a decade), the fraud amount for all cases totals approximately \$38.5 billion. The mean (median) fraud amount per case, representing the cumulative misstatement (the sum of each annual amount when the fraud duration is more than one year), is \$298.1 million (\$45 million). In approximately 34 percent of cases, the fraud amount is over \$100 million. The total cumulative misstatement or misappropriation from COSO’s 2010 report was \$120 billion across 300 fraud cases. The mean (median) values for COSO’s 2010 and 1999 reports were \$397.7 million (\$12.1 million) and \$25 million (\$4.1 million), respectively.

Table 3: Severity of Fraud with Respect to Net Income (Loss) and Revenues

(in \$000s)	Total Fraud Value	Net Income (Loss)	Total Revenue
Mean	\$ 298,120	\$ 226,756	\$ 3,850,273
Median	\$ 45,000	\$ 5,481	\$ 212,890
Minimum Value	\$ 791	\$ (2,957,000)	\$ 747
1st Quartile	\$ 9,831	\$ (7,785)	\$ 62,279
3rd Quartile	\$ 170,000	\$ 41,505	\$ 1,207,328
Maximum Value	\$ 6,434,000	\$ 14,118,000	\$ 130,685,000
Aggregate Fraud	\$ 38,457,548		
Quantity of Firms	129	135	137

Although the AAERs were issued between October 2006 and September 2016, the first fraud began in 1991 and the last in 2013. This time difference highlights the lag from fraud activity occurrence to the identification, investigation, and formal documentation in an AAER. For example, the issuance of an AAER from the SEC may not occur until 2015 or 2016 for a fraud case that occurred in the 2012 to 2013 timeframe. The median duration of a fraud is 36 months, and the median time lag between the first fraud year and the issuance of the AAER is six years.

The six-year time lag should not be interpreted to mean that the SEC takes six years to complete an investigation. A fraud discovery or reporting event, which occurs sometime between when the fraud began and when the investigation started, triggers the investigation, and the date of the fraud discovery or reporting event is not provided in the AAER. Figure 4 illustrates a timeline that marks the first fraud year, the median duration of a fraud, and the time delay for the AAER issuance. The 36-month median fraud duration in this study is greater than the 24-month median fraud duration described in COSO’s 2010 report and the 21-month median in COSO’s 1999 report. This data indicates that fraud case durations are increasing. A question remains regarding whether concealment methods have improved or whether detection effectiveness has declined.

Figure 4: Median Length of Time

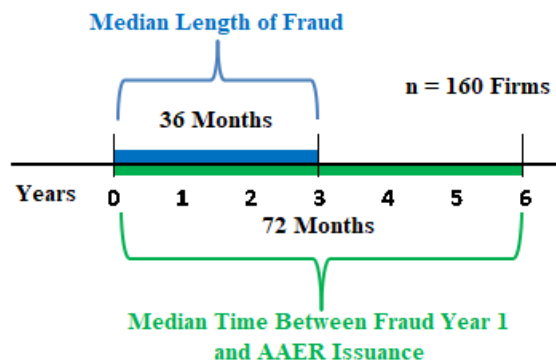
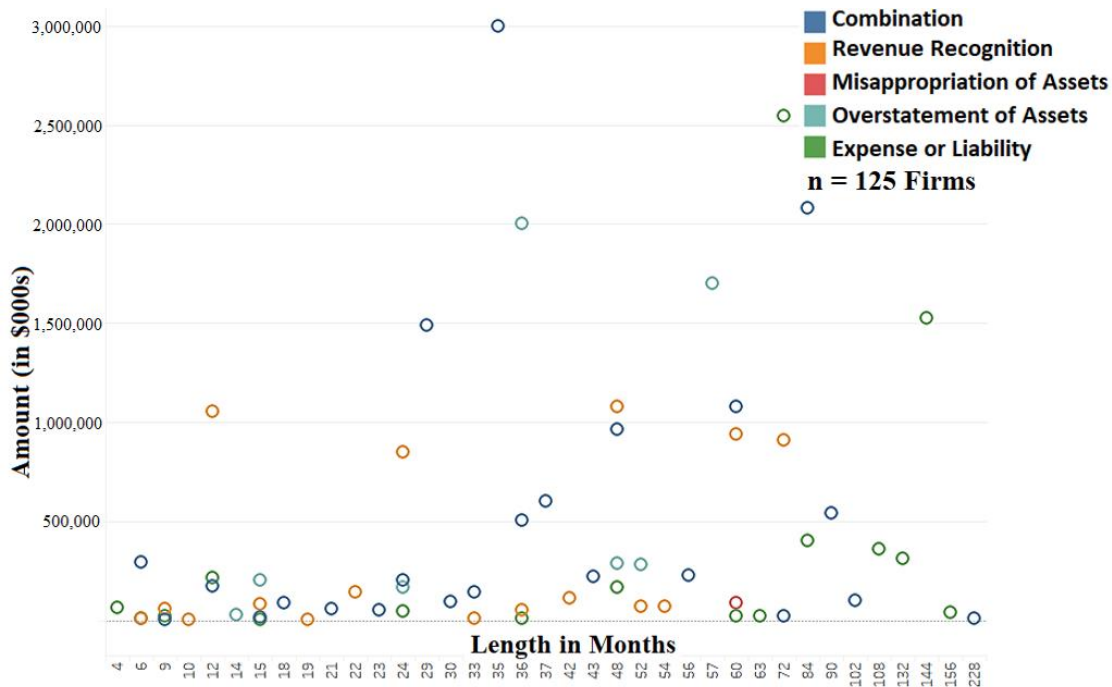


Figure 5 adds fraud type to the data visualizations, displaying fraud duration and magnitude by fraud type (for the 125 cases containing all three data points). To improve scaling and for viewing the data, the two largest frauds (\$6.4 billion and \$4 billion) are not included. Fraud duration and amount are greater in the current study than in the ACFE report (2020),

which is expected because the current study examines only financial statement fraud in publicly traded companies, and the ACFE report describes more fraud types than just financial statement fraud from both public and private companies.

The ACFE report (2020) found a correlation between fraud duration and median loss (longer frauds had larger losses). In this paper, an increase in the fraud amount as the fraud duration extends is not visually apparent. However, a regression of fraud magnitude on fraud duration for all data indicates that fraud duration significantly predicts fraud magnitude, $\beta = 10,359,098$, $t(111) = 2.96$, $p < .004$. Fraud duration also explains a significant proportion of variance in fraud magnitude, adjusted $R^2 = .07$, $F(1, 111) = 8.78$, $p < .004$. The result is primarily driven by the improper revenue recognition category of fraud. In this category, fraud duration significantly predicts fraud magnitude, $\beta = 14,508,417$, $t(36) = 14,508,417$, $p < .013$. Fraud duration also explains a significant proportion of variance in fraud magnitude, adjusted $R^2 = .14$, $F(1, 36) = 6.84$, $p < .013$. Other categories of fraud were not significant predictors of fraud. However, the sample size was too small to find results in some categories.

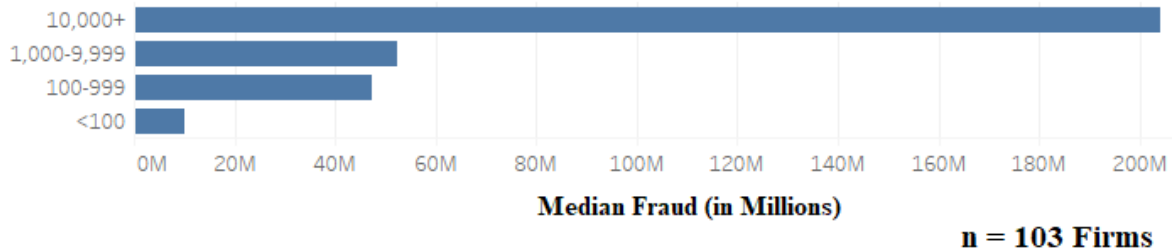
Figure 5: Analysis of Fraud Type by Duration and Amount



Note: The two largest outliers (\$6.434 billion and \$4 billion) are not included here.

Figure 6 illustrates fraud magnitude and number of employees, an indicator of organization size. The amount of the median fraud for firms with more than 10,000 employees (representing 20 percent of the 103 cases) is \$204 million. This amount is noticeably higher than the median fraud amount for smaller firms, $\beta = 11,974$, $t(111) = 2.66$, $p < .009$. The number of employees explains a significant proportion of variance in the fraud magnitude, adjusted $R^2 = .05$, $F(1, 111) = 7.06$, $p < .009$. Another way to view this data is to note that large frauds associated with large organizations impact more employees. Using total assets (and total revenue) as another proxy for firm size, fraud magnitude is greater for large firms than for small firms, $\beta = .001$, $t(111) = 5.20$, $p < .001$ ($\beta = .005$, $t(111) = 3.49$, $p < .001$). Total assets (and total revenue) also explain a significant proportion of the variance in the fraud magnitude, adjusted $R^2 = .19$, $F(1, 111) = 27$, $p < .001$ (adjusted $R^2 = .09$, $F(1, 111) = 12.17$, $p < .001$). Large firms may have access to “better” auditors, more resources for prevention and detection controls, and greater resources to implement segregation of duties. However, when frauds do occur, financial statement items that are subject to manipulation are also greater. Comparison to the COSO reports is not possible because those reports did not classify fraud cases by the total number of employees.

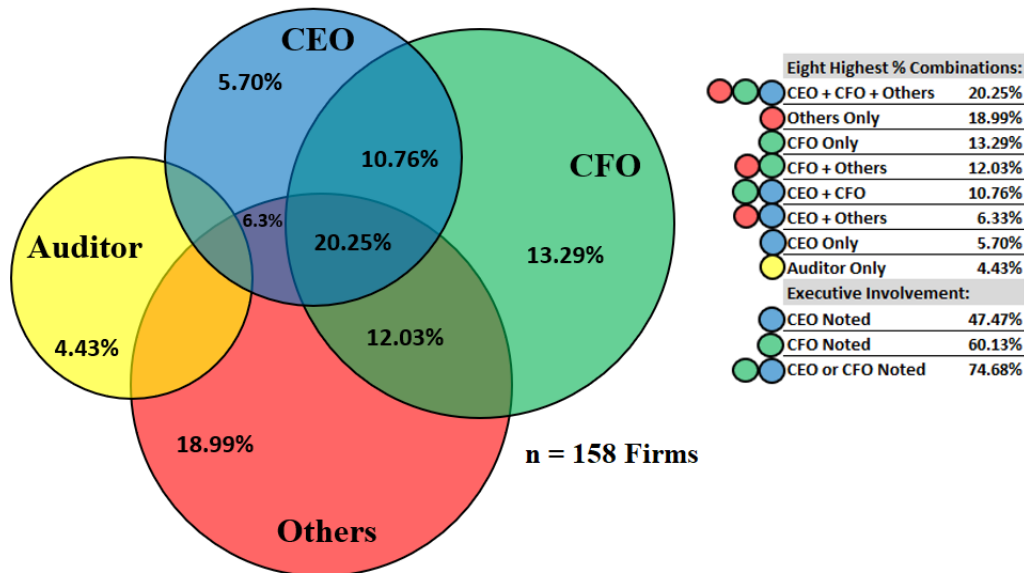
Figure 6: Median Fraud Amount by Firm Size Based on Employee Count



Involvement and Coordination of Perpetrators

Fraudulent activity execution may involve multiple perpetrators. For example, the CEO, the CFO, other financial or managerial employees, the auditors, or all of the aforementioned may be involved in committing a fraud. As shown in Figure 7, the CEO was involved in 47 percent of cases, and the CFO exceeded that with involvement in 60 percent of cases. Combined, the CEO and/or CFO were entangled in three-fourths of the fraud cases. In 39 percent of cases, “others” were recruited to join the fraudulent activities. When compared with COSO’s reports, executive involvement in financial statement fraud appears to be declining, as COSO’s 2010 report and COSO’s 1999 report found that 89 and 83 percent of fraud cases, respectively, involved the CEO and/or CFO. The involvement of the CEO remained consistent between COSO’s reports (at 72 percent in both 2010 and 1999), and the involvement of the CFO was 43 percent in COSO’s 1999 report and 65 percent in the 2010 report.

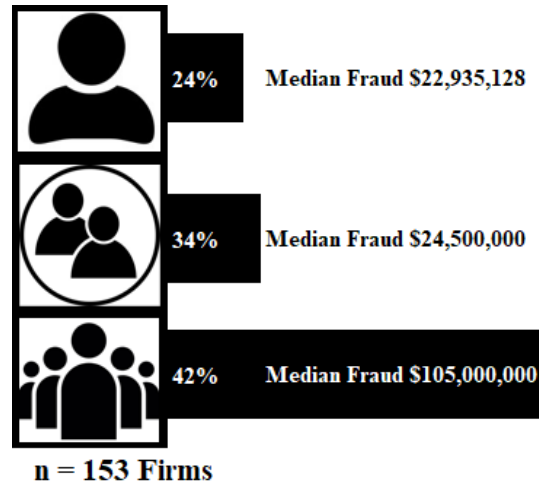
Figure 7: Perpetrators Involved in Fraud



Not only are CEOs and CFOs charged by the SEC with wrongdoing in more financial statement fraud cases than “others,” but the fraud amount is also larger when the CEO or CFO is involved. The mean fraud amount is \$331.8 million (median \$50 million) when the CEO and/or CFO are involved and \$221.1 million (median \$33 million) when they are not. Eighty percent of fraud amounts, \$30.9 billion of the \$38.5 billion reported in AAERS during the sample period (the decade), can be traced to CEOs and/or CFOs. Comparison to the COSO reports is not possible because the reports did not provide fraud magnitude by perpetrator.

Some of the most complex and far-reaching frauds occur through collusion, making detection difficult. Figure 8 illustrates fraud magnitude based on number of colluders (perpetrators). In 42 percent of cases, three or more perpetrators are involved in the fraud, and the median fraud is \$105 million. In 34 percent of cases, two perpetrators are involved in the fraud, and the median fraud is much less, \$24.5 million, $t(91) = 1.83, p < .035$. In the remaining 24 percent of the cases, when one person committed the fraud, the median fraud is \$22.9 million. When compared with groups of three or more perpetrators, the amount is less, $t(78) = 1.41, p < .081$. When compared with groups of two perpetrators, the amount is not significantly different, $t(39) = 0.42, p < .338$. The COSO reports did not provide similar categories of collusion.

Figure 8: Analysis of Collusion

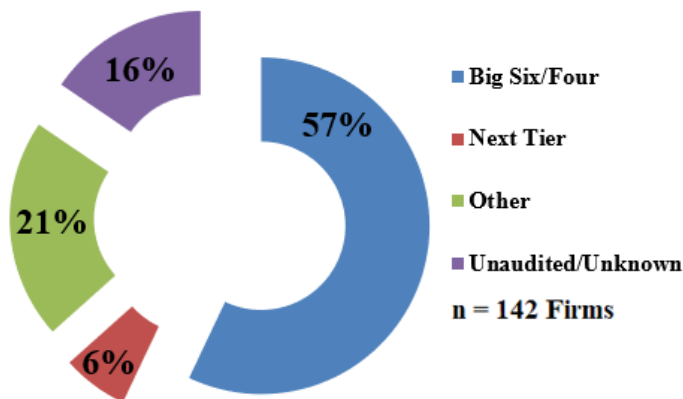


The number of perpetrators also impacts the duration of the fraud. When three or more perpetrators collude, the median fraud duration is 36 months. When two perpetrators collude, the median fraud is similar, 36 months. When one perpetrator is involved in the fraud, the duration appears longer, 48 months. However, *t*-tests of fraud duration do not indicate differences among the groups. In summary, there is some evidence that collusive frauds are larger in magnitude when more perpetrators are involved, but the duration did not differ significantly.

External Auditors

According to the ACFE (2020) report, external auditors detect fraud in only 4 percent of cases. Figure 9 lists the auditors for firms receiving AAERs for financial statement fraud. For 57 percent of fraud firms, Big Six/Four auditors⁴ (Arthur Andersen, Coopers and Lybrand, Ernst and Young, Deloitte and Touche, KPMG, and PricewaterhouseCoopers) were listed as the auditor in the first year of the fraud. For 6 percent of fraud firms, the next tier of accounting firms (Grant Thornton, Crowe Chizek, and McGladrey and Pullen [RSM])⁵ were listed as the auditor in the first year of the fraud. The remaining fraud firms used an “other” auditor, or in some cases, auditor information was not available. COSO’s 2010 report states that in the last year of the fraud period, 79 percent of fraud cases occurred in companies that hired Big Six/Four auditors and 6 percent in companies audited by the next tier of firms. The 1999 COSO report split the sample by Big Eight/Six firms with 56 percent of the cases audited by these types of firms and the remaining 44 percent audited by non-Big Eight/Six firms.

Figure 9: Incidence of Fraud by Auditor Size



4. The fraud cases occurred prior to the issuance of the related AAER with the timing of the first year of fraud ranging from 1991 to 2013. Therefore, some accounting firms no longer exist, and others merged and/or changed names.

5. Consistent with COSO’s 2010 report.

As outlined previously, the auditor was sometimes involved in the fraud cases. For 20 of 162 cases, the auditor was specifically mentioned in the AAER as being involved in the fraudulent activities. For some frauds, a separate AAER is issued to the auditor regarding their involvement and/or professional responsibilities. Because the auditor may not be mentioned in the AAERs issued to the organization, and because the AAERs issued to the auditors are not evaluated in this study, auditor involvement in fraud may be greater.

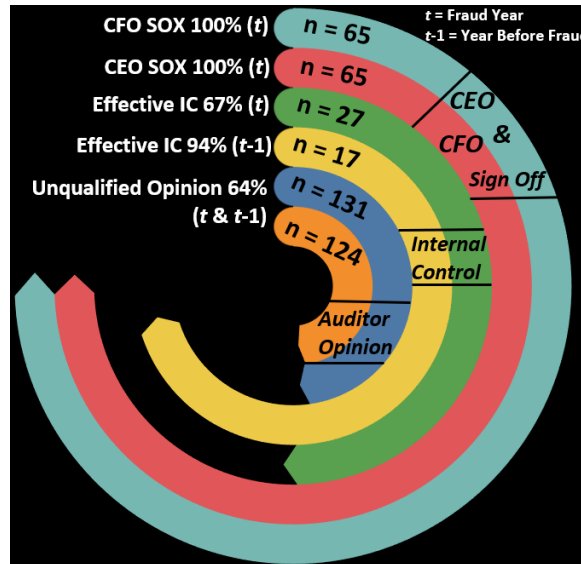
There are many reasons for a company to change auditors. For example, an organization that is trying to commit fraud with an uncooperative auditor may fire their auditor. Alternatively, an auditor who is not willing to participate in the fraud or is uncomfortable with the client may resign from an engagement or decline the engagement the following year. Auditor changes in the first year of the fraud were documented when information was available (in 116 cases). Thirteen percent of firms changed auditors the year the fraud began. This rate of change is lower than COSO's 2010 and 1999 reports that stated 26 percent of fraud firms changed auditors between the issuance of the last clean financial statements and the last set of fraudulently misstated financial statements.

Internal control weaknesses provide an opportunity to commit fraud. According to the ACFE (2020), internal control weaknesses are linked to nearly one-third of frauds, and anti-fraud controls decrease fraud losses and result in quicker detection. Figure 10 displays the number of firms that complied with the requirement for executives' certification of internal controls and the number of unqualified audit opinions issued for fraud firms. For the firms required to file Certification Documents under Section 302 of the Sarbanes-Oxley Act, in their first fraud year, 100 percent of CEOs and CFOs certified that they reviewed their 10-K and that the report fully complied with the requirements of the SEC. Our definition of an auditor's unqualified opinion follows the category definition from Compustat that states: "the financial statements are presented fairly and the auditing firm approves of the accounting principles reflected in the financial statements, the consistency of their application and the adequacy of financial disclosure." This Compustat category is different than cases classified as "unqualified with additional/explanatory language" that has been added to the standard report, which we classify as "otherwise" in the subsequent analysis.

In the year prior to the fraud, 64 percent of auditors issued an unqualified opinion (36 percent reported otherwise), and 94 percent submitted that internal controls were effective with no material weaknesses (6 percent reported otherwise). In the first fraud year, the percentage of unqualified opinions did not change—64 percent of auditors issued an unqualified opinion (36 percent reported otherwise). However, the percentage who stated that internal controls were effective with no material weaknesses declined to 67 percent (33 reported otherwise). Compustat data for auditor opinion on internal controls was not available for many cases, resulting in a small sample size (17 cases in the year prior to the fraud and 27 cases from the first fraud year). One reason for the small sample size is that the fraud period for some cases was prior to the Section 404 requirements for auditors under the Sarbanes-Oxley Act.

The COSO reports included counts for the number of unqualified opinions with no explanatory language based on the last set of audited financial statements issued during the fraud period. In the 2010 report, COSO noted that 43 percent of the audit opinions were unqualified (57 percent otherwise), and in the 1999 report, 55 percent were unqualified (45 percent otherwise). This percentage of unqualified opinions is lower than the findings in the current study and is expected because the timing of the data collection differed. The findings in the COSO reports are based on the last set of audited financial statements issued during the fraud period, and the current study examined the first year of the fraud and the year prior to the fraud. A comparison of the auditor's opinion of internal control in the COSO reports is not provided because the 2010 report had data for only 6 percent of cases and the auditor's opinion of internal control was not applicable for the period described in the 1999 report.

Figure 10: Auditor Opinion and Internal Control Attestations



Conclusion

Based on accounting and auditing enforcement releases issued from October 2006 through September 2016, this study documents cases involving fraudulent financial reporting from firms accused of GAAP violations by the SEC. The research presents the characteristics of 162 fraud occurrences by public firms that intentionally reported false financial statements during the era surrounding the financial crisis. Characteristics of the fraud occurrences include firm characteristics (industry, exchange listing, size, and financial characteristics), fraud characteristics (magnitude, type, duration, and number of employees impacted), perpetrators (company position and whether collusion occurred), and audit matters (audit firm, executives' certification, audit opinion, and change of auditor).

When compared with COSO reports from prior years, the current study finds that fraud duration is longer, fraud magnitude (in dollars) is greater, and the number of fraud cases involving firms that are listed on OTC markets is greater. These changes pose a few questions: Are fraudster concealment efforts improving (capability)? Is organization detection effectiveness declining? Are opportunities or motivations intensifying? This study also finds that CEO and CFO involvement in fraudulent activities has remained substantial; yet, when measured as a percentage of total cases, CEO and CFO involvement has declined from the previous decade. Is CEO and CFO involvement declining, or is the activity of other perpetrators increasing?

Another noteworthy observation is that 36 percent of auditors issued an unqualified audit opinion with additional explanatory language in the year prior to and in the first year of the fraudulent event(s). The auditor's decision to include additional explanatory language may or may not be related to the fraudulent situation, which is not investigated in this article. Although data are limited, fewer auditors were able to state that internal controls were effective with no material weaknesses in the year of the fraud (67 percent) compared with the year before the fraud began (94 percent). Interestingly, with this increased risk, neither the percentage of unqualified audit opinions (64 percent) nor the inclusion of additional explanatory language changed.

Another purpose of this study is to propose research agendas based on the descriptive analysis and the review of literature. Some of the longitudinal changes previously outlined provide unanswered questions. If frauds are increasing in magnitude and duration, why? Research into changes in financial statement fraud deterrence and detection methods, as well as fraud concealment methods, can provide insight into changes occurring in these areas and the related effectiveness of the methods used. Is lower-level management (below the CEO and CFO) increasingly involved in fraud? If so, what is motivating this activity? Another question that requires more investigation is whether auditors' recognition of internal control weaknesses is leading to more fraud discoveries. Are the internal control weaknesses that are recognized related to fraud? Are appropriate audit procedures implemented? Does the audit uncover fraud? The data in this study do not suggest that recognition of internal control weaknesses by the auditor had an effect on the percentage of unqualified audit opinions. Also, the large number of frauds in the "Business Services" and "Financial Services" industries deserve further attention. Is the large number of frauds due to the size of the industry, or are other factors involved?

The finding that CEO and CFO involvement in fraud cases remains high provides opportunities to further investigate several areas associated with CEO and CFO behavior. A better understanding of executive attributes (such as attitude and rationalization) and personality traits that lead to fraudulent behavior is needed. Calls for research have been made on “capability” from the fraud diamond theory (Abdullahi and Mansor, 2015), an executive attribute that arguably must exist for a fraud to occur. Collusion is a common behavior among CEOs, CFOs, auditors, and others in an organization when committing financial statement fraud. Understanding the relationships, “networks,” and the effectiveness of controls that attempt to reduce collusive opportunities can shed light on this type of behavior and provide potential fraud deterrence tools. Lastly, the ACFE has reported several common red flags related to occupational fraud. Research into red flags that are specific to financial statement fraud is another area of research that can be explored to provide early detection benefits.

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