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PhD in	Business Administration and Management
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ABSTRACT

This thesis consists of three essays that investigate the effects of material adverse events at one firm on the firms to which it is connected by a board interlock i.e. when the same director serves on the boards of two or more otherwise unrelated firms during the same time.

In the first essay, which is solo-authored, I examine whether firms change their financial reporting policies following allegation of financial fraud at a connected by a board interlock firm. I utilize enforcement actions initiated by the Securities and Exchange Commission (SEC) in the United States to identify heinous high-profile financial fraud cases. I report evidence of lower levels of accrual earnings management by interlocked firms following the initiation of a SEC investigation of a fraudulent firm. The results are significant only for cases of manipulations of operating earnings.

The second essay is a joint work with Annalisa Prencipe. Drawing on the literature on diffusion of corporate practices and the effect of reputation on audit fees and litigation premium, we examine whether a material adverse event such as an SEC investigation at a firm leads to an increase in the audit fees of firms connected to the former though board interlocks. We document a significant increase in audit fees in cases where the interlocking director serves on the audit committee of the alleged fraudulent firm.

In the third essay, which is a joint work with Annalisa Prencipe, we examine whether firms that share an interlock with a firm subject to an enforcement action initiated by the SEC are more likely to be scrutinized by the public or the regulator. The preliminary evidence indicates that connected firms have significantly higher probability to be investigated by the SEC and to be subject to class action litigation.

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I dedicate this thesis to my husband, my parents, and my brother without whose unconditional love and support, this dissertation would not have been possible.

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INTRODUCTION

This dissertation consists of three empirical papers aimed at understanding the impact of director's networks on firm's accounting behavior and outcomes. More specifically, I study the mechanisms through which such networks influence financial reporting choices and the perceptions of firm's stakeholders. Director networks (or board interlocks) occur when the same director serves on the boards of two otherwise unrelated firms. Prior research has provided evidence that social and director networks have a profound effect on firm's behavior. Generally, more connected firms tend to perform better and are more likely to adopt innovative practices earlier. However, board connectedness also has a shaded side. For example, recent advances in accounting and finance have connected board interlocks with the spread of questionable business practices such as aggressive tax reporting (Brown, 2011) and earnings management (Chiu et al., 2013). Additionally, firms interlocked with an allegedly fraudulent firms experience negative investor reactions at the revelation of financial fraud (e.g. Fich and Shivdasani, 2007). Given the documented negative reputation spillover effect, interesting questions to address are whether connected firms act strategically to distance themselves from the fraudulent firm and whether important stakeholders such as auditors and regulators change their perceptions about the non-investigated firm if it shares a board interlock with the allegedly fraudulent firm.

In my dissertation, I attempt to fill this gap in the literature by addressing three different, but interrelated, research questions. The first paper examines whether firms change their financial reporting policies if a company to which they are connected by a board interlock is involved in fraudulent financial reporting practices sanctioned by the SEC. I propose and

empirically test two alternative hypotheses: Information Hypothesis and High Publicity Hypothesis, in the attempt to explain why and how firm's earnings management practices change following the initiation of SEC enforcement at a company to which the former is connected by a board interlock. The results of the main analysis provide support for the Information Hypothesis. Indeed, I observe lower levels of discretionary accruals for the subsample connected to a firm investigated for intentional manipulations of operating earnings, which suggests that the common director communicates to fellow board members the practices scrutinized closely by the SEC and the connected firm changes its behavior in response to that. The results remain robust to using different measures of discretionary accruals, methodologies, and model specifications. Additionally, I observe that the audit committees of the connected firms meet more often, which provides further support for the notion that board interlocks to an investigated firm serve as a "warning mechanism" to connected firms and lead to better quality of reported earnings and improved corporate governance mechanisms. Next, to understand the effect of the enactment of the Sarbanes-Oxley Act of 2002 (SOX) on the behavior of connected firms, I split the sample in two subsamples: firms for which t+1 is before SOX and firms for which it is after. The results are significant only for the second subsample consistent with the notion that the observed response is at least partially driven by concerns about director liability and greater scrutiny by the regulator. Finally, I test the persistence of the effect in the subsequent fiscal year i.e. year t+2. I find that the results are only weakly significant in the following year suggesting that the deterrence effect is transitory at least for some of the firms in the operating income manipulation subsample. Interestingly, my results show that the effect persists for firms in the operating income manipulation subsample sharing an audit committee interlock with the fraudulent firm.

This finding suggests that directors sitting on the audit committees of the fraudulent firms might be under excessive pressure to ensure high quality financial reporting at the other firms on whose boards they are serving. It is also consistent with the increased audit committee activity documented earlier.

In the second paper of my dissertation, co-authored with Annalisa Prencipe, we draw on the literature on diffusion of corporate practices and the effect of firm's reputation on its audit fees. We hypothesize that a material adverse event such as an SEC investigation at a firm leads to an increase in the audit fees of firms connected to the former though board interlocks. We argue that allegations of financial fraud at one firm raise concerns about the corporate governance practices also at connected firms, which increases audit engagement risk. We test these predictions on a large sample of firms identified as connected to a fraudulent firm during the investigation period. We document a significant increase in audit fees in cases where the interlocking director serves on the audit committee of the alleged fraudulent firm. The marginal effect on audit fees is higher if we limit the analysis to only cases where the interlocking director served on the board of the fraudulent firm when the fraud was perpetrated. Audit fees also increase when the fraudulent firm is subject to a class action lawsuit. We estimate that the audit fees of firms whose director serves on the audit committee of a fraudulent firm, which is subject to class action litigation increase by 12.9% in the year after the public announcement of SEC investigation, which is both economically and statistically significant.

In the third paper, co-authored with Annalisa Prencipe, we examine whether firms that share an interlock with an allegedly fraudulent company during the period of the fraud are more likely to be scrutinized by the public (in the form of class action litigation) or the regulator (the

Security and Exchange Commission) in subsequent periods. On one hand, we argue that if a firm is involved in fraudulent behavior, this might indicate that its board members are not acting as effective monitors. If a board member is not effective in preventing violations at one firm, she might not be effective at this task also at the other firms on whose board she is serving. Moreover, recent studies on the diffusion of corporate practices have suggested that board interlocks serve as an effective mechanism for disseminating information and facilitating adoption of corporate practices. Thus, if one firm is allegedly violating security laws, it is possible that connected firms are undertaking similar practices, which can increase the risk of being subject to public and regulatory scrutiny. On the other hand, it is possible that directors learn from their experience at fraudulent firms and become more effective in their monitoring roles on the boards of connected firms. If this were the case, these firms would have a lower likelihood of misstatements and thus would be less likely to be subject to class action litigation and SEC investigation. Preliminary univariate results indicate that the connected firms have higher incidence of class action litigation and SEC enforcement actions than firms without connections to a fraudulent firm do.

Overall, the papers included in this dissertation provide evidence that material adverse events at one firm have a profound effect on the financial reporting behavior and outocmes of connected firms.

CHAPTER 1

BOARD INTERLOCKS AND REPUTATION SPILLOVER EFFECTS: AN EMPIRICAL ANALYSIS OF FINANCIAL REPORTING POLICIES FOLLOWING MATERIAL ADVERSE EVENTS AT CONNECTED FIRMS

1.1. Introduction

Social networks offer important insights into the drivers of behavior, decision-making, and outcomes of economic agents (Granovetter, 2005; Uzzi, 1999). This paper focuses on a specific type of network: board interlocks. Board interlocks occur when an individual simultaneously serves on the board of directors of two or more organizations (Mizruchi, 1996) and are widespread among U.S. publicly traded firms. Firm's directors meet several times per year and their key role is to monitor management, approve or object to important strategic proposals, and protect the interests of shareholders. Although, the degree of board connectedness is related to better firm performance (Horton, Millo, and Serafeim, 2012; Larcker, So, and Wang, 2013), board interlocks have a shaded side. For example, recent advances in accounting, finance, and management have explored the role of the board interlocks on the spread of questionable applications of accounting practices such as stock option backdating (Bizjak, Lemmon, and Whitby, 2009), option expensing (Reppenhagen, 2010), earnings management (Chiu et al., 2013), and aggressive tax reporting (Brown, 2011). Moreover, board connections to firms allegedly involved in deviant behavior have an indirect negative impact on connected firms in the form of negative reputation spillover. Specifically, Srinivasan (2005), Fich and Shivdasani

(2007), and Kang (2008) observe that following allegations of financial fraud, interlocked firms i.e. those connected by board interlocks to the alleged wrongdoer, experience abnormal negative market returns[1].

Whether the boards of interlocked firms act strategically to distance themselves from the fraudulent firm is an empirical question. This study addresses this question by examining whether and how the management and board members of non-investigated firms change their financial reporting behavior after allegations of deviance of connected firms. More specifically, I examine changes in accrual earnings management practices in response to allegations of deviant behavior of firms to which they are connected by a board interlock. Earnings management refers to the extent managerial discretion is used in reporting the accounting earnings of the firm. Accrual earnings management is a consequence of the use of estimates (such as warranties or bad debt expense, etc.), which does not generally violate the Generally Accepted Accounting Principles (GAAP). However, greater levels of accrual earnings management distort the quality of reported financial information and obscure the economic reality (Dechow and Skinner, 2000). Board members are in excellent position to influence firm's earnings management practices. Insiders sitting on the board e.g. the CEO and CFO have direct responsibility for preparing the financial statements, while independent board members can influence the integrity of financial statements through monitoring management (Fama and Jensen, 1983; Beasly, 1996; Peasnell, Pope, and Young, 2005). Following Kang (2008), I utilize enforcement actions initiated by the Securities and Exchange Commission (SEC) to identify heinous high-profile financial fraud cases (Agrawal and Chadha, 2005) and to explore connected firms' financial reporting policies

[1] The terms "interlocked" and "connected" are used interchangeably throughout the paper to refer to firms connected by a board interlock to a firm allegedly involved in financial fraud.

before and after the start of the investigation[2].

I propose two hypotheses that explain why the board members of non-investigated firms should respond to material adverse events at connected firms such as SEC enforcement actions by changing their accrual accounting practices. First, the Information hypothesis is based on the notion that board interlocks are a powerful mechanism for information transfer between connected firms and can impact their accounting policies and procedures (i.e. Davis, 1991; Bizjak, Lemmon, and Whitby, 2009; Shropshire, 2010; Chiu et al., 2013; Brown and Drake, 2014). Thus, if a firm is investigated by the SEC on allegations of financial reporting fraud, its board members will obtain first-hand information and experience with the investigation process and the negative consequences of SEC enforcement actions and may "warn" connected firms to avoid practices that possibly lead to SEC scrutiny. Indeed, studies in crime literature (e.g. Becker, 1968; Sah, 1991) suggest that while a potential offender may clearly see the benefits of a crime, the associated costs and the probability of being caught entail considerable uncertainty. Better knowledge of the enforcement process and frequency increases the perceived costs of

[2] It is also possible that connected firms discontinue the tie with the fraudulent firm by dismissing the connecting board member. Indeed, Srinivasan (2005) and Fich and Shivdasani (2007) document a significant decrease in the additional board seats for board members involved with an allegedly fraudulent firm after severe restatements and class action litigation respectively. These two strategies i.e. increasing earnings quality and discontinuing the tie with the fraudulent firm are not exclusive. In my sample, 11.9% of the outside board seats were lost by the end of year t+1 (the year after the investigation is publicly announced), 8.7% in year t+2, and 8.3% in year t+3, broadly consistent with the findings of Srinivasan (2005) and Fich and Shivdasani (2007), while the normal turnover rates are 7.5% per year. Yet, anecdotal evidence suggests that connected firms are reluctant to dismiss a board member immediately after the allegations of financial fraud are publicly disclosed. For example, following the allegations of financial fraud at Xerox Corp. in early 2000s, Lucent Technologies that shared a board member, Paul Allaire, with Xerox commented for a WSJ reporter that "The Lucent board saw no reasons, and did not feel it would be appropriate, to ask Mr. Allaire to step down when he has not been charged with any wrongdoing in relation to these issues at Xerox". (WSJ, 2002). One of the main reasons for the reluctance to dismiss the connecting board members might be that connected firms are seeking to avoid drawing attention to their own corporate governance and financial reporting practices. Additionally, dismissing a board member without any clear evidence of wrongdoing is a preemptive measure that can reduce the pool of candidates for board positions at the connected company for the concern of dismissal without a just cause.

committing a crime and thus increases compliance. Drawing on the informational view of social networks and studies in crime literature, I argue that directors learn from the experience of other firms subsequent to an SEC investigation of a connected firm. In response to the new information available, board members of the non-investigated firm exert additional monitoring efforts targeted to scrutinize closely practices that might attract the attention of the regulator, which results in lower levels of earnings management.

Second, according to the High Publicity hypothesis, board members are concerned about the negative publicity generated by the fraudulent event and exert effort to improve the financial reporting behavior of the non-investigated firms in order to distance themselves from the fraudulent firm especially in cases that are extensively covered in the media. Prior studies show that directors seek to accumulate and maintain reputational capital to enhance their attractiveness on the labor market for board positions (Fama and Jensen, 1983; Zajac and Westphal, 1996). Negative events such as restatements and class-action litigation tarnish directors' reputation and lead to loss of additional board memberships (Fich and Shivdasani, 2007; Srinivasan, 2005). Moreover, while involvement in one company investigated by the SEC on fraud allegations harms director's reputation, involvement in a second investigation will be detrimental to her career prospects. Finally, Kang (2008) suggests that investors might generalize their perceptions of the common director being ineffective monitor and attribute this behavior to fellow board members. Accordingly, directors serving on the board of interlocked firms may want to mitigate the reputational damage due to SEC investigation of a related firm by increasing their monitoring efforts, which would result in lower levels of earnings management for fraudulent cases that generate high publicity.

To test these hypotheses, I identify a large sample of interlocked firms connected by a board interlock to a firm investigated by the SEC. I identify two variables that allow to test the Information and High Publicity hypotheses. I propose that if the Information hypothesis is supported, reduced levels of abnormal accruals will be observed only for cases related to manipulations of operating income such as premature revenue recognition or understatement of operating expenses. If the High Publicity hypothesis holds, I expect to find stronger results for firms connected to a high-profile perpetrator that generated considerable negative publicity as evidenced by the number of printed media mentions of fraud in association with the firm name.

My findings provide support for the Information hypothesis. Generally, connected firms manage earnings less in the year after the investigation announcement, but the result is significant only for the subsample of cases involving intentional manipulations of operating income. The result remains robust across three linear and one nonlinear measures of abnormal accruals. Additionally, I conduct a series of sensitivity checks to ensure the validity of my results. First, I perform a difference-in-difference analysis and find that -compared to a control sample- connected firms exhibit significantly lower levels of earnings management after the information about the investigation becomes available to the connected firms. The results remain robust also to model specifications that include firm- instead of industry- fixed effects and alternative specifications of the control variables. Quantile regressions reveal that the effect is significantly higher for the 75^{th} quantile than for the 25^{th} quantile of the dependent variable. This evidence suggests that the firms with higher than the median levels of earnings management are more likely to act strategically and reduce the levels of discretionary accruals than firms with lower levels. Additionally, to understand the effect of the enactment of the Sarbanes-Oxley Act

of 2002 (SOX) on the behavior of connected firms, I split the sample in two subsamples: firms for which t+1 is before SOX and firms for which it is after. The results are significant only for the second subsample consistent with the notion that the observed response is at least partially driven by concerns about director liability and greater scrutiny by the regulator. Moreover, Farber (2005) provides evidence that firms strengthen their corporate governance mechanisms due to reputation loss following financial fraud allegations. To test whether non-investigated firms improve their corporate governance following material adverse events at connected by a board interlock firms, I hand collect data on board and audit committee meetings and board independence in the year before and after the public announcement of the SEC investigation. The results indicate greater audit committee activity and board independence in t+1 consistent with the notion that connected firms seek to improve also fundamental corporate governance mechanisms to reduce the probability of a financial fraud and to enhance the credibility of their financial reports. Finally, I test the persistence of the effect in the subsequent fiscal year i.e. year t+2. I find that the results are only weakly significant in the following year suggesting that the deterrence effect is transitory at least for most of the firms in the operating income manipulation subsample. Interestingly, my results show that the effect persists for firms in the operating income manipulation subsample sharing an audit committee interlock with the fraud firm. This finding suggests that directors sitting on the audit committees of the fraudulent firms might be under excessive pressure to ensure high quality financial reporting at the other firms on whose boards they are serving. It is also consistent with the increased audit committee activity documented earlier.

This study contributes to existing literature in several ways. First, it adds to the literature

on the consequences of financial statement misreporting (e.g. Karpoff, Lee, and Martin, 2008a, b) by showing that SEC investigations of alleged wrongdoers have a profound effect on the financial reporting practices and corporate governance mechanisms of non-investigated firms to which they are connected. Second, it contributes to the literature on spillover effects on interlocked firms (Srinivasan, 2005; Fich and Shivdasani, 2007; Kang, 2008) by showing that a subsample of non-investigated interlocked firms report lower levels of discretionary accruals following SEC scrutiny. This result suggests that board members of interlocked firms learn from the experience of other firms and adjust the financial reporting practices of interlocked firms by reporting lower levels of discretionary accruals to reduce the risk of SEC and/or investor scrutiny. Additionally, I document that the results are more persistent for audit committee members, which provides some evidence that these directors are under more pressure to signal the integrity of the interlocked firms. This argument is consistent with the impression management theory (Bolino, Kacmar, Turnley, and Gilstrap, 2008; Guoli, Shuqing, Yi, and Tong, 2015) according to which earnings management serves as a tool to influence the perceptions of key stakeholders. Moreover, the study contributes to the growing literature on the deterrence effects of regulatory actions by examining whether SEC enforcement leads to higher earnings quality at interlocked non-target firms. Prior studies (Jennings, Kedia, and Rajgopal, 2011; Schenck, 2012) show that the announcement of an SEC enforcement action has some deterrence effect over industry peers. Here, I provide evidence that the deterrence effect is not restricted to firms operating in the same industry, but also to firms related to the target in other ways i.e. through board interlocks[3]. This result implies that SEC enforcement actions serve not

[3] The board network effect documented in this paper is independent of the industry spillover effects documented by Jennings et al. (2011) and Schenck (2012). Firms connected by a board interlock rarely operate in the same industry

only to protect the interests of the investors of the convicted firms, but also indirectly affect the quality and meaningfulness of accounting information at connected by board interlocks firms.

The study most closely related to this paper is Habib and Bhuiyan (2016) who investigate the association between the presence of problem directors (i.e. directors that have been previously involved in serious restatements, bankruptcy or other adverse events) on firm's audit committee and earnings management. They document a positive association between the presence of such directors on firm's audit committee and firm's real earnings management practices, but no association with accrual earnings management. My study differs from Habib and Bhuiyan (2016) in several important aspects. First, the focus in this paper is on contemporaneous connections between firms by a board interlock at the time of the SEC investigation rather than director's mobility to other firms after the enforcement event. Second, I identify a quasi exogenous event for the non-investigated firms i.e. SEC scrutiny following allegation of financial fraud of a firm to which they are connected by a board interlock, which allows me to examine financial reporting practices before and after the event for the same sample of firms and detect more precisely the changes in their behavior induced by the SEC investigation. Finally, while Habib and Bhuiyan (2016) focus specifically on audit committee members, I do not restrict the analysis to a specific type of board members and do not observe any significant differences due to directors' committee memberships in the connected firms in

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to avoid potential conflicts of interest and reduce the risk of collusion. Additionally, the Clayton Act of 1914, Section 8, explicitly prohibits board members to serve on the board of two or more companies that could be considered competitors. The difference-in-differences analysis performed as a robustness check further alleviates such concerns. Additionally, it is possible that some connected firms have a business relationship (e.g. buyer-supplier) with the fraudulent firm that could impact how they respond to allegations of financial fraud at a connected firm. This information is not publicly available and I am not able to control for such business relationships. However, I do not believe that this limits the conclusions of the analysis because the Clayton Act of 1914 limits directors from serving on the boards of firms that are engaged in material business transactions. Thus, even if business connections exist between the firms, they are not material assuming compliance with the Clayton Act.

year t+1[4].

The paper proceeds as follows. The next section describes the SEC enforcement process. Section 1.3 presents the relevant literature and the hypotheses. Section 1.4 reviews the methodology and presents the results. Section 1.5 concludes.

1.2.Background

I focus on SEC enforcement actions to investigate the responses of firms to adverse events at firms in their board network. The SEC serves as a law-enforcement agency with jurisdiction over all U.S. public companies and foreign companies traded on NASDAQ, NYSE, or AMEX. The SEC Enforcement Division's goal is to protect investors by investigating potential violations of the federal securities laws and prosecuting perpetrators. The enforcement process can take several years and the average time between a trigger event (such as a restatement) and the filing of an enforcement action is around three years (Files, 2012; Karpoff et al., 2008a,b, 2014). Figure 1.1 presents a detailed timeline of the enforcement process[5]. During the initial stage, the Division of Enforcement (Enforcement) conducts an informal investigation. Upon finding preliminary evidence of wrongdoing, Enforcement undertakes a formal investigation in order to establish violation of security laws beyond a reasonable doubt. If sufficient evidence is collected, Enforcement issues a Wells notice, which informs the individuals and/or entities of the charges and gives them time to respond. After considering the

[4] The additional analysis related to the persistence of the results, indicates that the reported reduction in earnings management in year t+1 persists in t+2 only for connected firms that share an audit committee interlock with the investigated firm.
[5] See Investor Bulletin at http://www.sec.gov/enforce/investor-alerts-bulletins/ib_investigations.html for more information on enforcement actions.

party's response to the Wells notice and all available evidence, Enforcement files an action in court or an administrative proceeding.

Violations related to financial reporting and disclosure are reported in Litigation Releases (LRs) and Administrative Proceedings (APs), and may receive a secondary designation as Accounting and Auditing Enforcement Releases (AAERs), which are publicly available on the SEC website (http://www.sec.gov/litigation.shtml)[6]. Some common allegations are misrepresentation and omission of material information, unlawful appropriation of customer funds, insider trading, manipulating security prices, running Ponzi schemes, etc.

Very often, the investigated firm discloses that it is under investigation before the SEC files an administrative proceeding. In fact, the 2001 Seaboard Report provides anecdotal evidence that the SEC is willing to be lenient towards firms that fully cooperate in the investigation and promptly disclose any wrongdoing to the stakeholders[7]. Additionally, FASB Accounting Standards Codification Topic (ASC) 450 requires firms to disclose if they are subject of governmental investigations or enforcement actions in a timely and accurate manner if they suspect that the investigation will "reasonably possible" result in litigation. Although not all firms comply, most of the investigated firms disclose publicly ongoing formal SEC investigations and a small number disclose even informal inquiries, which allows us to identify approximately the time when the information about investigation becomes available to the board members. If the SEC establishes a violation of a security law, it imposes penalties for

[6] Karpoff et al. (2014) point out that the AAERs are LRs and/or APs that the SEC designates as involving accountants and being relevant to accountants. AAERs, LRs, and APs are available on the SEC website.
[7]The management of Seaboard Company fully cooperated with the SEC, restated their earnings, and fired the controller who was responsible for the misconduct and as a result of this prompt action the SEC decided not to undertake any further actions against the company. The full text of the report is available at http://www.sec.gov/litigation/investreport/34-44969.htm.

misconduct that can range from cease and desist orders to fines, injunctions and suspension of individuals from acting as corporate officers or sitting on the board of directors of publicly traded companies. Additionally, prior studies report that there are more severe penalties for firms subject to SEC enforcement actions than those imposed by the regulator and the courts such as stock price declines, job loss for involved managers, and reputational penalties for the auditors and the board of directors. For example, Feroz et al. (1991) shows that in more than 70% of the cases executives resign, 80% of the firms are subject to investor class-action litigation, and in 42% of the cases, the firm's auditor is also sanctioned. In addition, the stock market responds negatively to disclosures of SEC enforcement actions: in their sample on average, the investigated firms experienced a 13% reduction in market value in the two-day period following the announcement. Karpoff, Lee, and Martin (2008a, 2008b) provide more recent evidence on the implications for firms targeted by SEC enforcement actions. They report that the legal penalties imposed are on average $23.5 million per firm, while the market penalties are about 7.5 times larger mostly due to lost reputation (Karpoff, Lee, and Martin, 2008b). Moreover, top managers are severely penalized for "cooking the books" (Karpoff, Lee, and Martin, 2008a). In 93% of the cases, managers lost their job by the end of the enforcement period and 28% were subject to criminal actions and penalties including imprisonment. Finally, Rollins and Bremser (1997) report that in one-third of the AAERs in their sample the auditor is also sanctioned, which has long-lasting implications on its brand name and reputation.

SEC enforcement actions serve as an appropriate context to test my hypotheses for at least two main reasons. First, SEC investigations and subsequent sanctions are highly publicized and trigger considerable investor responses, which are likely to result in reputational losses for

the sanctioned firm (Karpoff et al, 2008b). Kang (2008) also demonstrates that interlocked firms experience negative reputational spillover following the announcement of SEC investigations as evidenced by negative abnormal returns providing strong evidence that financial fraud allegations initiated by the SEC can hurt also the reputation of non-investigated firms. Second, Karpoff et al. (2014) report that the SEC AAERs are less likely to suffer from scope limitations and extraneous event biases than other financial misconduct databases.

In the next section, I discuss relevant literature on the topic and develop the hypotheses.

1.3 Prior Literature and Hypotheses

1.3.1 Information Hypothesis

Early research in organizational sociology suggests that board interlocks serve as an important mechanism for information transfer that can influence organizational practices, norms, values and corporate policies (Mariolis and Jones 1982). In fact, prior studies on the effects of board interlocks on firm behavior document that interlocks facilitate the diffusion of corporate practices and explain to a great extent the similarity between connected firms (e.g. Davis, 1991, 1997; Mizruchi, 1996; Bizjak et al., 2009; Bouwman, 2011; Chiu et al., 2013; Brown and Drake, 2014). These studies are based on the notion that board interlocks facilitate the informational flow between otherwise unrelated firms and allow them to access information about the costs and benefits of adopting certain practices and procedures. Yet, in the case of questionable accounting practices, the benefits of adoption may be more evident (e.g. higher stock market price) than the costs (e.g. lost reputation) (Kedia and Rajgopal, 2011). This argument is consistent with studies in the crime literature that use the perceived net benefit approach to explain the behavior of

potential criminals (Becker 1968; Sah 1991). According to these contributions, potential criminals tend to underestimate the probability of being caught and being punished, which leads to overestimation of the net benefits of committing a crime. In the case of SEC enforcement, SEC resources are quite limited (e.g. Cox et al., 2003; Kedia and Rajgopal, 2011) and only about ten percent of the firms exhibiting red flags are convicted (Files, 2012). Thus, senior managers, board members, and auditors may expect that the risk of the firm being investigated and convicted of security law violation is lower than the actual risk especially if they suspect (or know) that similar practices are used also at other firms. Evidence on the deterrence effects of SEC enforcement suggests that industry peers respond to the announcement of SEC investigations by improving the quality of reported earnings (Jennings, Kedia, and Rajgopal, 2011) and corporate governance (Schenck, 2012) providing evidence that better knowledge about enforcement influences peer firm's behavior. Additionally, it is possible that board members of non-investigated firms not only reassess the risk of being investigated i.e. deterrence effect, but also understand better the specific practices that the SEC scrutinizes i.e. learning effect. While reports of ongoing SEC investigations are generally publicly available, information about the investigation practices e.g. the transactions that the SEC is closely scrutinizing is not disclosed[8]. The board members on the boards of fraudulent firms gain first-hand experience with the investigation process and can transfer this information to connected firms on whose boards

[8] For example in the case of the SEC investigation of the financial reporting practices of Xerox Corp. in the early 2000s, the SEC initially looked at the revenue recognition practices at Xerox. However, as the investigation progressed, the SEC officials determined that Xerox was involved in a wide-range scheme to meet and/or exceed analyst expectations that included manipulations to many different accounts (refer to https://www.sec.gov/litigation/complaints/complr17465.htm for more information), suggesting that the SEC investigated many different accounting practices rather than focusing solely on revenue recognition. This information, however, becomes publicly available only after the investigation is completed and includes only description of the accounts/ transactions that were found to be in violation of GAAP, but not all accounts/transactions that the SEC officials closely scrutinized.

they are serving. Thus, connected firms will have a better understanding of SEC investigations and will know what practices and procedures to avoid to reduce the risk of a sanction if scrutinized by the SEC.

Drawing on the studies in crime literature and the contributions on the informational role of board interlocks, I propose that a SEC enforcement action at a connected firm may cause the related parties to reassess and adjust the risk of being investigated upwardly and direct their efforts towards reducing that risk by limiting the practices that might attract SEC's attention. Better monitoring should lead to less earnings management and higher value-relevance of reported financial information. This is because as previously described, SEC enforcement actions are important events with severe adverse consequences for the investors, managers, bondholders, employees, etc. of the sanctioned firms. As the information about the SEC enforcement and its consequences becomes more salient to non-target firms if a connected firm is investigated, its board members will exert more effort to monitor management's financial reporting practices to avoid getting under the SEC radar, which should be reflected in lower levels of earnings management. Thus, if the Information hypothesis holds, I expect to observe the negative effect of SEC enforcement actions on earnings management largely for the cases related to manipulations of operated earnings, because both the learning and the deterrence effect predict that interlocked firms will learn which practices draw SEC scrutiny (earnings manipulation practices in this case) and will try to avoid them by reducing the level of earnings management[9]. This can be formally

[9] It is important to note that I do not argue that the non-investigated firms have lower earnings quality *ex ante* or are in violation of securities laws merely because they are connected to an allegedly fraudulent firm. Rather, I propose that they will become more conservative regarding their accrual earnings management practices after they become better aware of the procedures investigated by the SEC and the negative impact of enforcement actions.

stated as follows:

> **Information hypothesis:** Following a SEC enforcement initiation at a firm connected by a board interlock, accrual earnings management by the non-investigated firms will decrease if the misstatement involves intentional manipulations of operating earnings.

1.3.2 High Publicity Hypothesis

Prior studies provide evidence that individuals or firms suffer indirect reputational penalties because observers tend to generalize and attribute deviant behavior of one individual or a firm also to those that they see as related (Jensen, 2006; Kang 2008; Jonsson, Greve, and Fujiwara-Greve, 2009; Paruchuri and Misangyi, 2015). For board directors connected with an allegedly fraudulent firm, the reputational penalties result in a loss of other directorship positions (Fich and Shivdasani, 2007). Moreover, directors serving on the boards of scrutinized firms may lose credibility, which can hurt investors' perceptions of the quality of corporate governance of interlocked firms. Finally, while involvement in one fraudulent case hurts director's reputation, a potential second accounting scandal can be detrimental. Thus, I argue that board members have an incentive to exert additional monitoring effort at interlocked firms to increase investors' trust and mitigate the damage to their reputation. This argument is in line with the theory of impression management, which argues that corporate executives and directors actively seek to impress investors and to influence stakeholder's perception of the firm and themselves (e.g. Elsbach et al., 1998; Davidson et al., 2004; Guoli et al., 2015). Earnings management represents an important tool that is often employed by managers to influence outsiders' perceptions of firm

profitability. In the case of alleged fraudulent behavior of connected firms, board members of the non-investigated firm are likely to exert additional monitoring effort and to reduce the levels of earnings management to distance themselves from the fraudulent firm and to increase investors' perceptions of firm's integrity. While these arguments suggest that all directors involved with a fraudulent firm might experience some type of negative reputation spillover effect, I propose that their incentives to react to that would depend on the publicity that the fraudulent case generates. Podolny (1993) and Jensen (2006) show that audiences associate parties based on visible inter-organizational ties. Thus, a deviant act might lead to greater contagious reputational loss if the wrongdoing becomes highly publicized or a high-status actor is involved (Adut, 2005; Jonsson et al., 2009). In the case of SEC enforcement actions, the implications for interlocked firms might be different depending on whether the event draws considerable media and public attention.

In line with these arguments, I propose that the effect of SEC scrutiny on interlocked firms is more pronounced if the fraudulent event is highly publicized. This is based on the assumption that highly publicized events trigger greater perception of reputation loss for involved directors, who are more likely to increase their monitoring efforts on the boards of connected firms. To summarize, the High Publicity hypothesis can be stated as follows:

> **High Publicity:** Following an SEC enforcement initiation at a firm connected by a board interlock, accrual earnings management by the non-investigated firms will decrease if the fraudulent case is highly publicized in the media.

1.4.Methods

1.4.1 Identification Strategy

This study focuses specifically on the response of firms to SEC scrutiny of a connected by a board interlock firm. Following prior studies that examine the relationships between firms through board interlocks (e.g. Bizjak et al., 2009; Brown and Drake, 2014; Chiu et al.,2013), I consider two firms to be interlocked if the same individual serves on the board of both firms during the investigation period (i.e. the period between the initial revelation of SEC investigation and the issuance of the first LR or AP). In the main analysis, I compare the levels of discretionary accruals between the pre- and post- period for a balanced sample of non-investigated firms connected to an investigated firm. This requires the identification of a pre- and a post- period. To this end, I collect data on the announcement of SEC investigations using Lexis-Nexis News Library and Factiva. In case of conflicting dates, I consider the earlier date. If the exact date is not available through these sources, I examine the financial statements of the firms. Early reports of investigations are usually made public via company press reports or 8-K filings. Some firms report SEC inquiries in 10-K or 10-Q filings only after the investigation in their practices becomes formal or the SEC issues a Wells notice i.e. whenever the firm believes that it is probable that the investigation will result in regulatory action. If I am unable to identify the date through any of these sources, I use the date of the first enforcement action, which generally is considerably later than the initial financial misrepresentation revelation dates (Karpoff et al., 2014). The event date that I consider to differentiate between the pre- and post-period is the first time the initiation of a SEC investigation is publicly announced. Additionally, I identify cases in which the common director joins the non-investigated firm after the investigation has already started. For these cases (9.5% of the firms in the sample), the event date

considered is the date the director joins the non-investigated firm rather than the investigation announcement date[10]. Finally, it is important to note that I consider only the first instance of SEC investigation of a connected firm. Subsequent investigations might have different implications for firms' financial reporting behavior e.g. the board members might become more/less concerned about firm's reputation.

To summarize, I define the event date (year t) as the latest of directorship start date of the common director and the investigation announcement date. The post period is the fiscal year after the event date (t+1) and the pre-period is the fiscal year before the event date (t-1). I chose to compare firms' behavior during these specific years for two main reasons. First, it is not possible to determine exactly when information about the initiation of SEC investigation became first available to the director and informally communicated to his/her connections. It is possible that information about the incoming investigation becomes available to board members in t-1 (rather than in year t) and can influence the financial reporting behavior of firms during this year. If this were the case, the noise introduced by the difficulty to identify correctly the investigation start date would work against finding a significant relation and the reported coefficient on the independent variable would be an underestimation of the true coefficient. Second, t+1 is chosen as the post-period because estimates during this period are presumably less noisy and less influenced by other firm-specific events including subsequent investigations of other connected firms.

[10] I consider this date to be more appropriate for the purposes of the analysis because the key arguments are that the information about the SEC investigation process becomes more salient if connected firm is investigated (the Information hypothesis), that directors perceive negative reputation spillover threat because of the high publicity involved (the High Publicity hypothesis). None of these explanations is likely to hold at announcement date if the firms are not connected at that time. Thus, in these cases the event date is the directorship start date at the other firm.

1.4.2 Variables

1.4.2.1 Measures of Accrual Earnings Management.

Earnings management remains one of the most researched topics in accounting and financial management literature. Healy and Wahlen (1999, p. 368) define earnings management as "[the] use [of] judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting practices." In this paper, I focus on accrual earnings management, which is a commonly used mechanism to adjust reported earnings to meet managerial goals. Under the Generally Accepted Accounting Principles (GAAP), firms traded in a US stock exchange are required to use the accrual basis of accounting. The accrual basis requires that firms record revenues (expenses) when they are earned (incurred) rather than when cash exchanges hands. Arguably, the most important benefit of accrual accounting is that reported earnings reflect better the "true" performance of the firm. However, accruals depend largely on managerial discretion and as such represent a powerful tool for window-dressing firm's financial statements (e.g. Jones, 1991; Healy and Wahlen, 1999; Burgstahler and Dichev; Burgstresser and Philippon, 2006). While most of the managerial choices fall within the boundaries of GAAP and do not constitute accounting fraud, accrual basis of accounting allows opportunistic managers to boost reported income in a given year and deceive investors and other stakeholders. For example, managers can accelerate revenue recognition and/or delay expense recognition to report higher income in the current fiscal year at the expense of future years to meet analyst expectations or to maximize the present value of expected compensation.

In this study, I employ four commonly used measures in accounting literature designed to capture accrual earnings management. All four measures estimate signed discretionary (abnormal) accruals (DA_{it}) for firm *i* and year *t* as the difference between total accruals (TA_{it}) and non-discretionary accruals ($ACCR_{it}$). Following Hribar and Collins (2002), I calculate TA_{it} as the difference between reported earnings before extraordinary items (item *ib* in Compustat mnemonics) and operating cash flows (item *oancf*). A positive value of DA_{it} indicates a discretionary use of income-increasing accruals, while a negative value implies income-decreasing accruals. The four measures differ in the estimation of $ACCR_{it}$. My first measure is based on the Modified-Jones model originally developed by Jones (1991) and later modified by Dechow et al. (1995). Under this method, the nondiscretionary component of discretionary accruals is estimated as follows:

$$ACCR_{it} = \beta_0 + \beta_1(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_2(PPE_{it}) + \varepsilon_{it} ,$$

where ΔRev_{it} is change in revenues, $\Delta Rec_{it}$is the change in accounts receivable from previous year and PPE_{it} is the gross property, plant and equipment in year t. All variables are deflated by beginning total assets (A_{it-1}). The second and the third measure are variations of the Modified-Jones model introduced by Kothari et al. (2005), and Ashbaugh et al. (2003). The fourth accrual model, proposed by Ball and Shivakumar (2006), differs from the others in that it is nonlinear and recognizes the differential timeliness of gain and loss recognition by including the level of firm's cash flows in the estimation of $ACCR_{it}$, an indicator for whether the operating cash flows are positive or negative during the year and the interaction between the two:

$$ACCR_{it} = \beta_0 + \beta_1(\Delta Rev_{it}) + \beta_2(PPE_{it}) + \beta_3\,(CFO_{it}\,) + \beta_4(DCFO_{it}) + \beta_5(CFO_{it} * DCFO_{it}) + \varepsilon_{it} \ ,$$

where ΔRev_{it} and PPE_{it} are as defined previously, CFO_{it} is the cash from operations, and $DCFO_{it}$ is an indicator variable equal to 1 if CFO_{it} is negative and 0 otherwise. All variables are deflated by beginning total assets (A_{it-1}).

1.4.2.2 Independent variables

The independent variable is *POST*, which equals 1 for observations in the fiscal years after investigation initiation and 0 for the remaining observations. As noted previously, I do not expect the effect to be the same for all firms included in the sample. I posit that if the Information hypothesis holds, the effect will be observable only for a subsample of firms for which the interlocked firm is investigated for manipulations of operating earnings. Thus, *CORE* is an indicator variable equal to 1 if the investigated firm is allegedly involved in manipulations of income before special and extraordinary items and more specifically manipulations that result in misstatement of sales, cost of goods sold (COGS), selling, general, and administrative expenses, and using reserves to smooth income. More detailed explanation and examples of the classification are included in Appendix 1.

To test for the High Publicity hypothesis, I introduce *HIGH_PUBLICITY* variable, which is a continuous variable equal to the natural logarithm of the number of times the name of the investigated firm is mentioned in the business press (WSJ, FT, etc.) in association with the word "fraud"[11]. These fraud cases generally involve firms that are larger in market capitalization, are highly visible to stakeholders, and thus receive extensive media coverage.

1.4.2.3 Control variables

There are several firm-level characteristics identified by prior literature to influence the

[11] I use Factiva to identify the number of times an investigated firm's name is mentioned in association with fraud.

level of accrual earnings management. First, I include the return on lagged assets (*ROA*), which is a measure of firm's profitability, to control for managerial incentives to manage earnings in order to increase the present value of their compensation (Watts and Zimmerman, 1978; Kothari et al, 2005). Second, prior research suggests that larger firms are more visible and thus less likely to engage in opportunistic earnings management. To control for this possibility, I include firm's size (*SIZE*) measured as the natural logarithm of total assets. I include total assets to equity ratio (*FinLev*) as a measure of firm leverage to control for incentives to manage earnings to comply with debt covenants. I also employ controls for whether the firm experienced a loss during the year (*LOSS*) because loss firms are more likely to engage in a "big bath" and record negative discretionary accruals, the level of operating cash flows (*CFO_TA*), whether the firm was engaged in merger or acquisition (*M&A*) and whether the firm's financial statements were audited by a big N (4 or 5) audit firm (*BIG_N*). Additionally, I control for sales growth (*GROWTH*), because growing firms tend to record greater levels of discretionary accruals (Lee, Li, and Yue, 2006). I add a control for Tobin's Q (*TOBINQ*), a proxy for efficiency and the quality of manager's investment decisions (Chung et al., 2002). Firms with low Tobin's Q experience high agency costs and thus are more likely to be involved in earnings management. Finally, I control for prior period discretionary accruals (*Lag_DA*). All continuous variables are winsorized at the 1st and 99th percentile to mitigate the effect of outliers. I include year- and firm- (or industry-) indicators in all regressions to control for year- and firm- (or industry-) fixed effects. All variables included in the regression are described in Table 1.1.

1.4.3 Research Design

This section presents the main model that I employ to test the hypotheses. I utilize a time-

series approach using a balanced sample of non-investigated firms connected by a board interlock to a firm investigated by the SEC. The time-series approach allows comparing the level of discretionary accruals for each firm before and after the information about investigation becomes public allowing each firm to serve as its own control. The following model is estimated using OLS regression with industry-and year-fixed effects:

$$Earnings\ Management_{it} = \beta_0 + \beta_1 POST_t + \Sigma\beta_j\ Controls_{it} + \varepsilon_{it} \qquad (1)$$

where $Earnings\ Management_{it}$ is the signed measure of abnormal discretionary accruals for firm i in time t estimated using one of four alternative methods as described above. $POST_i$ is an indicator variable equal to 1 for firm i in t+1 and 0 in t-1.

Next, I add an additional variable ($Diff\_Variable_i$) and an interaction between the additional variable and $POST_t$ to the model to test separately the Information and the High Publicity hypothesis. The additional variable in the test of the Information hypothesis is $CORE_i$, which is an indicator equal to 1 if the violation involves intentional manipulations of operating earnings and 0 otherwise. Next, to test the High Publicity hypothesis, I add $HIGH\_PUBLICITY_i$, a continuous variable that is equal to the natural logarithm of the number of times the name of the fraudulent firm is mentioned in the business press in association with the word "fraud".

$$Earnings\ Management_{it} = \beta_0 + \beta_1 POST_t + \beta_2 Diff\_Variable_i + \beta_3 POST_t\ x\ Diff\_Variable_i +$$

$$+\Sigma\beta_j\ Controls_{it} + \varepsilon_{it} \qquad (2)$$

where all variables are as defined previously. More specifically, I propose that if the Information hypothesis holds, the negative effect of SEC scrutiny would be observed for firms connected to a firm investigated for intentional manipulations of operating income, because knowing that the SEC closely scrutinizes certain practices, non-investigated firms are less likely

to engage in them. If the Information hypothesis holds, I expect that β_3 is negative and significant. If the High Publicity hypothesis holds, I expect that earnings management by the interlocked firms will decrease only if the shared board members face high threat of reputation loss i.e. when the case is highly publicized. If this hypothesis holds, the coefficient on the interaction between $POST_t$ and $HIGH\_PUBLICITY_i$ is expected to be negative and significant ($\beta_{3<} 0$).

1.4.4 Data and Sample Selection

Initially, I collect data on two groups of publicly traded firms listed on a US stock exchange: sanctioned group and connected firm group. The sanctioned group consists of all firms that were subject to SEC enforcement in the period between 1999 and 2014. Data are hand-collected from the SEC website for the relevant period. I carefully read 2215 AAERs, LRs, and APs that the SEC staff had classified as related to Issuer Disclosure and Reporting in the appendices to the SEC Annual Reports issued each year and publicly available on the SEC website[12]. I obtain the name of the firm to which each enforcement action refers, the alleged violation, the period of the violation, the titles of the individuals involved (e.g. Chairperson, CEO, CFO, etc.), the financial statement accounts affected, the reason for the violation and approximately the date when the fraud scheme was uncovered (if available). After eliminating duplicates in terms of firms and events, I identify 886 distinct cases. I review these for a second time and eliminate enforcement actions that are not directly related to accounting principles

[12] I limit data collection to Issuer Disclosure and Reporting violations, because these are most closely related to financial reporting fraud at the firm level rather than violations committed at the individual level such as illegal insider trading that do not directly affect the quality of financial information presented to investors. I was not able to locate 5 cases which the SEC staff had listed as related to issuer reporting and disclosure, but there was no reference to a corresponding AAER, litigation release or administrative proceeding.

violations and thus not relevant for the purposes of the paper. For example, I exclude insider-trading cases, Foreign Corrupt Practices Act violations, enforcement against auditors for lack of independence, and sanctions against firms for non-timely filing of annual and/or quarterly reports. Following these general guidelines, I eliminate 279 enforcement actions. My final sample of sanctioned firms contains 607 unique firm-events. Table 1.2 presents a breakdown of enforcement actions by year. The sample also includes 4 firms with more than 1 enforcement event.

The connected firm group consists of public firms connected to the firms sanctioned by the SEC by a board interlock and are not investigated by the SEC. I obtain data on firm networks from BoardEx[13]. Two important criteria are followed. First, the board membership of the connecting director must overlap during the enforcement period i.e. the connecting director must serve on the boards of both the investigated and the non-investigated firms at the same time during the investigation period. Second, the connected firm must be publicly traded, because the SEC does not have jurisdiction over private firms and their reporting practices are unlikely to be influenced by enforcement actions at an interlocked firm. Moreover, I eliminate firms operating in the financial services and utilities industries (with Standard Industry Classification codes 6000-6999 and 4900-4999 respectively), because they face different accounting standards, regulation, and reporting practices, which impede the ability of discretionary accrual models to measure their earnings quality. The final connected firm sample is comprised of all US publicly traded firms connected to a target firm during the enforcement period for which data are available on board connections and financials in both t-1 and t+1 and includes 755 unique non-

[13] BoardEx is a proprietary database by Management Diagnostics ltd. Other recent papers in the fields of accounting and finance that have used BoardEx are for example Engelberg et al. (2013), Liu (2014), El-Khatib et al. (2015).

investigated firms that are interlocked with 205 investigated firms[14]. Table 1.3 provides details on the connected sample selection process.

1.4.5 Descriptive statistics

Table 1.4 presents the descriptive statistics of the variables used to test the hypotheses in years t-1 and t+1 for the connected firms sample[15]. Generally, the firms included in the sample are large (mean value of the natural logarithm of total assets is 6.771 in t-1 and 6.851 in t+1). The mean return on assets (ROA) is negative in both periods and a lower number of firms experience net loss in year t+1 than in t-1 although the difference is not significant at the 10% level. The firms also tend to be less leveraged and less likely to acquire new financing in t+1 than in t-1 (62.1% acquired new financing in t-1 versus 60% in t+1). Additionally, firms are less engaged in mergers and acquisitions in t+1 than in t-1 (20.4% in t-1 versus 16.4% in t+1). Most of the firms in the sample are audited by a BIG N audit firm, but the percentage tends to be slightly lower in t+1 (90.2% in t-1 and 88.6% in t+1). The mean values for all measures of earnings management are slightly positive in both years t-1 and t+1 except the measure based on Ashbaugh et al. (2003), which is negative in both years. 77.2% of the firms are connected to a fraudulent firm involved in manipulations of operating earnings (*CORE*=1) and 35.5% of the fraudulent firms share an audit committee interlock i.e. the interlocked board member serves on

[14] Network data are available for 432 investigated firms. For 171 firms out of these there are either no overlapping directorates with public firms during the investigation period or the required financial data are not available for their connections, which causes them to drop out of the sanctioned sample. BoardEx does not provide network data for the rest of the investigated firms. To avoid concerns that the sanctioned sample might be biased, I complement BoardEx by hand-collecting network data for these firms from their proxy statements. In approximately one-third of the cases, the firm had not filed any proxy statements in the previous two years and it was not possible to determine the board composition or firm's network. In the other two-thirds of the cases, the board members did not hold additional board positions or the other firms on whose boards they sat were not publicly traded, which reduces concerns that the sanctioned firm sample is biased.

[15] Year t is the year in which information about the investigation became first available to the director.

the audit committees of both firms.

Table 1.5 reports the correlation coefficients between the variables employed in the analysis. Pearson (Spearman) correlation coefficients are reported below (above) the diagonal. The measures of earnings management are highly correlated consistent with prior studies. For example the Pearson correlation between *DA_Kothari* and *REDCA* for the connected firms sample is 92.1%. The measure based on Ball and Shivakumar (*DA_BS*; 2006) is the least correlated with the other measures of earnings management. The Pearson correlation between *DA_Jones* and *DA_BS* is 61.4%. I use *DA_BS* as the main measure for earnings management, because it allows for asymmetric loss recognition and includes more variables that can explain the variation of accruals than the other three models (Simpson, 2013). All measures of earnings management are positively correlated with the measures of profitability (*ROA*) and growth (*GROWTH*) and negatively correlated with the operating cash flows (*CFO_TA*) and firm size (*SIZE*). As expected *HIGH_PUBLICITY* is positively correlated with firm size (measured as the natural logarithm of total assets) and market value.

1.4.6 Regression results

Table 1.6, column [1] presents the base results from testing equation (1) with the levels of discretionary accruals using the Ball and Shivakumar (2006) model as the dependent variable. The coefficient on *POST* is negative as expected given the negative reputational spillover effects, but the result is only weakly significant (at the 10% level on a two-tailed test) suggesting that generally firms do not significantly reduce the levels of their discretionary accruals. Next, I add *CORE* and *HIGH_PUBLICITY* and their interaction with *POST* to the regression to test separately the Information and High Publicity hypothesis respectively. Table 1.6, columns [2]

and [3] present the results of these tests. The coefficient on *CORE x POST* is negative and significant at the 5% level on a two-tailed test indicating that interlocked firms in the subsample of fraud cases related to earnings manipulations report lower levels of discretionary accruals in the post-period relative to the pre-period. The marginal effect of the interaction term is -0.026. This indicates that a shift from the non-core subsample to the core subsample is on average associated with a 0.026 unit decrease in the levels of discretionary accruals (2.6% of firm's total assets). Interestingly, the coefficient on *POST* is positive and weakly significant suggesting that the effect of *POST* on discretionary accruals for the non-core sample (if *CORE* is 0) is positive. The signs of the coefficients on the control variables are generally as expected. The coefficient on *ROA* is positive and significant consistent with prior findings that more profitable firms record higher levels of discretionary accruals. The coefficient on *SIZE* is negative as predicted by theory, but is significant only in the model presented in Column [1]. A possible explanation is that there is not much variation in terms of size for the firms included in the sample. The same holds true also for *BIG_N* and *M&A*. A closer examination of these variables (untabulated) indicates that their variance is considerably lower than the variance of a sample containing all Compustat firms for the same years. The coefficient on *LOSS* is negative and significant consistent with the notion that firms experiencing losses shift certain expenses to the current period in order to increase profitability in future periods. *GROWTH* is positive and significant as documented by Lee, Li, and Yue (2006). Finally, the coefficient on operating cash flows (*CFO_TA*) is negative and significant.

Next Table 1.6, column [3] presents the results of the estimation of (2) with *HIGH_PUBLICITY* and the interaction between *HIGH_PUBLICITY* and *POST* as additional

variables to test the High Publicity hypothesis. I argue that if the High Publicity hypothesis holds, directors involved in highly publicized fraud events (as proxied by the number of media mentions of the name of the investigated firm in combination with "fraud") will be most concerned about the potential reputation loss. They will exert more effort in their monitoring activities at other firms to influence the perceptions of the stakeholders consistent with the theory of impression management. The coefficient on the interaction variable is negative, but not significant, thus failing to provide support for the High Publicity hypothesis. The signs and magnitude of the control variables are similar to the previous results. One possibility for this unexpected result is that these board members might be overly occupied with the SEC investigation at the allegedly fraudulent firms and not have enough time for their duties at the non-investigated firm. The highly publicized event might require immediate action to resolve the matter and to strengthen the internal controls at the fraudulent firm. These pressures would likely be lower and even non-existent for events that do not attract considerable media attention. In fact, anecdotal evidence suggests that boards and audit committees of certain firms meet considerably more often after the revelation of financial misstatement or fraud[16]. If this is the case, it could negate the effect of reputation loss threat and explain the non- significant coefficient on the variable.

Overall, the initial analysis suggests that the Information hypothesis holds i.e. board members become well aware of the interest of the SEC in earnings manipulation practices and try to avoid them, which is evidenced by the use lower levels of discretionary accruals in the

[16] For example, the 2003 DEF 14A filing of Del Global Technologies Corp. available on SEC Edgar reports that its board met 26 times and its audit committee met additional 11 times in the fiscal year ended 2 August 2003 while the SEC was investigating the firm. The SEC issued the first AAER against the firm and some of its senior executives on 1 June 2004.

following year (t+1) [17].

Next, I repeat the previous analysis but only with the *CORE* and *CORE x POST* variables to test the sensitivity of the previously reported results to different measures of earnings management. Table 1.7 reports the results of the additional analysis. Column [1] is the same as column [2] in Table 1.6 and serves as the benchmark to which to compare the results of the other model specifications. The coefficient on the interaction variable is negative and significant at least at the 5% level (two-tailed tests) across all model specifications. The sign and magnitude of the coefficients on the control variables are also similar to the ones reported for the benchmark model (column [1]). Thus, the subsequent analysis provides further support for the Information hypothesis. It is interesting to observe that the coefficient on *CORE* is positive and significant in two out of the four regressions suggesting that the *CORE* sample had higher levels of discretionary accruals than the non-*CORE* sample in t-1. This evidence is consistent with the evidence provided by Chiu et al. (2013) who suggest that earnings management is "contagious" i.e. if a firm is involved in some form of earnings management, then firms connected to it are more likely to be involved in earnings management.

I also test the sensitivity of the results to using different proxies for the control variables. For example, I use the natural logarithm of market value (*SIZE_MKT*) to proxy for size, the return on equity (*ROE*) to proxy for profitability and long-term debt to total assets (*DEBT_TA*) to proxy for financial leverage. The results (untabulated) confirm the previously reported results

[17] As noted in Footnote 2, 11.9% of the board members in the sample lose additional board seats by the end of year t+1 and 8.7% in t+2. In the analysis presented here, I consider the firms as connected if they shared a board member during t+1 without requiring that they remained in the firm by the end of the fiscal year. This is because both the Information and the High Publicity hypotheses argue that all board members and not just the connecting board members will have incentives to act. Consistent with this notion, the results (untabulated) remain qualitatively and quantitatively unchanged if I restrict the sample to only connecting firms where the connecting director served on the connected firm's board at the end of fiscal year t+1.

and are even more robust.

1.4.7. Robustness checks

I conduct a series of robustness checks to investigate whether the results are driven by some other events or do not hold under different model specifications. First, I conduct a difference-in-difference analysis, which compares the level of discretionary accruals before and after the event for the connected firms and a matched control sample of firms. Second, I repeat the time-series analysis using firm- and year- fixed effects instead of industry-and year-fixed effects to test whether the results are sensitive to non-observable firm-specific characteristics. The different checks and the results are described in more detail below.

1.4.7.1 Difference-in-differences approach

To confirm the robustness of the results to different methods, I conduct a difference-in-difference analysis where each firm in the connected firms sample is matched to one firm from a control sample using coarsened exact matching. This research design also alleviates concerns that the results are driven by other events such as the concentration of SEC enforcement activity in a specific industry i.e. industry contagion effect (e.g. Jennings et al., 2011; Schenck, 2012). The control sample includes publicly traded firms on Compustat with network data available on BoardEx that are not included in the sanctioned group or the connected firm group, i.e. they have not been subject to LRs, APs, or AAERs and are not connected to an investigated firm during the SEC investigation. Further, I eliminate firms without available data on total assets (*at*), operating cash flow (*oancf*), net revenue (*sale*), and income before extraordinary items (*ib*) on Compustat. Consistent with prior studies that use discretionary accruals to approximate earnings quality, I eliminate financial services and utilities firms (with Standard Industry Classification

codes 6000-6999 and 4900-4999 respectively). Additionally, I exclude firms without two consecutive years of financial data, because their earnings quality cannot be estimated reliably. This procedure yields a final sample of 54,683 firm-year observations available for matching to the interlocked firms. Importantly, I assume that the control sample consists of firms that are "untainted" i.e. their financial practices are unaffected by financial fraud allegations or SEC investigations[18].

Next, I match each firm from the connected firm sample to a firm from the control sample. I use coarsened exact matching (CEM) technique to match each connected firm with one control firm by industry (48 Fama-French industry classification; Fama and French, 1997), size (natural log of total assets), and profitability (return on assets) in year t-1[19]. I cannot identify appropriate matches for 42 of the interlocked firms. Summary descriptive statistics (untabulated) suggest that there are no significant differences between the treatment and control firm samples in terms of the dependent variables and the control variables in year t-1.

The regression model is as follows:

$$Earnings\ Management_{i,t} = \beta_0 + \beta_1 POST_i + \beta_2 CONN_i + \beta_3 CORE_i + \beta_4 POST_i \times CONN + \beta_5 POST_i \times CORE_i + \beta_6 CORE_i \times CONN_i + \beta_7 POST_i \times CONN_i \times CORE_i + \Sigma \beta_j Controls_{i,t} + \varepsilon_{i,t} \quad (3)$$

where $Earnings\ Management_{i,t}$ is the signed measure of abnormal discretionary accruals for firm i in time t estimated using one of four alternative methods as described above. $POST_i$ is

[18] While I explicitly exclude firms that are included in the sanctioned sample from the control sample to mitigate such concerns, it is possible that the Department of Justice or other regulatory body had previously brought actions against firms in the control sample, which might have influenced their accrual management practices (Karpoff et al., 2014). Thus, I base the key inferences in this paper predominantly on the time series analyses, which include the connected firm sample only, while the difference-in-difference analysis is utilized to complement the results of the time series analyses.

[19] I use the cem program in Stata (See Iacus, King, & Porro, 2009)

an indicator variable equal to 1 for firm i in t+1 and 0 in t-1. $CONN_i$ is an indicator equal to 1 if firm i is connected to an investigated firm during the SEC investigation process, which I define as the time period between the first announcement of SEC investigation initiation and the first issuance of AAER (or LR), and 0 otherwise. $CORE_i$ is an indicator equal to 1 if firm i is connected to a firm allegedly involved in intentional manipulation of operating earnings. The $CONN_i$ variable is 0 for all firms in the control sample by definition. The triple interaction of $POST_i$, $CONN_i$, and $CORE_i$ is of key interest. The model is estimated using OLS regression with year- and industry-fixed effects. To account for the possibility that the error terms of observations involving the same firm are not independent, I cluster the standard errors by firm.

The results of the regression are presented in table 1.8. I find that the coefficient on the triple interaction of $POST_i$, $CONN_i$, and $CORE_i$ is negative and significant across all measures of accrual earnings management supporting prior findings that for the connected firm sample, the level of accruals is lower if an interlocked firm is investigated for earnings manipulations in support of the Information hypothesis. Interestingly, the coefficient on the interaction of $POST_i$ and $CONN_i$ is positive and significant in two of the model specifications (Columns [1] and [2]) similarly to the results presented in table 1.7 indicating that in cases not including operating earnings manipulations to deceive investors, connected firms exhibit higher levels of accruals. These results suggest that the connected firms learn that the SEC is sanctioning e.g. internal control deficiency or disclosure issues (rather than earnings manipulations) and focus on addressing these issues if present rather than accrual earnings practices. The signs of the coefficients on the control variables are generally consistent with the previous analysis and prior

studies (Healy and Wahlen, 1999)[20]. The coefficient on *BIG_N*, which is an indicator for whether the firm is audited by a big N (4 or 5) audit firm is negative as expected but not significant, which is mostly because there is not a significant variation in the variable across the firms included in the connected and control sample. A closer look at the descriptives (untabulated) indicates that 91.6% of the connected firm sample and 87.4% of the control firm sample are audited by a big N audit firm.

1.4.7.2. Firm-fixed effects model specification

To address concerns that the results are driven by unobservable time-invariant firm characteristics, I re-estimate (2) with firm- and year- fixed effects instead of industry- and year-fixed effects. The results are presented in Table 1.9. The coefficient on the interaction of $POST_i$, and $CORE_i$ is negative and significant across all four measures of earnings management confirming the findings presented in Tables 1.6 and 1.7 that firms, whose directors sit on the boards of firms investigated for operating earnings manipulations, exhibit lower levels of accrual earnings management in the *POST* period. The coefficient on $CORE_i$ is not reported, because it is fully absorbed by the firm fixed effects. The coefficients on the control variables are similar in magnitude and significance to the results discussed previously.

1.4.8 Additional Analysis:

1.4.8.1. The Enactment of SOX

The Sarbanes-Oxley Act (SOX) of 2002 was prompted by a surge in corporate scandals at the turn of the century to restore investors' trust and strengthen corporate governance. The

[20] It is important to note that although the control sample is matched on industry, size, and profitability, the coefficients on profitability and size are significant in the regressions. The reason is that I use coarsened exact matching which does not match firms exactly, but assigns firms to strata and looks for the best match within the stratum, while still allowing some variation in terms of the continuous variables on which the matching is based.

enactment of SOX and its consequences for firms' financial reporting practices have been studied extensively. While the Act increases the burden on publicly-traded firms (Engel et al., 2007; Zhang, 2007), it also enhances the transparency and reliability of financial information (e.g. Cohen et al., 2008).

SOX also has important implications for the boards and committee members. It considerably increased directors' workload, responsibilities, and personal liability in case of corporate governance failure. Given the increased liability under SOX, board members of connected firms might be much more concerned about ensuring the integrity of financial statements after the enactment of SOX than before. If this were the case, the results documented earlier would be much more robust if year t+1 is after SOX than if it is before. To test this assertion, I split the sample in two groups depending on whether t+1 is before or after 2002.

The results are presented in Table 1.10. The coefficient on *POST x CORE* is negative for both subsamples, but is significant (at the 5% level on a two-tailed test) only for the subsample of firms for which t+1 is after 2002 suggesting that observations after the enactment of SOX drive the previously reported results. The signs and the coefficients of the control variables are qualitatively similar to the ones reported in Tables 1.6 and 1.7.

1.4.8.2. Quantile regression

The analysis presented hitherto is conducted using ordinary least squares (OLS) estimation and the main focus is on the conditional mean of the dependent variable. However, the effect of the independent variable could differ for different quantiles of the dependent variable i.e. it is possible that the coefficient of interest differs for different levels of earnings management. More specifically, I expect that the effect is stronger for the higher tail of the

earnings management distribution than the lower tail. To explore this possibility, I conduct additional analysis using quantile regression (Koenker and Bassett, 1978, 2001). The results (untabulated) indicate that the effect is significantly higher for the 75th quantile than for the 25th quantile. This evidence suggests that the firms with higher than the median levels of earnings management are more likely to act strategically and reduce the levels of discretionary accruals than firms with lower levels.

1.4.8.3. Corporate governance

Prior studies suggest that firms strengthen their corporate governance mechanisms following reputation loss to regain investor confidence and increase the credibility of their financial statements. For example, Farber (2005) shows that firms previously involved in accounting scandals had weaker corporate governance characteristics when the fraud was committed, but took action and improved their corporate governance in the three years following the revelation of the fraud. To my knowledge, there is no evidence whether firms strengthen their corporate governance mechanisms following allegations of financial fraud at an interlocked firm. However, the results presented thus far suggest that firms change their financial reporting behavior following such allegations if the fraud involved manipulations of operating earnings. If the allegations of financial fraud indicate corporate governance failure, then improving the corporate governance mechanisms will reduce the risk of financial fraud at the connected (non-investigated) firm and will mitigate the negative reputation spillover effects. To test whether there is improvement in the corporate governance mechanisms, I hand collect data on board and audit committee meetings to observe changes in the activity of board and audit committee members and data on the independence of board members for the firms in the *CORE* earnings

subsample from firms' proxy statements. Table 1.11, Panel A presents the descriptive statistics. On average, directors met 7.497 times in t-1 and 7.815 times in t+1. The difference is significant at the 10% level. In t-1, the audit committee members met 5.514 times, while the average number of meetings was 7.152. The difference in means between t-1 and t+1 is significant at the 1% level. Finally, on average, the majority of directors both in t-1 and t+1 were independent as required by the listing requirements of the NYSE and Nasdaq and SOX (74.4% in t-1 and 78.3% in t+1). The difference in the independence percentage is significant at the 1% level.

While the descriptive statistics provide some preliminary evidence of greater number of board and audit committee meetings and higher percentage of independent directors in t+1 versus t-1, it is possible that the observed difference is due to changes in firm size or profitability. To account for such possibility, I regress the number of board meetings (*bdmtgs*), audit committee meetings (*audmtgs*), and board independence percentage (*pct_indep*) respectively on POST and the full set of control variables from (1) on the CORE earnings subsample of firms (with *CORE*=1) . The results are presented in Table 11, Panel B. After controlling for the full set of controls, year and firm fixed effects, I document significantly higher number of audit committee meetings (β_1= 0.659, p<0.001) and higher percentage of independent directors (β_1= 0.023, p<0.001) in year t+1 versus t-1. Generally, more active audit committees are also more effective in fulfilling their monitoring functions (Farber, 2005). Additionally, prior studies have established that more independent boards serve as better monitors (e.g. Beasley, 1996). Taken together, these results indicate that the corporate governance of connected firms improves in t+1, which is one potential mechanism through which the earnings quality of the connected firms improves as documented in the previous

sections. However, the coefficient on *POST* in the regression with board committee meetings is positive but not significant suggesting that after accounting for a number of factors, the board members of the connected firms do not meet more often in t+1.

1.4.8.4. Persistence of the effect

In the prior sections, I show that firms exhibit lower levels of accruals in year t+1 if the firm to which they are connected through a board interlock is investigated for earnings manipulations. An interesting question to address is whether SEC investigation at a connected firm has a transitory effect on non-investigated firm's practices or persists also in the following fiscal year. To that end, I compare the levels of discretionary accruals in year t-1 to the ones in t+2 (i.e. *POST* is 0 in t-1 and 1 in t+2). The results are presented in Table 1.12. Overall, I the regression results provide only a partial support that the results persist in t+2. The coefficient on *POST x CORE* is negative, but significant only at the 10% level suggesting that not all firms in the CORE subsample continue to report higher quality earnings also in the second year after the revelation of SEC investigation (Table 1.12, Column 1). Interestingly, more thorough analysis shows that the level of accruals is considerably lower for firms in the subsample that share a board interlock with the investigated firm (β_7= -0.083, p= 0.049; Table 1.12, Column 2). This might be the case, because connections to fraudulent firms through audit committee members draw greater public attention and put more pressure on involved directors. Additionally, audit committee members involved with a fraudulent firm may experience higher threat of reputation loss and be more likely to exert additional monitoring effort following SEC enforcement at other firms on whose boards they are serving, which is reflected in a lower level of accrual earnings management. The results presented here suggest that audit committee members are concerned

about reputational loss and try to signal to investors the integrity of the interlocked firm by reporting lower discretionary accruals even in subsequent periods. This is not surprising especially given the increased activity of the audit committee reported in Table 1.11, Column 2. This argument is consistent with the impression management theory (e.g. Bolino et al. 2008). However, the results should be interpreted with caution, because it is possible that other events influenced the levels of earnings management for the firms in the sample in t+2 that might add more noise to the estimation.

1.5.Conclusion

The main goal of this research project is to examine whether firms change their financial reporting policies if a firm to which they are connected to by a board interlock is involved in a fraudulent financial reporting practices and sanctioned by the SEC. I propose two alternative hypotheses that explain why and how firm's earnings management practices change following the initiation of SEC enforcement. According to the Information hypothesis, better information about the SEC investigation process and the consequences to investigated firms increases the perceived costs of fraudulent financial reporting and leads to lower incentives to manage earnings. Moreover, directors learn which practices are investigated by the SEC and try to reduce/avoid them at connected firms. The High Publicity hypothesis is based on the notion that directors acting as effective monitors accumulate reputation capital and are rewarded by the labor market with additional board seats (i.e. Fama and Jensen, 1983; Shivdasani and Yermack, 1999; Coles and Hoi, 2003). Drawing on these contributions, I argue that directors' incentives to monitor managerial financial reporting depend on the perceived loss of reputational capital in

case of corporate governance failure, which is higher for high publicity cases.

I test these hypotheses on a sample of firms connected through a board interlock to a firm investigated by the SEC during the time of the investigation. The results of the main analysis provide support for the Information hypothesis, because I observe lower levels of discretionary accruals for the subsample connected to a firm investigated for intentional manipulations of reported earnings suggesting that the common director communicates to fellow board members the practices scrutinized closely by the SEC . The results remain robust to using different measures of discretionary accruals, different methodologies, and models. Additional analysis suggests that the results persist also in year t+2 but the result is only weakly significant and is mostly driven by firms sharing an audit committee member with the fraudulent firm. Finally, I also document higher number of audit committee meetings and increased percentage of independent directors in year t+1 suggesting that the connected firms take effort to strengthen their corporate governance mechanisms, which could serve to improve their reputation and increase the credibility of the reported financial information. Moreover, improved corporate governance mechanisms could explain the lower levels of earning management in t+1.

Taken together, the evidence provided in this paper suggests that there are changes in firm's financial reporting practices following the announcement of SEC investigation of a connected firm. More specifically, I document lower levels of accrual earnings management most consistent with the Information hypothesis.

This study makes several contributions to prior literature. First, it adds to the literature on negative reputation spillover effects of firm's networks. Several studies document that material adverse effects such as restatements (Srinivasan, 2005), class-action lawsuits (Fich and

Shivdasani, 2007) and SEC investigations (Kang, 2008) of a firm have negative effects on connected firms in terms of negative stock market reaction. However, to my knowledge, this is the first study providing evidence as to whether interlocked firms react to mitigate this negative spillover effect. Second, this study contributes to the literature on earnings management by suggesting that SEC scrutiny at related firms is an additional factor that affects the level of discretionary accruals and indirectly the value relevance of financial reports. An important practical implication relevant for both investors and regulators is that SEC scrutiny may serve to protect not only the interests of investors of the investigated firm, but also indirectly the interests of investors of connected firms.

The study also has certain caveats. I focus on specific negative events and namely SEC investigations. SEC enforcement actions are rare and the SEC investigates mostly high profile egregious cases of financial fraud (Agrawal and Chadha, 2005; Fich and Shivdasani, 2007; Dechow et al., 2010). Thus, my results cannot be generalized to other negative events. For example, a restatement or unsuccessful acquisition deal might not influence the financial reporting or the strategic behavior of interlocked firms.

Finally, the results indicate that for the subsample of cases not involving allegations of earnings manipulations but rather insufficient disclosure or ineffective internal controls, the connected firms actually report slightly higher levels of discretionary accruals in some of the models. I propose that consistent with the Information hypothesis, the board members of these firms might act to improve disclosure or internal control practices after becoming knowledgeable that the SEC scrutinizes these practices and pay less attention to the earnings management

practices[21]. However, I do not have sufficient evidence to observe whether these firms improve their disclosure in the subsequent period. Future studies can examine whether these firms strengthen their disclosure practices and/or internal controls.

[21] As previously noted, I do not argue that higher accruals indicate fraudulent behavior, but rather that lower levels of discretionary accruals increase the quality of the reported earnings and help investors make more informed decisions (See Dechow et al., 2010 for a review of the earnings quality proxies and the literature on the determinants and consequences of earnings management).

TABLES AND FIGURES

FIGURE 1.1
The timeline of SEC enforcement actions (Karpoff et al., 2008a)

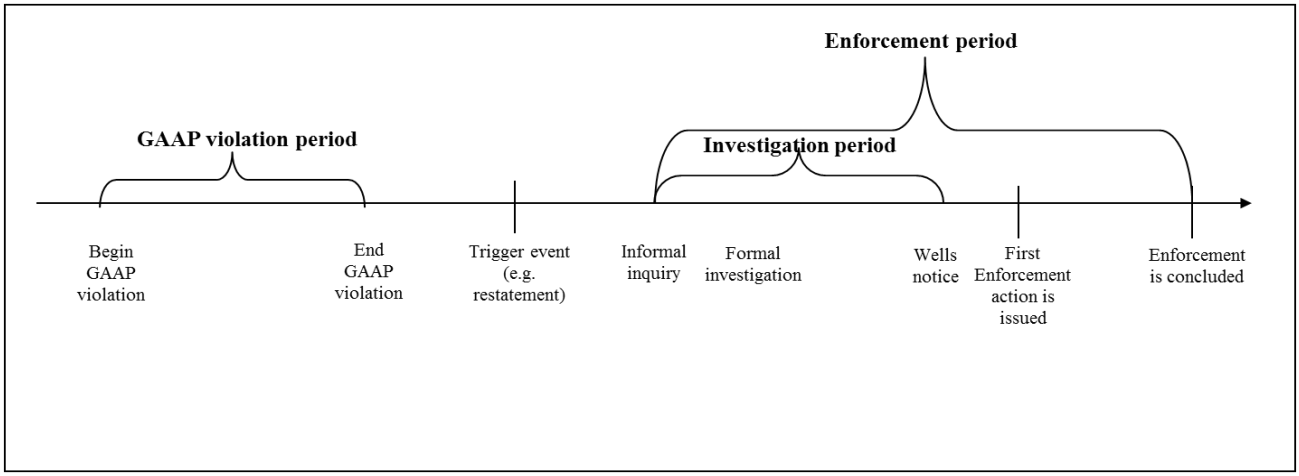

TABLE 1.1

Variable Descriptions

Variable Name	Definition[22]
POST	Indicator variable=1 in the year after the initiation of an investigation is publicly disclosed and 0 otherwise.
CORE	Indicator variable=1 if connected to a firm involved in manipulation of core operating earnings and 0 otherwise.
HIGH_PUBLICITY	The natural logarithm of times mentioned in press in connection to fraud. *Factiva*
DA_Jones	Discretionary earnings management estimated as the residuals of the regression of the following model (Dechow et al., 1995): $ACCR_{it} = \beta_0 + \beta_1(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_3 PPE_{it} + \varepsilon_t$ where ΔRev_t is change in revenues, ΔRec_t is the change in accounts receivable from previous year and PPE_t is the gross property, plant and equipment in year t. All variables are deflated by beginning total assets (*at*); *Compustat*
DA_Kothari	Discretionary earnings management estimated as the residuals of the regression of the following model (Kothari et al., 2005): $AACCR_{it} = \beta_0 + \beta_1(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_2 PPE_{it} + \beta_3 ROA_{it-1} + \varepsilon_{it}$ where ΔRev_t is change in revenues, ΔRec_t is the change in accounts receivable from previous year, ROA_{t-1} is the lagged return on assets, and PPE_t is the gross property, plant and equipment in year t. All variables are deflated by beginning total assets (*at*) except ROA; *Compustat*
DA_REDCA	Discretionary earnings management estimated as the residuals of the regression of the following model (Ashbaugh et al., 2003; Kothari, 2002): $ACCR_{it} = \beta_0 + \beta_1(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_3 ROA_{it-1} + \varepsilon_{it}$ where ΔRev_{it} is change in revenues, ΔRec_{it} is the change in accounts receivable from previous year and ROA_{it-1} is the lagged return on assets. All variables are deflated by beginning total assets (*at*) except ROA; *Compustat*
DA_BS	Discretionary earnings management estimated as the residuals of the regression of the following model (Ball and Shivakumar, 2006): $ACCR_{it} = \beta_0 + \beta_1(\Delta Rev_{it}) + \beta_2(PPE_{it}) + \beta_3(CFO_{it}) + \beta_4(DCFO_{it}) + \beta_5(CFO_{it} * DCFO_{it}) + \varepsilon_{it}$, where ΔRev_{it} is change in revenues, PPE_{it} is the gross property, plant, and equipment, CFO_{it} is the cash from operations, and $DCFO_{it}$ is an indicator variable

[22] Where possible, Compustat mnemonics are indicated in parentheses. The data sources are indicated in italics.

	equal to 1 if CFO_{it} is negative and 0 otherwise. All variables are deflated by beginning total assets (A_{it-1}). *Compustat*
LAG_DA	The lagged value of DA_Jones, DA_Kothari, DA_REDCA, or DA_BS.
SIZE	Natural logarithm of firm's total assets (*at*) in year t; *Compustat*
SIZE_MKT	Natural logarithm of firm's market value (*prcc_f*csho*) in year t. *Compustat*
CFO_TA	Operating cash flows (*oancf*) less cash flows from discontinued operations (*xidoc*) in year *t* scaled by lagged total assets (*at*); *Compustat*
ROA	Income before extraordinary items (*ib*) divided by lagged total assets (*at*); *Compustat*
FinLev	Total assets (*at*) to book equity (*ceq+ txdb- dvp*); *Compustat*
New Financing	Indicator variable=1 if long-term debt (*dltis*) or equity (*sstk*) was issued during the year; *Compustat*
GROWTH	Natural logarithm of sales in t to sales in t-1 (sale); *Compustat*
TOBINQ	Market value of assets / book value of assets ((*cshoc * prccd - ceq + at-txdb)/at*); *Compustat*
LOSS	Indicator variable = 1 if a firm reported a loss (*ni<0*) in year *t*, and 0 otherwise; *Compustat*
BIG_N	Indicator variable = 1 if a firm's financial statements were audited by a BIG N auditor in year t, and 0 otherwise; *Compustat*
CONN	Indicator variable = 1 if the firm was connected to an investigated firm during the investigation period; *BoardEx*
M&A	Indicator variable =1 if a firm had reported a merger or acquisition during the year (*compst*); *Compustat*
MKT/BOOK	Market-to-book ratio; *Compustat*
AUC_Interlock	Indicator variable=1 if common director serves on the audit committees of the investigated firm and the connected firm during the investigation period and 0 otherwise. *BoardEx, Proxy Statements*

TABLE 1.2
Enforcement action (EA) sample: number of firms per year.

Year	Number of EA firms in the sample (fiscal year)[23]	Number of EA firms in the sample (calendar year)
1999	29	34[24]
2000	34	37
2001	33	31
2002	54	62
2003	62	64
2004	54	50
2005	51	43
2006	39	41
2007	49	49
2008	37	39
2009	42	43
2010	31	28
2011	26	23
2012	21	26
2013	27	20
2014	18	17
Total	**607**	**607**

[23] Fiscal year t refers to the period between October, Year t-1 to October, Year t.
[24] Includes two enforcement actions that were filed in the second half of December 1998 and were included in the final sample.

TABLE 1.3
Sample Selection

	Interlock Sample Selection criteria		
		Deleted	**Remaining**
(1)	All firms identified as connected to an investigated firm[25]		1977
(2)	Less firms that are not covered in Compustat	85	1892
(3)	Less firms with missing fundamental data e.g. earnings, total assets, total liabilities stock outstanding, stock price	109	1783
(3)	Less firms in finance & utilities industries (sic codes 6000-6999 and 4900-4999)	302	1481
(4)	Less firms without fundamental data for at least two consecutive years.	23	1458
(5)	Less observations without estimate for earnings management in either the pre period (1 year before the investigation announcement) or post period (1 year after investigation announcement)	482	976
(6)	Less observations without lagged data on discretionary accruals and other control variables	131	845
(7)	Less firms included in the fraudulent firm sample	90	755
	Total unique firms		755
	Total firm-year observations		1,510
	Fiscal years		1998-2014

[25] Only the first observed instance of exposure to SEC investigation is included. Connections to subsidiaries via board interlocks are excluded from the analysis to avoid biasing the results.

TABLE 1.4

Descriptive Statistics

Connected firms sample

		PRE (Year t-1)		POST (Year t+1)			Difference	
Variable	Obs	Mean	St. Dev.	Obs	Mean	St. Dev.		
SIZE(ln Total Assets)	755	6.771	2.203	755	6.851	2.270	0.081	
SIZE (ln Market Capitalization)	755	6.739	2.308	755	6.710	2.452	-0.029	
ROA	755	-0.022	0.258	755	-0.022	0.202	0.000	
ROE	755	-0.048	1.167	755	0.017	1.588	0.065	
GROWTH	755	0.100	0.858	755	0.061	0.365	-0.039	
CFO_TA	755	0.062	0.195	755	0.061	0.195	-0.001	
MKT_BK	755	3.355	7.478	755	3.277	8.226	-0.082	
Tobin Q	755	2.092	1.771	755	2.052	2.150	-0.044	
FinLev	755	2.474	4.131	755	2.485	5.031	0.011	
New Financing	755	0.621	0.485	755	0.600	0.490	-0.021	
LOSS	755	0.347	0.476	755	0.336	0.472	-0.012	
BIG_N	755	0.902	0.298	755	0.886	0.318	-0.016	
MA	755	0.204	0.403	755	0.164	0.371	-0.040	**
AUC_interlock	751	0.353	0.478	751	0.353	0.478	-	
CORE	755	0.772	0.420	755	0.772	0.420	-	
HIGH_PUBLICITY	755	30.516	38.093	755	30.516	38.093	-	
DA_Jones	755	0.023	0.167	755	0.022	0.170	-0.001	
DA_Kothari	755	0.010	0.170	755	0.009	0.068	-0.001	
DA_BS	755	0.041	0.204	755	0.047	0.213	0.007	
REDCA	755	-0.015	0.161	755	-0.012	0.160	0.003	
LAG_DA_Jones	755	0.021	0.242	755	0.012	0.198	-0.008	
LAG_DA_Kothari	755	0.008	0.225	755	-0.002	0.173	-0.010	
LAG_DA_BS	755	0.041	0.267	755	0.030	0.219	-0.011	
LAG_REDCA	755	-0.015	0.221	755	-0.025	0.169	-0.010	

TABLE 1.5

Pearson (bottom)/Spearman (top) Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(1) SIZE_AT	1	**0.898**	**0.288**	**0.287**	**0.096**	**0.304**	**0.104**	**-0.085**	**0.391**	**0.327**	**-0.322**	**0.343**	**0.100**	0.020	0.001	**0.265**	0.004	**-0.104**	**-0.060**	**-0.099**	**0.064**	-0.016	**0.062**	-0.027
(2) SIZE_MKT	**0.875**	1	**0.437**	**0.359**	**0.196**	**0.424**	**0.396**	**0.266**	**0.234**	**0.203**	**-0.415**	**0.331**	**0.114**	0.050	0.015	**0.246**	0.027	**-0.115**	-0.003	**-0.100**	**0.065**	-0.037	**0.082**	-0.045
(3) ROA	**0.366**	**0.341**	1	**0.756**	**0.311**	**0.702**	**0.354**	**0.316**	-0.019	0.002	**-0.797**	**0.059**	0.040	**0.111**	0.030	**0.084**	**0.240**	0.038	**0.267**	**0.053**	**0.067**	**-0.081**	**0.095**	**-0.071**
(4) ROE	**0.146**	**0.109**	**0.241**	1	**0.201**	**0.492**	**0.250**	**0.303**	0.034	**0.080**	**-0.622**	0.014	0.003	**0.052**	0.047	**0.095**	**0.151**	0.034	**0.225**	**0.062**	0.051	-0.02	**0.118**	-0.008
(5) GROWTH	0.023	**0.068**	-0.004	-0.031	1	**0.220**	**0.255**	**0.250**	-0.019	0.007	**-0.252**	0.029	**0.217**	**0.100**	0.002	0.019	**0.063**	**0.054**	**0.088**	**0.094**	0.031	-0.005	**0.069**	0.003
(6) CFO_TA	**0.355**	**0.329**	**0.827**	**0.180**	-0.026	1	**0.289**	**0.243**	-0.013	0.030	**-0.573**	**0.105**	**0.060**	**0.081**	0.014	**0.086**	**-0.087**	**-0.230**	0.014	**-0.348**	**0.088**	**-0.078**	**0.108**	**-0.111**
(7) MKT_BK	-0.038	**0.097**	**-0.067**	**-0.098**	**0.069**	**-0.060**	1	**0.781**	**0.229**	**-0.083**	**-0.235**	0.049	0.046	**0.051**	0.039	0.034	**0.097**	0.016	**0.144**	0.016	0.006	-0.043	**0.056**	-0.033
(8) TOBIN Q	**-0.235**	**0.063**	**-0.274**	**-0.077**	**0.073**	**-0.180**	**0.351**	1	**-0.228**	**-0.174**	**-0.154**	-0.033	0.033	0.048	**0.069**	0.003	0.050	0.007	**0.148**	0.019	-0.024	**-0.056**	**0.057**	-0.042
(9) FinLev	**0.092**	**0.075**	0.010	**-0.326**	0.009	0.002	**0.657**	-0.015	1	**0.325**	**-0.068**	**0.130**	0.020	0.010	-0.005	**0.088**	0.038	0.025	-0.037	0.005	0.001	0.016	-0.007	0.016
(10) New Financing	0.319	**0.200**	0.049	**0.053**	0.008	**0.051**	-0.029	**-0.138**	**0.062**	1	**-0.053**	**0.111**	**0.075**	-0.002	0.039	**0.097**	0.040	0.007	-0.036	-0.025	0.067	0.050	0.014	0.019
(11) Loss	**-0.337**	**-0.414**	**-0.561**	**-0.203**	-0.033	**-0.465**	-0.012	0.015	-0.029	**-0.052**	1	**-0.103**	-0.034	**-0.079**	-0.038	**-0.111**	**-0.198**	-0.041	**-0.227**	**-0.062**	**-0.066**	0.050	-0.086	**0.054**
(12) BIG_N	**0.370**	**0.346**	**0.120**	0.028	-0.002	**0.110**	-0.016	**-0.096**	0.028	**0.105**	**-0.110**	1	**0.088**	-0.029	**0.091**	**0.102**	-0.001	-0.014	0.006	-0.028	-0.016	-0.039	0.041	-0.047
(13) MA	**0.106**	**0.115**	0.021	0.019	**0.075**	0.041	0.027	-0.001	0.018	**0.075**	-0.036	**0.091**	1	0.043	0.003	0.026	-0.017	-0.037	-0.003	-0.040	0.005	-0.024	0.040	-0.029
(14) AUC_Interlock	0.023	0.046	**0.075**	0.022	0.038	**0.067**	0.002	-0.009	-0.004	-0.002	**-0.079**	-0.029	0.043	1	0.038	0.019	-0.019	-0.007	0.017	0.014	-0.001	-0.011	0.031	0.009
(15) CORE	-0.013	0.010	0.012	0.029	-0.018	0.009	0.003	**0.058**	-0.043	0.039	-0.035	**0.085**	0.001	0.038	1	**-0.056**	0.034	**0.051**	0.018	0.044	0.000	0.025	0.007	-0.001
(16) HIGH_Publicity	**0.247**	**0.233**	0.041	-0.007	-0.001	0.047	0.036	0.006	0.047	**0.097**	**-0.113**	**0.106**	0.028	0.019	**-0.058**	1	-0.049	**-0.052**	-0.019	-0.044	0.010	0.016	0.016	0.002
(17) DA_Jones	0.048	**0.068**	**0.406**	**0.090**	0.027	0.032	0.022	**-0.114**	**0.054**	0.040	**-0.217**	0.033	-0.021	-0.007	0.015	-0.034	1	**0.766**	**0.564**	**0.605**	**0.198**	**0.138**	0.112	**0.095**
(18) DA_Kothari	**-0.089**	-0.067	**0.162**	0.035	**0.071**	**-0.214**	**0.058**	-0.049	0.049	0.001	**-0.070**	0.009	-0.017	-0.008	0.026	**-0.053**	**0.792**	1	**0.488**	**0.838**	-0.003	0.048	-0.024	0.036
(19) DA_BS	-0.036	0.003	0.048	**0.072**	**0.088**	**-0.256**	**0.052**	-0.019	0.033	-0.019	**-0.161**	0.023	-0.021	0.024	0.003	-0.027	**0.614**	**0.611**	1	**0.423**	**0.112**	0.043	**0.164**	0.018
(20) REDCA	**-0.084**	**-0.053**	**0.162**	0.045	**0.076**	**-0.259**	0.044	-0.047	0.029	-0.023	**-0.085**	-0.003	-0.006	0.008	0.026	-0.040	**0.699**	**0.921**	**0.586**	1	-0.050	0.021	**-0.056**	0.042
(21) LAG_DA_Jones	**0.090**	**0.079**	**0.134**	**0.085**	-0.028	**0.142**	**-0.062**	**-0.072**	-0.037	0.013	**-0.093**	0.012	-0.004	-0.006	0.003	0.040	**0.161**	**-0.109**	0.031	**-0.137**	1	**0.819**	**0.622**	**0.664**
(22) LAG_DA_Kothari	-0.018	-0.015	**-0.070**	**0.060**	0.042	**-0.052**	-0.044	0.014	-0.034	-0.008	0.027	-0.035	-0.024	-0.024	0.019	0.026	**0.084**	**-0.098**	0.033	**-0.113**	**0.869**	1	**0.546**	**0.837**
(23) LAG_DA_BS	0.045	**0.051**	-0.016	**0.100**	0.003	0.000	-0.031	0.031	**-0.063**	-0.019	-0.047	0.027	0.010	0.006	0.011	0.036	**0.085**	**-0.094**	**0.120**	**-0.112**	**0.793**	**0.764**	1	**0.487**
(24) LAG_REDCA	-0.018	-0.009	**-0.080**	**0.073**	0.05	**-0.070**	-0.036	0.015	-0.034	-0.029	0.023	-0.046	-0.033	-0.011	0.003	0.019	**0.065**	**-0.107**	0.029	**-0.113**	**0.810**	**0.939**	**0.736**	1

Bold text indicates significance at the 5% level or better on a two-tailed test. All variables are described in Table 1.

TABLE 1.6: MAIN RESULTS

Time-series Analysis: PRE (t-1) and POST (t+1) (Connected Firms Sample)

(1) $EM = \beta_0 + \beta_1 POST + \Sigma\beta_i Controls + \varepsilon$ [1]

(2) $EM = \beta_0 + \beta_1 POST + \beta_2 Diff\_Variable + \beta_3 POST * Diff\_Variable + \Sigma\beta_i Controls + \varepsilon$ [2]-[3]

Dependent Variable		[1]	[2]	[3]
Earnings Management (EM)	***Expected Sign***	Main Model	Information Hypothesis	High Publicity Hypothesis
Intercept	?	0.555	-0.043	-0.019
		(0.179)	(0.067)	(0.065)
POST	?	**-0.026***	0.043*	0.010
		(0.015)	(0.021)	(0.010)
CORE	?		0.020	
			(0.016)	
HIGH_PUBLICITY	?			0.004
				(0.003)
*POST*CORE*	-		**-0.046****	
			(0.020)	
*POST*HIGH_PUBLICITY*	-			**-0.002**
				(0.004)
ROA	+	0.505***	0.622***	0.622***
		(0.078)	(0.078)	(0.078)
SIZE	-	-0.043*	-0.002	-0.003
		(0.024)	(0.003)	(0.003)
GROWTH	+	0.005	0.018**	0.019**
		(0.012)	(0.009)	(0.009)
FinLev	+	0.002	0.001	0.001
		(0.002)	(0.001)	(0.001)
CFO_TA	-	-0.949***	-1.042***	-1.045***
		(0.125)	(0.082)	(0.084)
TOBINQ	-	-0.009	0.000	-0.000
		(0.007)	(0.007)	(0.006)
New Financing	+	0.008	0.007	0.007
		(0.015)	(0.001)	(0.011)
LOSS	-	-0.090***	-0.094***	-0.094***
		(0.022)	(0.022)	(0.022)
BIG_N	-	-0.003	0.018	0.021
		(0.039)	(0.018)	(0.018)
MA	-	-0.006	-0.014	-0.015
		(0.016)	(0.022)	(0.011)
Lag_DA	?	-0.028	0.095***	0.090**
		(0.034)	(0.011)	(0.036)
Observations		1510	1510	1510
Industry Fixed Effects		NO	YES	YES
Year Fixed Effects		YES	YES	YES
Firm Fixed Effects		YES	NO	NO
Adj. R-squared			0.3459	0.3453
R-squared: within		0.3154	-	-
: between		0.0565	-	-
: overall		0.0892	-	-

The table displays the results from an OLS regression with the signed discretionary accruals as a dependent variable. The sample period is between 1998 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels of two-tailed tests, respectively. Robust standard errors clustered at the firm level are presented in brackets below the coefficients.

TABLE 1.7: SENSITIVITY TESTS

Time-series Analysis: Connected Firms Sample

$$EM = \beta_0 + \beta_1 POST + \beta_2 CORE + \beta_3 POST * CORE + \Sigma \beta_i Controls + \varepsilon$$

Dependent Variable		[1]	[2]	[3]	[4]
Earnings Management (EM)	***Expected Sign***	DA_BS	DA_Jones	DA_Kothari	REDCA
		Ball & Shivakumar (2006)	(Dechow et al, 1995)	(Kothari et al.,2005)	(Ashbaugh et al., 2003)
Intercept	?	-0.043	-0.039	-0.015	0.030
		(0.067)	(0.050)	(0.059)	(0.060)
POST	?	0.043*	0.036*	0.029*	0.025
		(0.021)	(0.028)	(0.016)	(0.019)
CORE	?	0.020	0.027**	0.026**	0.024
		(0.016)	(0.011)	(0.012)	(0.015)
POST*CORE	-	**-0.046****	**-0.041*****	**-0.034****	**-0.030****
		(0.020)	**(0.013)**	**(0.015)**	**(0.013)**
ROA	+	0.622***	0.832***	0.759***	0.786***
		(0.078)	(0.049)	(0.057)	(0.054)
SIZE	-	-0.002	-0.005**	-0.008***	-0.008***
		(0.003)	(0.002)	(0.002)	(0.002)
GROWTH	+	0.018**	0.001	0.011	0.010
		(0.009)	(0.006)	(0.008)	(0.008)
FinLev	+	0.001	0.002**	0.002*	0.006
		(0.001)	(0.001)	(0.001)	(0.008)
CFO_TA	-	-1.042***	-0.839***	-0.969***	-1.033***
		(0.082)	(0.047)	(0.056)	(0.050)
TOBINQ	-	0.000	0.002*	0.004	0.004
		(0.007)	(0.002)	(0.003)	(0.003)
New Financing	+	0.007	0.026***	0.016**	0.001
		(0.001)	(0.024)	(0.012)	(0.001)
LOSS	-	-0.094***	-0.006	-0.003	-0.004
		(0.022)	(0.012)	(0.012)	(0.011)
BIG_N	-	0.018	0.001	0.014	0.003
		(0.018)	(0.013)	(0.014)	(0.012)
M&A	-	-0.014	-0.009	-0.004	0.007
		(0.022)	(0.008)	(0.010)	(0.009)
Lag_DA	?	0.095***	0.105***	-0.067*	-0.088**
		(0.011)	(0.026)	(0.036)	(0.038)
Observations		1510	1510	1510	1510
Industry Fixed Effects		YES	YES	YES	YES
Year Fixed Effects		YES	YES	YES	YES
Firm Fixed Effects		NO	NO	NO	NO
Adjusted R-squared		0.3459	0.5155	0.4596	0.5523
Marginal effect POSTxCORE		0.026	0.014	0.008	0.005

The table displays the results from an OLS regression with the signed discretionary accruals as a dependent variable. The sample period is between 1996 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels of two-tailed tests, respectively. Robust standard errors clustered at the firm level are presented in brackets below the coefficients. Column [1] is the same as Table 6, column [2].

TABLE 1.8: ROBUSTNESS

Cross-sectional model: Difference-in-differences (Connected Firms & Control Sample)

$$EM_{it} = \beta_0 + \beta_1 POST_{it} + \beta_2 CONN_i + \beta_3 CORE_i + \ldots + \beta_6 POST_{it} * CORE_i * CONN_i + \Sigma \beta_i Controls_{it} + \varepsilon$$

		[1]	[2]	[3]	[4]
	Expected Sign	***DA_BS***	***DA_Jones***	***DA_Kothari***	***REDCA***
Earnings Management (EM)		***(Ball and Shivakumar, 2006)***	***(Dechow et al, 1995)***	***(Kothari et al.,2005)***	***(Ashbaugh et al., 2003)***
Intercept		0.086**	0.052	0.067	0.103**
		(0.044)	(0.045)	(0.043)	(0.041)
POST	?	-0.016	0.002	-0.000	0.002
		(0.018)	(0.12)	(0.015)	(0.031)
CORE	?	-0.022	-0.011	-0.003	0.004
		(0.014)	(0.012)	(0.014)	(0.012)
CONN	?	-0.049	-0.035	-0.029*	-0.021
		(0.071)	(0.015)	(0.016)	(0.014)
*POST*CORE*	?	0.026	0.006	0.004	0.001
		(0.021)	(0.014)	(0.017)	(0.015)
*POST*CONN*	?	0.065***	0.039**	0.038	-0.031
		(0.024)	(0.017)	(0.028)	(0.017)
*CORE*CONN*	?	0.048	0.048	0.041**	0.033**
		(0.029)	(0.165)	(0.017)	(0.054)
POST *CORE* CONN	**-**	**-0.076*** **	**-0.058*** **	**-0.049** **	**-0.043** **
		(0.028)	**(0.020)**	**(0.022)**	**(0.020)**
ROA	+	0.391***	0.503***	0.372***	0.390***
		(0.109)	(0.107)	(0.128)	(0.127)
SIZE	-	-0.001	-0.001	-0.003*	-0.004**
		(0.002)	(0.002)	(0.002)	(0.001)
GROWTH	+	0.024**	0.016*	0.024**	0.023**
		(0.010)	(0.009)	(0.011)	(0.011)
FinLev	+	0.000	0.001	0.000	-0.000
		(0.001)	(0.001)	(0.001)	(0.006)
CFO_TA	-	-0.904***	-0.743***	-0.815***	-0.865***
		(0.095)	(0.078)	(0.114)	(0.109)
TOBINQ	-	-0.003	-0.003	-0.004	-0.004
		(0.006)	(0.004)	(0.005)	(0.004)
New Financing	+	0.004	0.025***	0.016***	0.010*
		(0.008)	(0.006)	(0.006)	(0.005)
LOSS	-	-0.136***	-0.073***	-0.075***	-0.074***
		(0.019)	(0.018)	(0.018)	(0.018)
BIG_N	-	0.002	-0.008	-0.004	-0.006
		(0.012)	(0.108)	(0.106)	(0.009)
M&A	-	-0.005	-0.015**	-0.010	-0.002
		(0.008)	(0.007)	(0.008)	(0.007)
Lag_DA	?	0.079***	0.113***	-0.068**	-0.092***
		(0.025)	(0.021)	(0.027)	(0.030)
Observations		2852	2852	2852	2852
Industry Fixed Effects		YES	YES	YES	YES
Year Fixed Effects		YES	YES	YES	YES
Firm Fixed Effects		NO	NO	NO	NO
Adjusted R-squared		0.3241	0.4347	0.3499	0.4094

Table 1.8 Continued

The table displays the results from an OLS regression with the signed discretionary accruals as a dependent variable. The sample period is between 1998 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively for two-tailed tests. Standard errors clustered at the firm level are presented in brackets below the coefficient.

TABLE 1.9: ROBUSTNESS

Time-series Analysis: Connected Firms Sample with Firm Fixed Effects

$$EM = \beta_0 + \beta_1 POST + \beta_2 CORE + \beta_3 POST * CORE + \Sigma \beta_i Controls + \varepsilon$$

Dependent Variable	[1]	[2]	[3]	[4]
Earnings Management (EM)	***DA_BS***	***DA_Jones***	***DA_Kothari***	***REDCA***
	Ball & Shivakumar (2006)	***(Dechow et al, 1995)***	***(Kothari et al.,2005)***	***(Ashbaugh et al., 2003)***
Intercept	0.522***	0.362***	0.615***	0.559***
	(0.182)	(0.122)	(0.166)	(0.159)
POST	0.010	0.033**	0.020	0.015
	(0.022)	(0.015)	(0.017)	(0.265)
CORE	-	-	-	-
POST*CORE	**-0.043****	**-0.039*****	**-0.032****	**-0.027****
	(0.020)	**(0.014)**	**(0.023)**	**(0.013)**
ROA	0.559***	0.811***	0.747***	0.794***
	(0.079)	(0.051)	(0.068)	(0.055)
SIZE	-0.042*	-0.033**	-0.079***	-0.070***
	(0.024)	(0.016)	(0.061)	(0.019)
GROWTH	0.004	-0.003	0.014*	0.009
	(0.012)	(0.007)	(0.008)	(0.009)
FinLev	0.002	0.002	0.002	0.001
	(0.002)	(0.001)	(0.001)	(0.001)
CFO_TA	-0.948***	-0.859***	-0.928***	-0.976***
	(0.124)	(0.069)	(0.078)	(0.064)
TOBINQ	-0.009	-0.003	-0.005	-0.005
	(0.007)	(0.003)	(0.006)	(0.006)
New Financing	0.008	-0.012	0.017	0.015
	(0.015)	(0.011)	(0.011)	(0.010)
LOSS	-0.090***	-0.020	-0.043***	-0.034***
	(0.022)	(0.013)	(0.014)	(0.012)
BIG_N	-0.004	-0.009	0.035	0.032
	(0.040)	(0.015)	(0.028)	(0.027)
MA	-0.005	0.001	0.008	0.005
	(0.016)	(0.010)	(0.014)	(0.013)
Lag_DA	-0.026	0.029	-0.111***	-0.113***
	(0.035)	(0.020)	(0.039)	(0.014)
Observations	1510	1510	1510	1510
Industry Fixed Effects	NO	NO	NO	NO
Year Fixed Effects	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES
R-squared: within	0.3195	0.5447	0.5120	0.5832
: between	0.0686	0.2884	0.1214	0.1763
: overall	0.1050	0.3657	0.1680	0.2361

The table displays the results from an OLS regression with the signed discretionary accruals as a dependent variable. The sample period is between 1998 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, of two-tailed tests. Robust standard errors clustered at the firm level are presented in brackets below the coefficients.

TABLE 1.10: ADDITIONAL ANALYSIS

Time-series Analysis: Connected Firms Sample before and after SOX

$$EM = \beta_0 + \beta_1 POST + \beta_2 CORE + \beta_3 POST * CORE + \Sigma \beta_i Controls + \varepsilon$$

Dependent Variable		[1]	[2]
Earnings Management (EM)	***Expected Sign***	DA_BS	DA_BS
		Before SOX	After SOX
Intercept	?	0.014	0.022
		(0.151)	(0.054)
POST	?	0.208*	0.041
		(0.113)	(0.021)
CORE	?	0.051	0.020
		(0.098)	(0.016)
POST*CORE	-	**-0.076**	**-0.045****
		(0.076)	**(0.021)**
ROA	+	0.400***	0.641***
		(0.191)	(0.086)
SIZE	-	-0.023*	-0.002
		(0.013)	(0.003)
GROWTH	+	0.109	0.017**
		(0.087)	(0.008)
FinLev	+	0.005	0.000
		(0.005)	(0.001)
CFO_TA	-	-0.950***	-1.043***
		(0.218)	(0.092)
TOBINQ	-	-0.002	-0.000
		(0.015)	(0.007)
New Financing	+	0.065*	0.003
		(0.037)	(0.012)
LOSS	-	-0.106**	-0.090***
		(0.046)	(0.025)
BIG_N	-	0.062	0.014
		(0.081)	(0.019)
M&A	-	0.021	-0.012
		(0.053)	(0.012)
Lag_DA	?	0.217**	0.093**
		(0.104)	(0.038)
Observations		122	1388
Industry Fixed Effects		YES	YES
Year Fixed Effects		YES	YES
Firm Fixed Effects		NO	NO
Adjusted R-squared		0.5507	0.3366
Marginal effect POSTxCORE		-	0.027

The table displays the results from an OLS regression with the signed discretionary accruals estimated using the model proposed by Ball and Shiva (2006) as a dependent variable. The sample period is between 1998 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, of two-tailed tests. Robust standard errors clustered at the firm level are presented in brackets below the coefficients.

TABLE 1.11: ADDITIONAL ANALYSIS

Board and Audit Committee Activity and Board Independence

Panel A: Descriptive Statistics. CORE Sample Only.

Connected firms sample with CORE=1								
		PRE (Year t-1)			POST (Year t+1)		Difference	
Variable	Obs	Mean	St. Dev.	Obs	Mean	St. Dev.	Post-Pre	
bdmtgs	521	7.497	3.787	521	7.815	3.778	0.318	*
audmtgs	521	5.514	3.009	521	7.152	3.294	1.637	***
pct_indep	519	0.744	0.136	519	0.783	0.119	0.039	***

The table displays the descriptive statistics for selected corporate governance variables: number of board meetings (bdmtgs), number of audit committee meetings (audmtgs), and the percentage of independent directors (pct_indep) in the years before (t-1) and after (t+1) the public announcement of the SEC investigation. . *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Panel B: Time-series Analysis. CORE Sample Only.

$$\textit{Corporate Governance Variable} = \beta_0 + \beta_1 POST + \Sigma\beta_i Controls + \varepsilon$$

Dependent Variable	[1]	[2]	[3]
Corporate Governance	***Board Meetings***	***Audit Committee Meetings***	***Board Independence***
Intercept	1.631	0.636	0.554***
	(5.206)	(2.482)	(0.078)
POST	**0.281**	**0.658*** **	**0.023*** **
	(0.328)	**(0.162)**	**(0.005)**
Observations	1042	1042	1038
Controls	YES	YES	YES
Industry Fixed Effects	NO	NO	NO
Year Fixed Effects	YES	YES	YES
Firm Fixed Effects	YES	YES	YES
Adjusted R-squared	-	-	-
R-squared: within	0.0826	0.3657	0.2388
: between	0.0032	0.1682	0.0601
: overall	0.0072	0.2138	0.0778

The table displays the results from an OLS regression with one of the following corporate governance variables as a dependent variable. In [1], the dependent variable is number of board meetings (bdmtgs), in [2]: the number of audit committee meetings (audmtgs), and in [3]: board independence (pct_indep).The sample period is between 1998 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles except for the dependent variables. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors clustered at the firm level are presented in brackets below the coefficients.

TABLE 1.12: Additional Analysis

Time-series Analysis: Persistence of the Effect

$$EM = \beta_0 + \beta_1 POST + \beta_2 CORE + \beta_3 AUC\_Interlock + \ldots.. + \beta_6 POST * CORE * AUC\_Interlock + + \Sigma \beta_i Controls + \varepsilon$$

Dependent Variable	[1]	[2]	[3]	[4]	[5]
Earnings Management (EM)	***DA_BS***	***DA_BS***	***DA_BS***	***DA_BS***	***DA_BS***
	Full Connected Firms Sample	***Connected Firms with available audit committee data***	***Connected Firms with available audit committee data and CORE=1***	***Connected Firms with available audit committee data and CORE=1***	***Connected Firms with available audit committee data and CORE=0***
Intercept	-0.021	-0.034	0.021	0.179	0.020
	(0.052)	(0.060)	(0.071)	(0.210)	(0.108)
POST	0.033	0.016	0.009	-0.008	0.009
	(0.018)	(0.027)	(0.014)	(0.019)	(0.035)
CORE	0.016	0.006			
	(0.017)	(0.022)			
*POST*CORE*	**-0.040***	-0.009			
	(0.023)	(0.028)			
AUC_Interlock		-0.009	0.009	-	-0.017
		(0.027)	(0.016)		(0.031)
*POST*AUC_Interlock*		0.053	**-0.038****	**-0.038****	**0.041**
		(0.038)	**(0.019)**	**(0.018)**	**(0.041)**
*CORE*AUC_Interlock*		0.021			
		(0.031)			
*POST*CORE*AUC_Interlock*		**-0.083****			
		(0.042)			
Observations	1420	1390	1070	1070	320
Controls	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	NO	YES
Year Fixed Effects	YES	YES	YES	YES	YES
Firm Fixed Effects	NO	NO	NO	YES	NO
Adjusted R-squared	0.4099	0.4108	0.4219		0.5622
R-squared: within				0.4021	
: between				0.0898	
: overall				0.1373	
Marginal Effect	0.024	-	0.028	-	-

The table displays the results from an OLS regression with the signed discretionary accruals as a dependent variable. The sample period is between 1998 and 2014. POST is 1 in year t+2 and 0 in t-1. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors clustered at the firm level are presented in brackets below the coefficients.

CHAPTER 2

THE EFFECTS OF BOARD INTERLOCKS WITH AN ALLEGEDLY FRAUDULENT COMPANY ON AUDIT FEES

2.1. Introduction

Board interlocks occur when the same director sits simultaneously on the boards of two firms. This study addresses the question of whether auditors adjust their assessment of engagement risk following financial fraud allegations of firms to which the audit client is connected by a board interlock. Extant research (Srinivasan, 2005; Fich and Shivdasani; 2007, Kang, 2008) suggests that if a firm or its executives are allegedly engaged in manipulations of financial information, investors penalize not only the fraudulent firm, but also firms in its board network. For example, Srinivasan (2005) observes significant negative abnormal stock market returns for firms connected to a firm that has restated earnings. This evidence suggests that investors tend to attribute the incidence of financial fraud to lax board monitoring and perceive it as a signal of potential irregularities or inadequate corporate governance also at connected firms. In fact, following the egregious financial fraud cases in the beginning of the twenty-first century, the public and the press questioned the ability of directors involved in the fraudulent firms especially those serving as audit committee members to adequately serve on the boards of other firms and fulfill their fiduciary duties to protect the interests of shareholders[26]. While prior research provides strong empirical evidence that investors penalize firms merely because they

[26] See for example an article in the Wall Street Journal "Board Members draw scrutiny for roles at other firms": http://www.wsj.com/articles/SB10339398031186045513

are connected by a board interlock to an alleged fraud perpetrator, to our knowledge there is no evidence whether auditors adjust their assessment of engagement risk if a firm's board member serves also on the board of a fraudulent firm.

We attempt to fill this gap in the literature by investigating whether firm's audit fees increase following the announcement of a Securities and Exchange Commission (SEC) scrutiny over a connected firm for allegations of financial fraud. We argue that evidence of a possible law violation at an interlocked firm may be taken as an indicator of board failure, i.e. if a specific board member was not serving effectively at one firm then she might not be serving effectively also at the other firms. Additionally, the auditors might be concerned that some questionable practices could have transferred from the scrutinized firm to connected non-investigated firms, in line with the studies on contagious behavior (e.g. Davis, 1991, Bizjak et al., 2009; Chiu et al., 2013). Such concern may lead to an upward reassessment of the perceived client risk, and consequently to a greater audit effort and higher audit fees. Finally, auditors face litigation and reputation risk in case of audit failure (e.g. Bar-Yosef and Sarath, 2005). If the involvement of a firm's director in financial fraud at a different firm increases the perceived engagement riskiness, then auditors might charge the client a higher litigation premium.

Drawing on the literature on diffusion of corporate practices and the effect of reputation on audit fees and litigation premium, we suggest that a material adverse event such as an SEC investigation at a firm leads to an increase in the audit fees at firms connected to the former though board interlocks. We expect this effect to be stronger if the interlocking director serves on the audit committee of the fraudulent firm. Additionally, based on Gande and Lewis (2009) who suggest that class action lawsuits serve as a disciplining mechanism in the case of corporate

governance failure, we expect that the previously hypothesized positive effect on audit fees is stronger if the fraudulent firm is subject to a class action lawsuit.

We test these predictions on a large sample of firms connected through a board interlock to companies investigated by the SEC. In particular, our main sample includes 633 unique firms connected to 159 companies investigated by the SEC for alleged violations related to reporting and disclosure issues[27]. We require that for each sample firm all data needed for the analyses is available both in the year before and the year after the first public announcement of investigation. To test our hypotheses, we employ a time-series analysis and contrast the sample firms' audit fees before and after the investigation at the connected company. This approach allows to use each firm as its own control, thus reducing endogeneity concerns and mitigating potential noise.

We do not find support for the hypothesis that audit fees increase for all firms identified as connected through a board interlock to a fraudulent firm, but rather for subsamples of these firms. Specifically, we document a significant increase in audit fees in cases where the interlocking director serves on the audit committee of the alleged fraudulent firm. The marginal effect on audit fees is 6.6% on average, and is higher (7.8%) if we limit the analysis to only cases where the interlocking director served on the board of the fraudulent firm when the fraud was perpetrated.

Finally, we find that audit fees increase also when the fraudulent firm is subject to a class action lawsuit. We estimate that the audit fees of firms whose director serves on the audit

[27] Issues related to Issuer Reporting and Disclosure include, but are not limited to misstatements related to revenue recognition, assets valuation, capital expenditure capitalization and expensing, stock-option backdating, and disclosure.

committee of the fraudulent firm and the fraudulent firm is subject to class action litigation increase by 12.9% in the year after the public announcement of SEC investigation, which is both economically and statistically significant.

We gauge the sensitivity of our results to the use of different proxies for some of our control variables. More specifically, we rerun our models with different measures for size, profitability, and leverage and different industry classification (i.e. two-digit sic codes instead of 48 Fama-French; Fama and French, 1997). The results remain qualitatively unchanged.

This study contributes to the literature in several ways. First, we contribute to the studies on reputational spillover effects to interlocked firms following allegations of accounting fraud (e.g. Fich and Shivdasani, 2007; Kang, 2008). Our results indicate that connected firms suffer not only in terms of lost market value, but also in terms of higher audit fees if the shared director has served on the audit committee of the fraudulent firm and if a class action lawsuit was filed against the fraudulent firm. Second, we add to the literature on the contagion effect of board interlocks (e.g. Davis, 1991; Bizjak et al., 2009; Bouwman, 2011; Chiu et al., 2013; Brown and Drake, 2013; Cai et al., 2014) by suggesting that auditors might perceive an SEC investigation of an interlocked firm as an indicator that some unlawful practices might have been transferred to the connected firm. Such suspicion might increase the perceived riskiness of the engagement and require the auditors to exert additional effort, which would be reflected in higher audit fees after the SEC investigation becomes publicly announced. Finally, the study also contributes to the emerging literature on the effect of board interlocks on audit fees. For example, Johansen and Pettersson (2013) suggest that board interlocks impact the choice of firm's auditor and the audit fees. Specifically, they suggest that firms pay higher audit fees if a connected firm hires the same

audit firm. To our knowledge, this is the first study that investigates whether material adverse events at companies connected by board interlock impact a firm's audit fees.

The remainder of the paper is organized as follows. Section 2.2 provides background information regarding SEC enforcement actions and the consequences for scrutinized firms. Section 2.3 reviews the literature on audit engagement risk and audit fees. Section 2.4 outlines the sample selection procedure and the research design. Section 2.5 reports the main results of the analysis and sensitivity checks. Section 2.6 concludes.

2.2. Background

In this paper, we use the SEC enforcement actions as a proxy for financial fraud. Prior studies (e.g. Feroz et al., 1991; Beasley, 1996; Farber, 2005; Files, 2012) suggest that the SEC has limited resources and cannot investigate every potential financial reporting violation, but rather focuses on high-profile cases that are likely to lead to sanctions. Generally, the initiation of an SEC investigation is triggered by a specific event such as a restatement, an unexpected executive or director turnover, an auditor resignation, etc. (Karpoff et al., 2008a,b). The SEC first initiates an informal inquiry, which typically constitutes a detailed review of firm's financial statements, which is upgraded to a formal investigation upon uncovering evidence of potential wrongdoing. The investigation period can span several years. It is up to the investigated firm to decide whether and at which stage of the investigation process to disclose that it is subject to SEC scrutiny. However, firms have an incentive to disclose material adverse information relatively early, as the SEC tends to be more lenient to firms that inform investors in a timely manner. Indeed, Files (2012) provides evidence that timely disclosure of wrongdoing reduces the amount of monetary penalties imposed by the SEC and the probability of enforcement action.

Upon completion of the case, the SEC issues a litigation release (LR) and/or administrative proceeding (AP), which could be given a secondary designation of Accounting and Auditing Enforcement Release (AAER) if they involve accountants (or auditors) and/or could be of interest to accountants (or auditors).

Therefore, SEC enforcement action releases capture likely financial fraud cases. Restricting the sample to these cases reduces the risk of scope limitations and extraneous effect biases embedded in other commonly used misconduct databases such as the Government Accountability Office (GAO) restatement data (Karpoff et al., 2014). Additionally, SEC allegations of financial fraud are indicative of corporate governance failure, which may have a negative impact on connected firms' market value (Kang, 2008). Hence, they represent a suitable setting for the purposes of this study.

2.3. Prior Literature and Hypotheses Development

Our study relates to the literature on the negative reputational spillover effects arising from board connections to allegedly fraudulent firms, and to the literature on the determinants of audit fees.

2.3.1. The Role of Board Interlocks on Firm's Behavior and Reputation

Early research in organizational sociology suggests that board interlocks serve as an important conduit for information transfer that affect organizational practices, norms, values and corporate policies (Mariolis and Jones, 1982). More central firms are viewed as better positioned to take advantage of preferential access to information provided by their numerous ties to other actors in their network (Useem, 1984) and are more likely to adopt innovative practices earlier

(Davis, 1991, Mizruchi, 1996)[28]. Recent research has explored the role of board interlocks on the spread of corporate practices such as stock-option backdating (Bizjak et al. 2009) and expensing (Reppenhagen, 2010), disclosure (Cai et al., 2014; Chan et al., 2016), and tax avoidance (Brown and Drake, 2014). Taken as a whole, these studies provide evidence that board interlocks are a potent source of information that can influence firms' corporate practices and behavior.

An emerging body of literature analyses the effect of material adverse events at a firm on the market value of firms connected through a board interlock, documenting a negative investor reaction, which indicates the presence of negative reputation spillover effects. For example, Fich and Shivdasani (2007) report that if a firm is subject to a class-action lawsuit for financial misrepresentation, connected firms experience negative abnormal market reactions even though they are not directly involved in or associated with any misdemeanor. Similarly, drawing on signaling and attribution theory, Kang (2008) argues that the negative reputation effect following the announcement of SEC investigation spills over to interlocked firms in the form of negative stock market reaction. He suggests that investors tend to attribute behaviors such as financial manipulations to internal causes (e.g. the quality of the board) rather than to situational factors, thus holding the board members responsible for failing to prevent the occurrence of financial fraud. The negative reputation spills over to interlocked firms and creates uncertainty about their corporate governance effectiveness.

2.3.2. Engagement Risk and Audit Fees

[28] In Social Network Analysis, firm's degree centrality refers to the number of ties the firm has to other firms.

Firms' external auditors play an important role in validating the integrity of reported financial information. Numerous studies have advanced our understanding on the determinants of audit effort and more specifically audit fees[29]. Much of the research on audit fees is influenced by the seminal work of Simunic (1980) and is concerned mainly with the auditor- and client-specific characteristics that affect audit fees e.g. client size and complexity. There is also evidence that audit fees are positively related to the perceived risk of the audit engagement (e.g. Morgan and Stocken, 1998, Seetharman et al., 2002; Lyon and Maher, 2005; Raghunandan and Rama, 2006; Bell, Landsman, and Shakelford, 2008; Hogan and Wilkins, 2008; Gietzmann and Pettinicchio, 2014). Engagement risk consists of three separate components: i) client's business risk, i.e. the risk that certain events and circumstances can adversely affect firm's operations and performance (AICPA, 2012, AU 315.04); ii) audit risk, i.e. the risk that the auditor might fail to detect material misstatement in client's financial statements and modify its audit opinion accordingly (AICPA, 2006, AU 312.02); and iii) auditor's business risk, which includes litigation risk, the risk of reputation loss, and the risk of sanctions by regulatory bodies such as the SEC (AICPA, 1994; Brumfield et al., 1983). Higher audit fees are justified by higher risk of error, which requires more extensive and specialized procedures.

Based on the seminal work on the determinants of audit fees by Simunic (1980) and the subsequent studies on the subject, Lyon and Maher (2005) propose the following general audit fees model:

$$E(C) = cq + E(d)\, E(\theta), \qquad [1]$$

[29] Audit effort cannot be observed directly for the purposes of archival empirical research and prior studies have consistently used audit fees as a proxy for audit effort (i.e. Carcello et al.,2002).

where *E(C)* is the expected audit fee; *c* is the cost of the factors of production; *q* is the quantity of resources i.e. audit hours; *E(d)* is the present value of potential future loss arising from association with the particular audit client; and *E(θ)* is the probability of incurring losses related to the audit i.e. engagement risk. Generally, a perceived increase in any of the engagement risk components results in higher audit fees. For example, the auditors are required to assess client's business risk, consider it in their client-acceptance decisions, and incorporate it in the audit fees (Prat and Stice, 1994; Morgan and Stocken, 1998; Lyon and Maher, 2005; Donohoe and Knechel, 2014; Chen et al., 2015). Moreover, according to AICPA 2006, AU 312, firm's auditors are responsible for adequate planning and designing the audit engagement in order to mitigate the audit risk i.e. the risk that a material misstatement may remain undetected. Thus, an increase in perceived audit risk can lead to a higher audit effort and hence higher fees. Finally, the auditor's business risk can also be considerably reduced by employing different risk-management techniques such as the use of specialists and higher billing rates, which translate into higher audit fees (Johnstone and Bedard, 2003). In fact, Bell et al. (2001) utilize a unique dataset consisting of the audit papers of 422 audits of US firms and provide empirical evidence that audit fees increase with the perceived auditor's business risk. Additionally, a number of studies focus specifically on litigation risk and use different identification strategies to pinpoint the effect of client's litigation risk on audit fees. For example, Seetharam et al. (2002) identify a sample of UK firms cross-listed on a US stock exchange and examine whether these firms pay a litigation premium. They document that UK firms which are cross-listed on the OTC market and thus do not need to comply with the SEC requirements pay higher fees than comparable firms, providing compelling evidence that auditors mitigate litigation risk by charging higher fees.

Additionally, Badertscher et al. (2014) identify a sample of public firms and compare them to a sample of private firms with public debt, which are subject to the same disclosure requirements as the public firms. Their evidence confirms prior findings that publicly traded clients involve higher audit business risk and are required to pay higher risk premium.

2.3.3. Auditors' Response to Threats of Reputation Loss

Client's reputation represents an important factor in determining audit fees. Asthana and Kalelkor (2014) examine the effect of an improved client reputation on audit fees. They use inclusion in the S&P 500 index as a proxy for improved reputation and observe that audit fees are discounted when firms enter the index, but increase upon exit. Additionally, Jha and Chen (2015) provide evidence that firms headquartered in high social capital counties pay lower audit fees. They suggest that firm's location can be an indicator of trustworthiness of the management and the integrity of the client's financial reporting.

In this paper, we investigate the effect of adverse material events at one firm on the audit fees of firms in its board network. We base our expectations on the studies in the fields of finance and management that document the presence of reputation spillover effects to interlocked firms when the focal firm is allegedly involved in financial fraud (Srinivasan, 2005; Fich and Shivdasani, 2007; Kang, 2008), and on studies on the effect of client reputation and engagement risk on audit fees (e.g. Lyon and Maher, 2005; Asthana and Kalelkor, 2014). SEC investigations generally indicate corporate governance failure and hurt the reputation of involved executives and directors (Karpoff et al., 2008a). If board members were not effective at preventing fraud at one firm, then they may not serve effectively as monitors also at the other firms, on whose board they sit. Additionally, connected firms might share the same corporate environment, culture, and

values. For example, studies on the role of board interlocks in the diffusion of business policies and procedures suggest that connected firms tend to adopt similar corporate governance practices (Bouwman, 2011) and may have similar earnings management practices (Chiu et al., 2013). Crutchley et al. (2007) argue that certain elements of the corporate environment such as corporate governance characteristics, earnings management, compensation structure, etc. are positively associated with the incidence of financial fraud. Thus, to the extent that the corporate environment at the fraudulent firm and the connected firm are similar, it is possible that the connected firm is *ceteris paribus* more likely to be engaged in some type of fraudulent behavior. Auditors might be especially concerned about such possibility because prior studies indicate that they face both litigation and reputation penalties in case of audit failure. For example, Feroz et al. (1991) report that in 42% of the AAER cases in their sample, the audit firm was also sanctioned, which severely hurt the reputation of the auditor (Rollins and Bremser, 1997)[30]. Additionally, studies on auditor's reputation suggest that in case of audit failure, the reputational penalties are considerably greater than the litigation risk. For example, Skinner and Srinivasan (2012) discuss the consequences of audit failure for one of the biggest Japanese firms. They note that the reputation loss resulting from the audit failure led to the demise of the firm even though it did not face any litigation costs. Irani et al. (2015) report that auditors are significantly more likely to be dismissed from other engagements if a client restates earnings. Thus, auditors have strong incentives to ensure the integrity of the financial reporting of the connected firms to reduce the probability of potential losses related to audit failure.

[30] Anecdotal evidence suggests that the auditor can be investigated and sanctioned by the SEC if more than one of its clients have been allegedly involved in financial fraud. In 2002, the SEC scrutinized closely Arthur Andersen for failing to prevent the accounting scandals at Enron, WorldCom, and Global Crossing ltd. The uncovered audit deficiencies and lack of independence ultimately led to the demise of the audit firm.

We argue that a material adverse event such as an SEC investigation at a connected firm may influence client's perceived business risk and reputation. If a firm's auditors suspect that the monitoring at an interlocked firm is compromised, they would spend more hours and effort in auditing the focal firm's financial statements to reduce the risk of audit failure, which would be reflected in higher audit fees[31]. This is consistent also with the arguments of prior literature that auditors plan the engagement and price their services based on a critical assessment of client's risk (e.g. Morgan and Stocken, 1998; Johnston, 2000; Lyon and Maher, 2005; Bell et al., 2001; Gietzmann and Pettinicchio, 2014) and reputation (Asthana and Kalelkor, 2014; Jha and Chen, 2015). Thus, we expect that a firm connected to an investigated firm is charged higher audit fees in the year following the public announcement of the SEC investigation. More formally, this hypothesis is stated in its alternative form as follows:

> **H1:** Following the public announcement of an SEC investigation, audit fees of firms connected to the investigated firm by a board interlock will increase.

2.3.4. Interlocking Director's Role on the Board of the Fraudulent Firm and Audit Fees of Connected Firms

We expect that the hypothesized effect will be stronger if the interlocking director serves on the audit committee of the fraudulent firm. Audit committees are directly involved in monitoring management, ascertaining the integrity of the financial reporting, and assuring compliance with regulatory and legal requirements that can materially affect firm's financial

[31] Additionally, PCAOB Auditing Standard 12, which relates to the risk assessment of the control environment at the firm, includes corporate governance and prescribes risk assessment to be conducted during the audit planning stage (each year) and reassessment of audit riskiness in cases of any new information or events that suggest that the risk profile of the firm might have changed.

statements. Additionally, they have key responsibilities with respect to the performance of external auditors and the effectiveness of the internal audit function and are more likely to be held accountable by investors and other stakeholders for failing to prevent financial fraud (Srinivasan, 2005; Brochet and Srinivasan, 2014). Therefore, interlocking directors serving on the audit committees of investigated firms may be more likely to undermine stakeholders' confidence in the financial reporting practices of the connected firms and increase the perceived engagement risk for the auditors.

Based on these arguments, we suggest that the effect on audit fees of the interlocked firm is stronger if the interlocking board member serves on the audit committee of the fraudulent firm. Formally, we hypothesize that:

H2: The positive effect hypothesized in H1 will be stronger if the interlocking director serves on the audit committee of the fraudulent firm.

2.3.5. Class Action Lawsuits against the Fraudulent Firm and Audit Fees of Connected Firms

Class action litigation is initiated by private parties (generally firm's customers or investors) and generally complements SEC enforcement actions. Firms subject to class action lawsuits suffer reputational penalties in the form of loss in market value (Gande and Lewis, 2009) and are more likely to replace their senior executives (Strahan, 1998) and increase board independence (Ferris et al., 2007). Additionally, Ferris et al. (2007) suggest that shareholder lawsuits are much more likely for firms with high agency costs and are followed by improvements in corporate governance suggesting that class action lawsuits can serve as a governance mechanism. Similarly, Gande and Lewis (2009) argue that, in cases of financial

fraud, class-action litigation serves as an indication that investors perceive the cause of the misconduct to rest within firm's corporate governance.

Drawing on the literature on class action litigation, we argue that the reputation spillover effect on connected firms will be stronger if the fraudulent firm to which they are connected is subject to shareholder litigation in addition to the SEC enforcement action. Although the SEC generally investigates heinous financial fraud cases, the filing of a class action lawsuit serves as an additional indication that the stakeholders perceive the violation to be due to corporate governance failure. This perception might spillover to connected firms and influence auditor's estimates of engagement risk, which would be reflected in higher audit fees. Thus, we expect that:

> **H3:** The positive effect hypothesized in H1 will be stronger if the fraudulent firm is subject to shareholder-initiated class action litigation.

2.4. Data and Research Design

2.4.1. Sample and Data

To test our prediction that audit fees are affected by the initiation of a SEC investigation of an interlocked firm, we first identify a sample of firms that have been subject to SEC enforcement actions classified by the SEC as related to 'Issuer Financial Statement and Reporting'[32]. These cases generally involve violations of federal securities laws such as premature revenue recognition, misevaluation of assets and liabilities, under/ overstating

[32] The SEC reports the cases in the appendices to its annual Performance and Accountability Reports (https://www.sec.gov/about/annrep.shtml). Last accessed: April 16, 2016.

expenses, misleading disclosure, etc. We limit our analysis to these cases because they involve issuance of misleading or fraudulent financial reports, and are violations that could and should have been prevented and detected by firm's board members and would be of interest to firm's external auditors. Additionally, prior literature on contagion in accounting, finance, and management has shown that certain accounting practices such as earnings management (Chiu et al., 2013), stock–option backdating (Bizjak et al., 2009), and disclosure (Cai et al., 2014) spread through board interlocks. It is less likely that more individual- specific practices (e.g. opportunistic insider trading) can be diffused through firm's network in a similar fashion and they should not influence the stakeholders' perceptions of the financial reporting integrity of connected firms.

We examine 2215 litigation releases (LR), administrative proceedings (AP), and accounting and auditing enforcement releases (AAER) that the SEC has classified as related to Issuer Financial Statement and Reporting between 1999 and 2014[33]. We focus only on the first release regarding a specific event and eliminate subsequent releases regarding the same case. This procedure yields a sample of 886 unique firm-events. We eliminate cases in which the investigated entity is a foreign firm. These firms are subject to different reporting requirements and institutional environments (their home country) and as such, it is possible that auditors and other stakeholders attribute the incidence of financial fraud to their home country characteristics rather than the firm's corporate governance. Additionally we eliminate cases that do not involve violations of the Generally Accepted Accounting Principles (GAAP) such as sanctions against

[33] All LR, AP, and AAERs are publicly available on the SEC website: https://www.sec.gov/litigation.shtml. Last accessed 18 May 2016.

auditors for lack of independence or noncompliance with the PCAOB rules, which results in a final sample of 607 unique firm-events[34].

Next, we download the board networks of the firms identified in the sample using BoardEx, a proprietary database provided by the Management Diagnostics Limited. We further restrict the sample to only network connections in which the interlocking individual serves on the board of both firms at the same time during the period of the investigation, and require that the connected firms are public[35,36]. Table 2.1 details the sample collection. We eliminate observations related to years prior to 2000, because data on audit fees is relatively sparse until 2000. Additionally, consistent with prior research on the determinants of audit fees (e.g. Krishnan and Wang, 2015), we eliminate connected firms that operate in the financial services industry (sic codes 6000-6999) and utility firms (sic codes 4900-4999). We require that each firm in the sample is covered by Audit Analytics and Compustat in years t-2 to t+2. When possible, missing control variables are hand-collected from firm's financial statements available on SEC Edgar to avoid further reductions in the sample size[37]. The final sample size for our main analysis is 1,266 firm-year observations from 633 unique firms connected to 159 fraudulent firms.

[34] Although sanctions against auditors can potentially influence the pricing of their services, this effect is beyond the purpose of this study.
[35] BoardEx also provides information on connections between firms through other channels such as through non-board positions (e.g. advisors and consultants).
[36] Private firms are not required to have their statements audited by an independent auditor. Additionally, they are not required to report the audit fees paid.
[37]Not all of the required data items were available for all firms included in the sample. For example, the number of segments was not available for 36 observations, audit report lag was not available for 21 observations and the amount of current assets and/or current liabilities was not available for 17 observations. We manually collected these data from the firms' 10-K from Edgar if available. If data were not available, we omitted the firm from the analysis. Deleting the observations for which not all data was not available from the sample does not change the results and the conclusions of the analysis.

Table 2.2 presents the number of observations per year separately for t-1 and t+1. As expected, the highest number of firms in the sample in t+1 is in 2002- 2005 i.e. the years following the major accounting scandals in the beginning of the 21st century. The number of observations is reduced considerably between 2009 and 2014 to an average of 10.5 in t+1, which is driven by the lower number of SEC enforcement actions related to Issuer Financial Statement and Reporting cases after 2008, and by the requirement that each firm in the sample is considered only the first time that one of its connected firms is investigated by the SEC.

Data on securities class action litigation is provided by the Securities Class Action Clearing House publicly available on the Stanford Law School's website[38]. Class action lawsuits are filed against about 68% of the firms in our fraudulent firm sample. We manually check to ensure that each class action lawsuit was filed against the firm for the same financial misconduct that attracted the SEC attention, in order to avoid overstating the number of cases classified as being subject to shareholder litigation[39].

2.4.2. Variables

To test our hypotheses, we collect data on audit fees from Audit Analytics and use the logarithmic transformation of audit fees (*LNAUDIT_FEE*) during the year before and the year after the public announcement of investigation of a connected firm as a dependent variable. The main independent variable is *POST*, which is 1 for all observations in t+1, and 0 in t-1.

[38] These data are publicly available on http://securities.stanford.edu/. Last accessed: May 19, 2016.
[39] We conduct this additional check, because there are instances in which a firm was investigated by the SEC regarding certain financial reporting practices and was subject to class action litigation regarding a different set of practices and/or events.

We follow prior studies on the determinants of audit fees and include firm- specific controls that are likely to affect the resources that the auditor allocates to the audit engagement as well as the litigation premium arising from the perceived engagement risk. Generally, larger, less profitable, more leveraged clients pay higher audit fees (e.g. Simunic, 1980). Thus, we control for firm's size (natural logarithm of total assets; *LNTA*), profitability (ROA; *Profit*), book-to-market ratio (*BM*), leverage (long-term debt-to-total assets; *LEV*), current ratio (current assets-to-current liabilities; *CR*) and prior period financial distress (*PLOSS*). Additionally, current assets (e.g. inventory and receivables) and intangibles might be more difficult to audit (Simunic, 1980; Hay et al., 2006). We include current assets scaled by total assets (*CA_TA*) and intangible assets scaled by total assets (*INTANG*) to proxy for this inherent engagement risk. Firms in need of new external financing might be perceived as more risky (Krishnan et al., 2013). Thus, we add an indicator variable equal to 1 if the firm raised new debt or equity during the year (*NEWFIN*). Furthermore, going-concern opinions reflect auditor's uncertainty regarding the firm's ability to continue as a going concern. Audits of such firms might embed higher risk and require more effort and we control for it by including an indicator variable (*GC*) equal to 1 if the auditor issues a going-concern opinion and 0 otherwise. Additionally, auditors might invest more resources if the firm has higher than average tendency to manage earnings (e.g. Krishnan and Wang, 2015). To control for this possibility we add a control for earnings quality (*EM*) lagged one year, which is based on the decile rating of the absolute value of abnormal accruals measured using the Modified- Jones model (Dechow et al., 1995). Higher decile indicates higher levels of earnings management and could be related to higher audit fees. Firm's age can also impact the perceptions of the auditor regarding the audit engagement risk e.g. more mature firms could be

perceived as less risky than younger firms. Hence, we control for firm's age measured as the natural logarithm of the number of years between year t and the firm's founding year (*AGE*).

Complex organizational structures require additional audit effort. Thus, we control for the complexity of the client by including indicators for whether the firm had significant foreign operations (*FOROPS*), a merger or acquisition activity (*MERGER*) and a pension plan (*PensionPlan*), and the square root of the number of reporting segments (*SQSEG*). We also include a control for the lag between the fiscal year-end and the date of the audit report (*LNAUDIT_LAG*). Hackenbrack and Knechel (1997) suggest that the audit report lag represents a sound proxy for abnormal audit effort and Blankley, Hurtt, and MacGregor (2014) relate abnormal audit report lags to the probability of restatement in the future periods.

Big N firms generally charge audit fee premium, and we control for this by adding a *BIG_N* indicator for whether the firm is audited by a Big N audit firm. Audit tenure can also affect audit fees, as one of the main reasons for firms to change auditors is to obtain lower audit fees (Hay et al., 2006). We control for a recent change in auditor by including a dummy variable (*INITIAL*) equal to 1 if audit tenure is 1 year or less. We also add an indicator for whether firm's fiscal year end is December 31 (*FYEDEC*). Generally, most of the US firms have a December 31 year-end and audits conducted in January and February might require overtime and be more costly. Finally, firm's audit fees might be affected by uncovering deficiencies in firm's internal controls and financial reporting. Thus, we control for whether the auditor detected problems in internal controls (*IC_PROB*) or the firm restated earnings (*RES*).

All variables included in the regression are described in Table 2.3. In order to moderate the effect of outliers, all continuous variables are winsorized at the 1st and 99th percentiles.

2.4.3. Main Model

We employ a time-series approach that compares the audit fees of the sample of connected firms before the SEC investigation becomes public to the audit fees of the same firms after the event. This approach allows using each firm in the sample as its own control (Hail and Leuz, 2009; Ettridge et al., 2012), thus reducing endogeneity concerns. More specifically, we compare the audit fees of each firm in the year prior to the public announcement of SEC investigation (year t-1) to the year after (t+1). t-1 is selected as the base year, because information about the investigation is not likely to be available to the auditors at that time and even if they had private information, it would have taken time to adjust the audit procedures and thus the fees. We contrast the base year to t+1 rather than t to allow enough time for the new information to be reflected in client risk assessment. Additionally, choosing t+1 over t+2 has the advantage of mitigating the effect of additional unobservable events that could have influenced connected firm's audit fees after the public announcement of the investigation.

To test the consequences of SEC investigations on connected firms' audit fees, we regress *LNAUDIT_FEE* on *POST* and include a list of control variables as discussed above. The following model is estimated using OLS regression with industry- and year- fixed effects on the connected firm sample:

$$LNAUDIT\_FEE_{it} = \beta_0 + \beta_1 POST_t + \Sigma \beta i Controls_{it} + Year\ FE + Industry\ FE + \varepsilon \quad [2]$$

where *LNAUDIT_FEE* is the natural logarithm of firm i's audit fees in year t. *POST* is an indicator variable equal to 1 in the year after the investigation announcement and 0 in the year before. The control variables are as described above in Section 4.2 and in Table 3. To account for

the possibility that the standard errors are correlated within same-firm observations, we cluster the standard errors by firm. Hypothesis 1 (H1) predicts that β_1 is positive and significant.

Further, we posit that the effect on audit fees is not the same across all firms in the sample. More specifically, we suggest that it is stronger if the interlocking director serves on the audit committee of the fraudulent firm (H2) and if the fraudulent firm is subject to a class action lawsuit (H3). To test these hypotheses, we add an additional variable to [2] and interact it with *POST*. In the model designed to test hypothesis 2 (H2), we introduce an indicator variable *AUComm* that takes the value of 1 if the interlocking board member serves on the audit committee of the fraudulent firm and 0 otherwise. The model is as follows:

$$LNAUDIT\_FEE_{it} = \beta_0 + \beta_1 POST_t + \beta_2 AUComm_i + \beta_3 AUComm_i * POST_t + \Sigma \beta i Controls_{it} + Year\ FE + Industry\ FE + \varepsilon \quad [3]$$

where the dependent variable, the control variables, and the model specifications are as in [1]. If H2 is supported, we expect β_3 to be positive and significant. Similarly, to test H3 we add *ClassActionLawsuit* and its interaction with *POST*. *ClassActionLawsuit* assumes the value of 1 if the fraudulent firm is subject to a class action lawsuit, and 0 otherwise. The model is as follows:

$$LNAUDIT\_FEE_{it} = \beta_0 + \beta_1 POST_t + \beta_2 ClassActionLawsuit_i + \beta_3 ClassActionLawsuit_i * POST_t + \Sigma \beta i Controls_{it} + Year\ FE + Industry\ FE + \varepsilon \quad [4]$$

where we are interested specifically in the coefficient of β_3 and we expect it to be positive and significant. All other variables are as described above.

2.5. Empirical Results

2.5.1. Descriptive Statistics

Table 2.4 reports the descriptive statistics for the variables used in the main empirical analysis separately for years t-1 and t+1. On average, the audit fees (*LNAUDIT_FEE*) are significantly higher in t+1 than in t-1 for the firms included in the sample, whereas the average total assets remain relatively unchanged. The sample firms have slightly lower levels of accrual earnings management (*EM*) in t+1 than in t-1, which is possibly related to the enactment of SOX in 2002. Additionally, firms are more leveraged (*LEV*) and have a lower Book-to-Market ratio (*BM*) in t+1. The average ROA (*Profit*) is negative in both time periods and 27.3% of the firms recorded a previous-year loss (*PLOSS*) in t-1 and 34.3% in t+1. The complexity of the financial statements has also increased in year t+1 versus t-1. For example, firms are more likely to have foreign operations (*FOROPS*) and a pension plan (*PensionPlan*) in t+1 versus t-1. Additionally, it is interesting to note that the auditor also takes more time to complete the audit in t+1 versus t-1. The average audit lag is 55.1 days in t-1 and 60.9 days in t+1 in our sample, which could be related to the increased complexity of the financial statements and/or the enactment of SOX (for firms for which t-1 is before 2002). Most of the firms are audited by a BIG N audit firm (*BIG_N;* 92.9% in t-1 and 90.7% in t+1), but surprisingly the number is by 2.2% lower in t+1. Finally, a higher number of firms restate earnings (*RES*) in t+1 than t-1 (4.9 % in t-1 versus 7.9% in t+1) and receive a Going Concern opinion (*GC*; 0.9% in t-1 versus 2.7% in t+1), which could be explained again by the high concentration of observations for which t+1 is 1 after the enactment of SOX.

Regarding the key variables of interest, in 53.6% of the observations the interlocking director serves on the audit committee of the fraudulent firm (*AUComm*). Additionally, 72.7% of

the firms in the sample are connected to a firm subject to a class action litigation (*ClassActionLawsuit*).

Table 2.5 presents the Pearson correlation coefficients between the variables included in the analysis. The Pearson correlation between audit fees (*LNAUDIT_FEE*) and total assets (*LNTA*) is high (0.801), positive, and significant (at the 5% level or above) indicating that firm's total assets are a primary driver of its audit fees consistent with prior studies (*see* Hay et al., 2006 for a meta-analysis). Additionally, there is a high correlation between the *SQSEG* and audit fees (0.404) and *AGE* and audit fees (0.388). The correlations between *AUComm* and *ClassActionLawsuit* and audit fees are not significant at the conventional levels. All other correlation coefficients are generally below 40% suggesting that multicollinearity is not a main concern in this analysis.

2.5.2. Main Results

The results of the main regression are reported in table 2.6. In column 1, we provide the results of the univariate analysis. The coefficient on *POST* is positive and significant, as suggested also by the t-test on the difference of the means reported in Table 2.4. After we add the control variables, industry and year fixed effects to the model, the coefficient on *POST* is positive but no longer significant (Column 2) suggesting that on average the audit fees of interlocked firms are not significantly affected by SEC investigation of a connected firm. The signs and magnitudes of the coefficients of the control variables are generally consistent with prior literature. For example, bigger and more leveraged firms pay higher audit fees. Firms with higher levels of current assets (*CA_TA*) and intangibles (*INTANG*) also pay higher audit fees, whereas firms with higher current ratio (current assets to current liabilities) pay lower fees to

reflect their lower risk of failure to meet current obligations. The complexity of firms' operations also positively affects their audit fees as indicated by the positive and significant coefficients on foreign operations (*FOROPS*) and the square root of reporting segments (*SQSEG*). Additionally, more problematic audits require more audit effort and higher fees. Accordingly, the coefficients on *ICPROB* (equal to 1 if there was a material weakness or significant deficiency in firm's internal controls) and *LNAUREP_LAG* (the natural logarithm of the number of days between the audit report signature date and firm's fiscal year end) are positive and significant. The coefficients on *GC* (equal to 1 if the auditor issued a going-concern opinion) and *RES* (equal to 1 if the firm restated earnings) are also positive as expected, but not significant, which could be explained by the lower variation in the sample and their high positive correlation with *ICPROB.* Finally, firms whose fiscal year ends in December 31 (*FYEDEC*) pay higher audit fees consistent with prior studies.

Hypothesis 2 predicts that firms connected to a fraudulent firm pay higher audit fees in the period following the revelation of the fraud if the interlocking director serves on the audit committee of the fraudulent firm. We test this prediction by employing model [3]. The results are reported in Table 2.7. The coefficient on the interaction between *POST* and *AUComm* (*POST* x *AUComm*) is positive and significant (0.125; $p<0.01$) and the main effect is not significantly different from 0. This indicates that there is a significant positive effect of *POST* on *LNAUDIT_FEE* only when *AUComm* is 1, but the effect is not significantly different from 0 if *AUComm* is 0. The marginal effect is 6.4% suggesting that firms with a board member involved with the audit committee of a fraudulent firm pay on average 6.6% higher audit fees after the

public announcement of an SEC investigation[40]. The signs and coefficients on the control variables are consistent with the ones reported in the multivariate model in Table 2.6. The adjusted R-squared is 82.79% suggesting that the model has a high predictive power. The variance inflation factors (VIFs) are generally below 4 indicating that although some variables included in the regression are highly correlated, multicollinearity is not a major issue in the model.

Additionally, as previously noted, an SEC investigation on allegations of financial fraud may serve as a strong indicator that the investigated firm's board members have failed in performing their monitoring duties. If this is the case, the result documented above should be stronger if the interlocking board member served on the board of the fraudulent firm not only during the investigation process, but also during the manipulation period. To test this assertion, we eliminate observations where the interlocking board member joined the board of the fraudulent firm after the manipulation period, i.e. after the period when the fraud was perpetrated[41]. Following this criterion, we eliminate 176 observations and are left with 1090 observations (545 unique firms), where the interlocking director served on the board of the fraudulent firm during the manipulation period.

The results are presented in column [2] in Table 2.7. The coefficient on *AUComm x POST* is positive and significant (0.138; $p<0.01$). The marginal effect is 7.6% indicating an increase of 7.8% in audit fees in t+1, which cannot be explained by the control variables, year

[40] Following Craswell et al. (1995), we estimate the mean shift in audit fees for the AUComm subsample in year t+1 from year t-1, by solving ε^z -1, where z is the mean marginal effect of the interaction variable in the regression model.
[41] Data on the manipulation period are collected from the relevant AAERs, LRs, or APs on the SEC website: https://www.sec.gov/litigation.shtml. Last accessed 18 May 2016.

and industry fixed effects. The coefficients on all other variables are consistent with the ones reported earlier in Table 2.6 and Table 2.7 (column [1]) The VIFs are all under 4 except for *LNTA*, which is 4.34.

Overall, the results presented thus far indicate that on average audit fees do not increase significantly in t+1 for all firms included in the connected firm sample. However, we document higher audit fees in the subsample of firms where the interlocking director serves on the audit committee of the fraudulent firm.

Finally, H3 predicts higher audit fees for the subsample of connected firms, where the fraudulent firm was subject to a ClassActionLawsuit. Following Gande and Lewis (2009), we expect that the private parties affected by the financial fraud (e.g. investors) file a class action lawsuit if they believe that the fraudulent behavior resulted from corporate governance failure. Auditors might be especially cautious in such cases because corporate governance deficiencies in one firm might serve as a signal that the monitoring efforts are not effective also at connected firms. We predict that this would be reflected in higher fees in t+1 for the subsample of connected firms interlocked with a fraudulent firm subject to a class action lawsuit.

The results of the test of H3 are presented in Table 2.8. Overall, we document a positive and significant coefficient on the interaction between *POST* and *ClassActionLawsuit* (0.116; $p<0.05$). The marginal effect is 4.5% indicating 4.6% higher audit fees on average in t+1 for the subsample where the fraudulent firm was subject to a class action lawsuit as predicted in H3. The adjusted R-squared is 82.79% and the signs and the coefficients of the control variables are consistent with the ones reported earlier.

2.5.3. Robustness

To gauge the sensitivity of the results presented in this paper to the use of different proxies, we rerun the analysis by using alternative measures of some of the variables included in the previous regressions. For example, we use firm's return on equity (ROE) to proxy for profitability instead of return on assets (ROA), the natural logarithm of firm's market value to proxy for size instead of the natural logarithm of total assets (*LNTA*), and total debt to total assets as an alternative measure of leverage (*LEV*) and the results (untabulated) remain quantitatively and qualitatively the same. Additionally, we check the robustness of the results to the use of a different industry classification i.e. two-digit sic codes to control for industry instead of the 48 Fama-French industry classification (Fama and French, 1997). The results (untabulated) remain robust.

2.5.4. Additional Analyses

2.5.4.1. The joint effect of interlocking member serving on the audit committee of the fraudulent firm and class action lawsuit.

The results presented in the paper so far suggest that financial fraud allegations of a firm have a positive effect on the audit fees of connected firms, but the results are significant only for specific subsamples of these firms. More specifically, we report higher audit fees in the post-investigation period in the cases where the interlocking board member serves on the audit committee of the fraudulent firm and the fraudulent firm is also subject to securities class action lawsuit. The marginal effect on audit fees in the post-investigation period of having a board member who is on the audit committee of a fraudulent firm is estimated to be 6.4% on average for our sample of connected firms and the marginal effect on audit fees of being connected to a fraudulent firm subject to a class action lawsuit is 4.5% on average. Thus, it is interesting to

observe the joint effect of having a board member serving on the board of a fraudulent firm and the connected fraudulent firm being subject to class action litigation. To this end, we rerun model [2] focusing only on the sample of firms for which both *AUComm* and *ClassActionLawsuit* are equal to 1[42]. The variable of interest is *POST*, we add the full set of control variables included in the previous regression, industry- and year- fixed effects. The standard errors are clustered at the firm level. We expect the coefficient on *POST* to be positive and significant and are mostly interested in its magnitude to be able to assess the joint effect of *AUComm* and *ClassActionLawsuit*. 454 observations (227 individual firms) meet the criteria discussed above i.e. *AUComm* =1 and *ClassActionLawsuit* = 1.

The results are presented in Table 2.9. The coefficient on *POST* is positive and significant as expected and indicates that in our sample of connected firms, audit fees increase by 12.9% in t+1 versus t-1 for firms connected by a board interlock to a fraudulent firm if the interlocking board member serves on the audit committee of the fraudulent firm and the fraudulent firm is subject to class-action litigation. The signs and the coefficients of the control variables are generally consistent with prior literature and the results presented in Tables 2.6-2.8. The adjusted R-squared is 80.35%, which is slightly lower than the R-squared in the previous model specifications (e.g. R-squared in Table 8 is 82.79%) but this is likely due to the significant decrease in the sample size (1266 in Table 2.8 versus 454 in Table 2.9).

2.5.4.2. *Controlling for the auditor involvement in the investigated firm during the alleged fraud*

[42] An alternative approach will be to add an additional interaction effect to model [2] and analyze the triple interaction between *POST*, *AUComm*, and *ClassActionLawsuit*. However, coefficients on triple interactions are hard to interpret and thus not very informative for the purposes of this analysis.

It is interesting to explore whether the audit fees increase more if the connected firm's auditor was engaged in the audit of the investigated firm's financial statements when the alleged fraud was committed. We expect that if the auditor was involved in the audit of the financial statements of the sanctioned firm when the fraud was allegedly committed, she will be even more concerned about reputation and litigation effects, and therefore more conscientious in assessing the connected firm's financial statements.

To test this assertion, we rerun model [2] on a subset of connected firms, which are audited by the same auditor of the fraudulent firm during the manipulation period, i.e. when the fraud was allegedly perpetrated. 154 unique firms meet this requirement resulting in a sample of 308 observations. The results are presented in Table 2.10. We observe an incremental change of 18.1% in audit fees (β_1= 0.166, $p<0.05$) if firm's auditor audited the fraudulent firm's financial statements during the manipulation period, consistent with our expectation. The signs and magnitudes of the control variables are generally as documented previously. However, some of the variables such as the natural logarithm of audit report lag (*LNAUREP_LAG*) and the indicator for whether the firm is audited by a big N auditor (*BIG_N*) are no longer significant. This is mostly due to the small sample size (308 observations) and the low variation of these variables in the sample[43].

2.6. Conclusions

The main goal of this study is to examine whether material adverse events at a firm have an effect on the audit fees of firms connected to the former by a board interlock. We utilize enforcement actions initiated by the SEC against US firms for violating GAAP to proxy for

[43] For example, 96.4% of the firms in this sample are audited by a big N auditor.

material adverse events. Generally, we find no evidence that connections to an allegedly fraudulent firm lead to higher audit fees for the sample of all connected firms. However, we document higher audit fees in the year following the public announcement of the SEC investigation when the interlocking director served on the audit committee of the investigated firm. Additionally, the audit fees of connected firms increase if the fraudulent firm was also subject to a class action lawsuit, suggesting that the effect of an interlock to a fraudulent firm also depends on the seriousness of the violation. In cases where the investigated firm is subject to a class action litigation and the interlocking director served on the audit committee of the fraudulent firm, we document a 12.9 % increase in audit fees for the connected firms following the public announcement of the investigation, which is both statistically and economically significant and cannot be explained by the control variables, industry and year fixed effects. Finally, we observe that if the firm's auditor has audited the fraudulent firm's financial statements when the alleged fraud was perpetrated, the incremental increase in audit fees is 18.1%. Taken together, these results suggest that allegations of financial fraud at one firm provide additional information to the auditor about the monitoring and/or corporate environment at connected firms, and potentially increase the perceived engagement risk.

With this study, we make several contributions to the literature. First, we add to the literature on reputational spillover effects to interlocked firms following allegations of accounting fraud (e.g. Fich and Shivdasani, 2007; Kang, 2008). Prior studies are exclusively focused on the negative market reaction following the public allegations of financial fraud of a connected firm. In this paper, we provide evidence that auditors re-adjust their assessment of audit engagement and charge connected firms higher audit fees when they share a director with a

fraudulent firm. We also contribute to the emerging literature on the effect of board connections on audit fees. Prior literature (Johansen and Pettersson, 2013) had studied the effect of board interlocks on auditor choice and audit fees. We complement their analysis by suggesting that material adverse events at one firm may impact the audit fees of firms to which they are connected by a board interlocks.

In addition, the results presented in this paper are relevant to the corporate boards and investors by indicating that connections to an allegedly fraudulent firm result in some real costs to firms in the form of higher audit fees.

The study has certain caveats. First, we argue that following allegations of financial fraud at a connected firm, the auditor might reassess the client engagement risk and adjust both their effort and engagement risk, which would be reflected in higher audit fees. Disentangling these two mechanisms requires data either on the number of hours or the litigation premium. These data are not available for the firms in our sample, which limits our ability to determine the exact mechanism through which increased engagement risk affects audit fees. Second, our results should be generalized with caution. We focus on SEC enforcement actions as a proxy for financial fraud cases. Given its limited resources, the SEC is not able to investigate all potential cases of financial fraud, but tends to focus on the most severe ones (Feroz et al., 1991; Farber, 2005; Kedia and Rajgopal, 2011). Thus, the results presented in this paper might not be generalizable to less severe cases of financial misstatements.

2.7. Next Steps in the Analysis

In the next steps of the analysis, we will conduct an additional robustness test in which we will match connected firms to a control sample of firms, which were not involved in an SEC

enforcement action and were not connected to an investigated firm. We will then conduct a difference-in-differences analysis to ensure that the results that we document earlier are not due to some industry-wide events that took place at the same time as the SEC investigation at a connected firm.

We will also conduct some additional analyses. First, we will examine whether the audit report lag increases in year t+1 for connected firms. As previously noted, audit report lag serves as a proxy for audit effort. If indeed auditors spend more time and effort on the audits of connected firms in the post period, then it would be reasonable to expect that the audit report lag would be higher. To test this assertion, we will regress *LNAUREP_LAG* on *POST* and a set of controls, industry- and year- fixed effects.

Second, we will examine whether the positive effect of being connected to a fraudulent firm on audit fees persists in the future periods. On one hand, it is possible that the auditors become more concerned about the integrity of financial reporting of the connected firms after the fraudulent event becomes public, but re-adjust their perceptions of engagement risk in the subsequent periods. On the other hand, connections to a fraudulent firm can lead to permanent adjustments to engagement risk.

Finally, we will investigate whether the audit fees decrease when the interlocking board member leaves the connected firm. If auditors were concerned that the interlocking board member is not effectively monitoring managerial behavior, then audit fees would decrease if she leaves the board.

TABLES

TABLE 2.1
Sample Selection

		Deleted	Remaining
(1)	All firm-year observations identified as connected to an investigated firm with Compustat data for years t-1 to t+1[44]		2,763
(2)	Less observations with missing total assets, total sales, operating cash flows, net income, stock outstanding, or stock price	349	2,514
(3)	Less observations in finance & utilities industries (sic codes 6000-6999 and 4900-4999)	231	2,183
(4)	Less observations without audit fees on Audit Analytics for both t-1 and t+1	721	1462
(5)	Less observations for which data is not available for all control variables and the missing data is not available on SEC Edgar	196	1266
	Total unique firms		633
	Total firm-year observations		1266
	Fiscal years		2000-2014

[44] Only the first observed instance of exposure to SEC investigation is included. Connections to subsidiaries via board interlocks are excluded from the analysis to avoid biasing the results.

TABLE 2.2
Number of observations per year

Year	t-1	t+1
2000	83	-
2001	169	-
2002	90	83
2003	61	169
2004	54	90
2005	58	61
2006	55	54
2007	25	58
2008	10	55
2009	11	25
2010	9	10
2011	6	11
2012	2	9
2013	-	6
2014	-	2
Total	633	633

TABLE 2.3

Variable Descriptions

Variable Name	Definition and Sources[45]
POST	Indicator variable=1 in the year after the initiation of an investigation is publicly disclosed and 0 otherwise.
LNAUDIT_FEE	The natural logarithm of total audit fees; *Audit Analytics*
LNTA	Natural logarithm of firm's total assets (*at*); *Compustat*
AUComm	Indicator variable= 1 if the interlocking board member served on the audit committee of the investigated firm, and 0 otherwise; *BoardEx*
ClassActionLawsuit	Indicator variable= 1 if the fraudulent firm is subject to class action lawsuit regarding the same issue scrutinized by the SEC, and 0 otherwise; *Securities Class Action Clearing House* by *Stanford Law School*
EM	A proxy for earnings management; the decile ranking of the absolute value of discretionary accruals estimated using the Modified-Jones model (Dechow et al., 1995)
BM	Book-to-market ratio; the book value of equity divided by the market value of equity; *Compustat*
LEV	Long-term debt (*dltt*) scaled by total assets (*at*); *Compustat*
ROA	Return on assets; income before extraordinary items (*ib*) divided by total assets (*at*); *Compustat*
CR	Current ratio; current assets (*act*) divided by current liabilities (*lct*); *Compustat*
CA_TA	Current assets (*act*) divided by total assets (*at*); *Compustat*
INTANG	Intangible assets (*intan*) divided by total assets (*at*); *Compustat*
PLOSS	Indicator variable = 1 if firm i reported a loss (*ib<0*) in year *t-1*, and 0 otherwise; *Compustat*
FOROPS	Indicator variable= 1 if the absolute value of foreign currency gain or loss (*fca*) exceeds $5000, and 0 otherwise; *Compustat*
SALES_GROWTH	The growth rate in sales (*sale*) over the year; *Compustat*
FYEDEC	Indicator variable= 1 if the firm's fiscal end is December 31st, and 0 otherwise; *Compustat*

[45] Where possible, Compustat mnemonics are indicated in parentheses. The data sources are indicated in italics.

INITIAL	Indicator variable= 1 if the firm was audited by a different audit firm in the previous year; *Audit Analytics*
LNAUREP_LG	The natural logarithm of the number of days between audit report signature date and firm's fiscal year end; *Audit Analytics*
SQSEG	The square root of the number of reporting segments; *Compustat*
PensionPlan	Indicator variable= 1 if the firm has reported Pension or Retirement expense (*xpr*>0); *Compustat*
AGE	The natural logarithm of the number of years between year t and the firm's founding year; *IPO database provided by Jay Ritter (https://site.warrington.ufl.edu/ritter/ipo-data/)*
GC	Indicator variable=1 if the firm received a going-concern opinion in year t, and 0 otherwise; *Audit Analytics*
RES	Indicator variable=1 if the firm restated its financial statement in year t and 0 otherwise; *Audit Analytics*
MERGER	Indicator variable= 1 if the firm was involved in merger and acquisition activity during year t (*compst*), and 0 otherwise. *Compustat*
NEWFIN	Indicator variable=1 if long-term debt (*dltis*) or equity *(sstk*) was issued during the year; *Compustat*
BIG_N	Indicator variable = 1 if the firm's financial statements were audited by a BIG N auditor in year t, and 0 otherwise; *Compustat*
ICPROB	Indicator variable=1 if there was a material weakness and/or significant deficiency in firm's internal controls over financial reporting as defined by AU 325 in year t, and 0 otherwise; *Audit Analytics*
IND_LEAD	Indicator variable=1 if the firm has greater than the median level of sales in its industry (48 Fama-French Industry classification)

TABLE 2.4

Descriptive Statistics

Connected firms sample								
		PRE (Year t-1)		POST (Year t+1)			Difference	
Variable	Obs	Mean	St. Dev.	Obs	Mean	St. Dev.		
LNAUDIT_FEE	633	13.614	1.294	633	14.044	1.272	0.430	***
LNTA	633	6.907	2.040	633	6.995	2.101	0.088	
EM	633	5.643	2.565	633	5.373	2.797	-0.270	**
BM	633	0.652	1.177	633	0.547	1.035	-0.105	**
LEV	633	0.507	0.239	633	0.543	0.338	0.036	**
Profit	633	-0.037	0.318	633	-0.047	0.418	-0.010	
CR	633	2.643	2.755	633	2.430	2.430	-0.213	*
CA_TA	633	0.489	0.232	633	0.488	0.229	-0.001	
INTANG	633	0.160	0.182	633	0.181	0.187	0.021	**
PLOSS	633	0.273	0.446	633	0.343	0.475	0.070	**
FOROPS	633	0.082	0.275	633	0.117	0.322	0.035	**
SALES_GROWTH	633	0.100	0.183	633	0.086	0.167	-0.014	*
FYEDEC	633	0.679	0.467	633	0.675	0.469	-0.004	
INITIAL	633	0.136	0.343	633	0.060	0.238	-0.076	***
LNAUREP_LAG	633	3.858	0.112	633	3.995	0.453	0.135	***
SQSEG	633	1.654	0.622	633	1.647	0.612	-0.007	
PensionPlan	633	0.791	0.407	633	0.821	0.383	0.030	*
AGE	633	3.332	1.023	633	3.439	0.923	0.137	*
GC	633	0.009	0.097	633	0.027	0.162	0.018	**
RES	633	0.049	0.216	633	0.079	0.270	0.030	***
MERGER	633	0.204	0.403	633	0.172	0.378	-0.032	*
NEWFIN	633	0.953	0.213	633	0.956	0.206	0.003	
BIG_N	633	0.929	0.257	633	0.907	0.291	-0.022	**
ICPROB	633	0.057	0.232	633	0.079	0.270	0.022	*
IND_LEAD	633	0.497	0.500	633	0.500	0.500	0.003	
AUComm	633	0.536	0.499	633	0.536	0.499	-	
ClassActionLawsuit	633	0.727	0.446	633	0.727	0.446	-	

TABLE 5

Pearson Correlation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) LNAUDIT_FEE	1														
(2)POST	**0.165**	1													
(3)AUComm	0.028	0	1												
(4)AUC_Interlock	-0.002	0	**0.701**	1											
(5)ClassActionLawsu	0.017	0	**-0.138**	**-0.092**	1										
(6)LNTA	**0.801**	0.021	0.011	-0.019	0.018	1									
(7)EM	**-0.018**	-0.050	-0.051	-0.050	-0.001	**-0.271**	1								
(8) BM	**-0.100**	-0.047	**0.059**	0.001	-0.017	-0.023	-0.009	1							
(9)LEV	**0.250**	**0.061**	0.007	-0.021	0.000	**0.207**	-0.013	**-0.116**	1						
(10)Profit	**0.185**	-0.013	0.035	0.009	0.019	**0.283**	**-0.153**	0.021	**-0.374**	1					
(11)CR	**-0.322**	-0.041	-0.051	-0.001	0.032	**-0.298**	**0.090**	-0.010	**-0.385**	-0.037	1				
(12)CA_TA	**-0.331**	-0.002	-0.001	0.053	-0.026	**-0.476**	**0.213**	**-0.106**	**-0.194**	**-0.115**	**0.430**	1			
(13)INTANG	**0.234**	**0.058**	0.012	0.012	**0.078**	**0.162**	**-0.113**	-0.017	0.021	0.017	**-0.215**	**-0.434**	1		
(14)PLOSS	**-0.232**	**0.075**	-0.037	**-0.068**	0.037	**-0.349**	**0.252**	0.023	**0.084**	**-0.323**	**0.156**	**0.233**	**-0.112**	1	
(15)FOROPS	**0.427**	**0.058**	**-0.071**	**-0.075**	**0.062**	0.399	**-0.080**	**-0.067**	**0.116**	**0.058**	**-0.136**	**-0.149**	-0.019	**-0.079**	1
(16)SALES_GROW	-0.005	-0.028	0.026	-0.021	0.017	0.017	0.006	-0.009	0.008	0.000	0.001	-0.038	-0.024	0.043	-0.010
(17)FYEDEC	**0.105**	-0.005	0.004	-0.021	0.001	**0.081**	0.038	-0.003	**0.073**	-0.013	-0.007	**-0.107**	**0.064**	0.026	**0.106**
(18)INITIAL	**-0.226**	**-0.128**	-0.018	-0.027	0.011	**-0.191**	0.023	**0.072**	-0.050	**-0.071**	**0.061**	**0.080**	-0.018	0.028	-0.047
(19)LNAUREP_LA(	-0.009	**0.143**	**0.057**	0.054	-0.009	**-0.269**	**0.072**	0.040	-0.007	-0.034	0.012	**0.061**	0.028	**0.162**	-0.030
(20)SQSEG	**0.404**	-0.006	**-0.088**	-0.049	0.037	**0.423**	**-0.118**	0.007	**0.141**	**0.140**	**-0.211**	**-0.224**	**0.111**	**-0.128**	**0.234**
(21)PensionPlan	**0.254**	0.038	0.049	0.007	0.005	**0.319**	**-0.175**	-0.031	**0.097**	**0.174**	**-0.106**	**-0.159**	0.030	**-0.228**	**0.116**
(22)AGE	**0.388**	0.055	0.001	-0.037	-0.053	**0.409**	**-0.204**	-0.032	**0.205**	**0.219**	**-0.213**	**-0.213**	0.029	**-0.250**	0.159
(23)GC	-0.041	**0.065**	-0.039	0.008	0.004	**-0.136**	0.049	**-0.102**	**0.184**	**-0.323**	-0.028	**0.068**	**-0.057**	**0.140**	0.034
(24)RES	0.030	**0.061**	0.023	0.011	-0.006	**-0.062**	-0.021	0.041	**0.067**	-0.033	-0.010	0.042	-0.048	0.028	-0.011
(25)MERGER	**0.077**	-0.040	0.051	**0.075**	0.014	**0.077**	**-0.093**	-0.013	-0.041	0.025	**-0.056**	**-0.088**	**0.254**	**-0.076**	0.016
(26)NEWFIN	**0.066**	0.008	0.016	0.016	0.001	**0.100**	-0.018	-0.036	-0.050	0.028	0.009	-0.019	0.026	-0.050	0.035
(27)BIG_N	**0.247**	-0.040	-0.074	**-0.074**	**0.075**	**0.325**	**-0.111**	0.017	0.055	0.020	**-0.061**	**-0.157**	0.027	**-0.081**	**0.080**
(28)ICPROB	**0.084**	0.044	-0.007	-0.007	0.004	**-0.096**	0.009	0.035	0.019	-0.054	0.035	0.044	-0.008	**0.078**	-0.006
(29)IND_LEAD	**0.542**	0.003	0.005	0.005	0.027	**0.652**	**-0.145**	**-0.081**	**0.158**	**0.169**	**-0.205**	**-0.193**	**0.083**	**-0.232**	**0.280**

	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
(16)SALES_GROW	1													
(17)FYEDEC	0.020	1												
(18)INITIAL	-0.009	**-0.062**	1											
(19)LNAUREP_LA(	0.023	0.052	0.038	1										
(20)SQSEG	0.016	0.012	**-0.086**	-0.045	1									
(21)PensionPlan	0.013	0.004	**-0.081**	**-0.106**	**0.244**	1								
(22)AGE	-0.052	-0.015	**-0.161**	**-0.087**	**0.376**	**0.323**	1							
(23)GC	-0.004	0.005	0.055	**0.122**	**-0.063**	-0.038	-0.068	1						
(24)RES	-0.008	-0.026	0.055	**0.160**	0.013	0.019	-0.006	**0.061**	1					
(25)MERGER	-0.013	0.021	0.032	-0.048	0.008	-0.010	-0.057	-0.020	-0.035	1				
(26)NEWFIN	0.007	-0.038	-0.017	-0.026	0.007	0.027	-0.029	0.002	-0.005	**0.057**	1			
(27)BIG_N	0.008	0.046	**-0.182**	**-0.186**	**0.109**	**0.079**	0.097	**-0.067**	-0.039	**0.063**	0.031	1		
(28)ICPROB	**0.104**	-0.002	**0.080**	**0.305**	**-0.070**	-0.051	-0.057	**0.151**	**0.301**	0.031	-0.001	**-0.091**	1	
(29)IND_LEAD	-0.029	0.007	**-0.106**	**-0.223**	**0.288**	**0.257**	0.266	**-0.077**	-0.042	**0.057**	0.053	**0.201**	**-0.069**	1

Correlation coefficients significant at the 5% or higher level are in bold.

TABLE 2.6
Time-series Model: PRE and POST

$$LNAUDIT\_FEE = \beta_0 + \beta_1 POST + \Sigma\beta_i Controls + \varepsilon$$

		[1]		[2]	
LNAUDIT_FEE	***Expected sign***	***Coefficient***	***(p-value)***	***Coefficient***	***(p-value)***
Intercept	?	13.614***	(0.000)	8.370***	(0.000)
POST	**+**	**0.430*** **	**(0.000)**	**0.012**	**(0.695)**
LNTA	+			0.499***	(0.000)
EM	+			0.008	(0.249)
BM	-			-0.029*	(0.053)
LEV	+			0.171*	(0.073)
Profit	-			-0.048	(0.530)
CR	-			-0.044***	(0.000)
CA_TA	+			0.658***	(0.000)
INTANG	+			0.622***	(0.000)
PLOSS	+			0.077*	(0.055)
FOROPS	+			0.360***	(0.000)
SALES_GROWTH	-			-0.0003***	(0.000)
FYEDEC	+			0.077*	(0.075)
INITIAL	-			-0.176**	(0.013)
LNAUREP_LAG	+			0.139**	(0.012)
SQSEG	+			0.128***	(0.001)
PensionPlan	+			-0.050	(0.322)
AGE	?			0.025	(0.424)
GC	+			0.086	(0.395)
RES	+			0.117	(0.111)
MERGER	+			-0.060	(0.144)
NEWFIN	+			-0.085	(0.215)
BIG_N	+			0.350***	(0.000)
ICPROB	+			0.487***	(0.000)
IND_LEAD	+			-0.001	(0.989)
Observations		1266		1266	
Industry Fixed Effects		NO		YES	
Year Fixed Effects		NO		YES	
Adjusted R-squared		0.0265		0.8278	

The table displays the results from an OLS regression with the natural logarithm of Audit Fees as a dependent variable. The sample period is between 2000 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered at the firm level.

TABLE 2.7
Time-series Model: PRE and POST
LNAUDIT_FEE = β_0 + β_1POST + β_2AUCOMM+ β_3 POST *AUCOMM + $\Sigma\beta_i$ Controls +ε

		[1]		[2]	
LNAUDIT_FEE	***Expected sign***	***Coefficient***	***(p-value)***	***Coefficient***	***(p-value)***
Intercept	?	8.408***	(0.000)	8.438***	(0.000)
POST	?	-0.061	(0.132)	-0.052	(0.255)
AUComm	?	-0.061	(0.173)	-0.062	(0.205)
POST X AUComm	**+**	**0.125*** **	**(0.003)**	**0.138*** **	**(0.004)**
LNTA	+	0.499***	(0.000)	0.502***	(0.000)
EM	+	0.008	(0.267)	0.005	(0.492)
BM	-	-0.029*	(0.052)	-0.025*	(0.068)
LEV	+	0.170*	(0.070)	0.124	(0.245)
Profit	-	-0.048	(0.526)	-0.070	(0.426)
CR	-	-0.045***	(0.000)	-0.046***	(0.000)
CA_TA	+	0.655***	(0.000)	0.693***	(0.000)
INTANG	+	0.622***	(0.000)	0.563***	(0.000)
PLOSS	+	0.079**	(0.049)	0.061	(0.161)
FOROPS	+	0.365***	(0.000)	0.347***	(0.000)
SALES_GROWTH	-	-0.0003***	(0.000)	-0.0003***	(0.000)
FYEDEC	+	0.077*	(0.076)	0.072	(0.117)
INITIAL	-	-0.178**	(0.011)	-0.208***	(0.009)
LNAUREP_LAG	+	0.138**	(0.013)	0.112*	(0.054)
SQSEG	+	0.128***	(0.001)	0.110***	(0.008)
PensionPlan	+	-0.051	(0.310)	-0.048	(0.372)
AGE	?	0.025	(0.349)	0.043	(0.138)
GC	+	0.090	(0.395)	0.123	(0.339)
RES	+	0.118	(0.108)	0.164*	(0.056)
MERGER	+	-0.062	(0.041)	-0.035	(0.441)
NEWFIN	+	-0.085	(0.214)	-0.061	(0.420)
BIG_N	+	0.351***	(0.000)	0.365***	(0.000)
ICPROB	+	0.488***	(0.000)	0.481***	(0.000)
IND_LEAD	+	-0.001	(0.989)	-0.014	(0.829)
Observations		1266		1090	
Industry Fixed Effects		YES		YES	
Year Fixed Effects		YES		YES	
Adjusted R-squared		0.8282		0.8247	
Marginal Effect of AUComm	+	6.4%		7.6%	

The table displays the results from an OLS regression with the natural logarithm of Audit Fees as a dependent variable. The sample period is between 2000 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered at the firm level.

TABLE 2.8
Time-series Model: PRE and POST

$$LNAUDIT\_FEE = \beta_0 + \beta_1 POST + \beta_2 ClassActionLawsuit + \beta_3 POST * ClassActionLawsuit + \Sigma\beta_i Controls + \varepsilon$$

		[3]	
LNAUDIT_FEE	***Expected sign***	***Coefficient***	***(p-value)***
Intercept	?	8.413***	(0.000)
POST	?	-0.069	(0.123)
ClassActionLawsuit	?	-0.071	(0.213)
POST X ClassActionLawsuit	**+**	**0.116****	**(0.013)**
LNTA	+	0.499***	(0.000)
EM	+	0.009	(0.222)
BM	-	-0.028*	(0.061)
LEV	+	0.171*	(0.074)
Profit	-	-0.050	(0.520)
CR	-	-0.045***	(0.000)
CA_TA	+	0.659***	(0.000)
INTANG	+	0.625***	(0.000)
PLOSS	+	0.078*	(0.051)
FOROPS	+	0.361***	(0.000)
SALES_GROWTH	-	-0.0003***	(0.000)
FYEDEC	+	0.077*	(0.075)
INITIAL	-	-0.172**	(0.014)
LNAUREP_LAG	+	0.137**	(0.012)
SQSEG	+	0.129***	(0.001)
PensionPlan	+	-0.048	(0.340)
AGE	?	0.024	(0.359)
GC	+	0.078	(0.465)
RES	+	0.118	(0.107)
MERGER	+	-0.060	(0.144)
NEWFIN	+	-0.086	(0.205)
BIG_N	+	0.352***	(0.000)
ICPROB	+	0.493***	(0.000)
IND_LEAD	+	-0.001	(0.989)
Observations		1266	
Industry Fixed Effects		YES	
Year Fixed Effects		YES	
Adjusted R-squared		0.8279	
Marginal Effect of Class-Action Lawsuit	+	4.5%	

The table displays the results from an OLS regression with the natural logarithm of Audit Fees as a dependent variable. The sample period is between 2000 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered at the firm level.

TABLE 2.9
Time-series Model: PRE and POST
(Connected Firms Sample if *AUComm*=1 and *ClassActionLawsuit*=1)

$$LNAUDIT\_FEE = \beta_0 + \beta_1 POST + + \Sigma \beta_i Controls + \varepsilon$$

		[3]	
LNAUDIT_FEE	***Expected sign***	***Coefficient***	***(p-value)***
Intercept	?	7.918***	(0.000)
POST	**+**	**0.122****	**(0.028)**
LNTA	+	0.464***	(0.000)
EM	+	0.001	(0.957)
BM	-	-0.033	(0.195)
LEV	+	0.149	(0.163)
Profit	-	-0.050	(0.520)
CR	-	-0.094***	(0.000)
CA_TA	+	0.831***	(0.001)
INTANG	+	0.657***	(0.005)
PLOSS	+	0.158**	(0.035)
FOROPS	+	0.503***	(0.001)
SALES_GROWTH	-	-0.0002***	(0.000)
FYEDEC	+	0.133	(0.121)
INITIAL	-	-0.226*	(0.089)
LNAUREP_LAG	+	0.206*	(0.069)
SQSEG	+	0.136*	(0.063)
PensionPlan	+	-0.040	(0.673)
AGE	?	-0.005	(0.924)
GC	+	0.282	(0.278)
RES	+	0.288**	(0.032)
MERGER	+	-0.096	(0.191)
NEWFIN	+	-0.066	(0.618)
BIG_N	+	0.585***	(0.000)
ICPROB	+	0.415***	(0.002)
IND_LEAD	+	0.045	(0.652)
Observations		454	
Industry Fixed Effects		YES	
Year Fixed Effects		YES	
Adjusted R-squared		0.8035	

The table displays the results from an OLS regression with the natural logarithm of Audit Fees as a dependent variable. The sample period is between 2000 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered at the firm level.

TABLE 2.10
Time-series Model: PRE and POST
(Connected Firms Sample if *SameAuditorFraud==1*)

$$LNAUDIT\_FEE = \beta_0 + \beta_1 POST + + \Sigma \beta_i Controls + \varepsilon \quad [1]$$

		[3]	
LNAUDIT_FEE	***Expected sign***	***Coefficient***	***(p-value)***
Intercept	?	7.784***	(0.000)
POST	**+**	**0.166****	**(0.041)**
LNTA	+	0.536***	(0.000)
EM	+	0.023	(0.155)
BM	-	0.020	(0.425)
LEV	+	0.307	(0.313)
Profit	-	-0.039	(0.833)
CR	-	-0.030*	(0.052)
CA_TA	+	0.847**	(0.014)
INTANG	+	1.151***	(0.000)
PLOSS	+	0.164**	(0.048)
FOROPS	+	0.367***	(0.009)
SALES_GROWTH	-	-0.045***	(0.000)
FYEDEC	+	0.048	(0.696)
INITIAL	-	-0.207	(0.205)
LNAUREP_LAG	+	0.069	(0.448)
SQSEG	+	0.144*	(0.081)
PensionPlan	+	-0.224**	(0.039)
AGE	?	0.050	(0.298)
GC	+	-0.067	(0.848)
RES	+	0.335*	(0.066)
MERGER	+	-0.137	(0.144)
NEWFIN	+	-0.042	(0.756)
BIG_N	+	0.478	(0.100)
ICPROB	+	0.399**	(0.011)
IND_LEAD	+	-0.158	(0.179)
Observations		308	
Industry Fixed Effects		YES	
Year Fixed Effects		YES	
Adjusted R-squared		0.8240	

The table displays the results from an OLS regression with the natural logarithm of Audit Fees as a dependent variable. The sample period is between 2000 and 2014. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered at the firm level.

CHAPTER 3

DO BOARD MEMBERS DRAW SCRUTINY FOR ROLES AT OTHER COMPANIES?

3.1. Introduction

The previous decade has been marked by high profile financial fraud cases such as Lucent, Enron, WorldCom, Adelphia, and Waste Management to name a few. The Securities and Exchange Commission (SEC) sanctions of fraudulent firm behavior have received considerable attention from the press, academicians, investors, and practitioners. Top executives of sanctioned firms were convicted and required to return unlawfully obtained private benefits and pay civil penalties. Many of them were incarcerated and barred from acting as officers and/or directors of public companies in the future (Karpoff, Lee, and Martin 2008a). The consequences for the investors and employees of sanctioned firms were also devastating. For example, the collapse of Enron led to a loss in market capitalization of about $ 70 billion, its employees lost their jobs and all of their 401(k) benefits. Recent studies suggest that SEC enforcement actions also have implications for firms connected to the allegedly fraudulent firm by a board interlock in the form of negative reputation spillover effects (e.g. Srinivasan, 2005; Fich and Shivdasani, 2007, Kang, 2008). More specifically, these studies document that connected firms experience negative abnormal returns when the fraudulent behavior is publicly disclosed. However, there is no evidence whether connections to fraudulent firms have more long-lasting implications for non-investigated firms. This paper attempts to fill this gap by examining whether firms that share an interlock with an allegedly fraudulent firm are more likely to be subject to public or regulatory

scrutiny.

We argue that if a firm is investigated by the SEC and found to be in violation of the U.S. security laws, this might indicate that its board members are not acting as effective monitors. If a board member is not effective in preventing violations at one firm, s/he might not be effective at this task also at the other firms on whose board s/he is serving. Moreover, recent studies on the diffusion of corporate practices have suggested that board interlocks serve as an effective mechanism for disseminating information and facilitating adoption of corporate practices including questionable behaviors such as aggressive tax reporting (Brown and Drake, 2013) and option backdating (Bizjak et al., 2009). Thus, if one firm is allegedly violating security laws, it is possible that connected firms are undertaking similar practices, which could increase public and regulatory scrutiny. To this end, we examine whether interfirm ties in the form of board interlocks to allegedly fraudulent firms increase the likelihood of SEC investigation and class action litigation[46]. We focus on these two types of scrutiny because they are the two most common ramifications for firms engaging in fraudulent practices. Further, we suggest that the role of the connecting board member influences the likelihood of scrutiny. More specifically, we argue that board members are not equally involved in monitoring financial reporting behavior and the integrity of the financial statements. Rather, board chairs, chief executive officers (CEOs) and audit committee members bear greater monitoring responsibilities and are more likely to be blamed for failing to prevent fraudulent behavior than their colleagues. Thus, we posit that the positive effect of being connected to a fraudulent firm on scrutiny is stronger in these cases. Finally, we suggest that firms with strong corporate governance practices as

[46] In what follows, for simplicity reasons, we would use the term “fraud” to refer to “alleged fraud”. Very often SEC enforcement actions are concluded without admission of guilt.

evidenced by effective audit committees are less likely to adopt questionable practices and be scrutinized. If this is the case, audit committee effectiveness will attenuate the positive effect of board connections to a fraudulent firm on scrutiny.

Additionally, we explore whether prior involvement of a director in a fraudulent event influences the probability of public and regulatory scrutiny even if the firms are not connected by a board interlock. Habib and Bhuiyan (2016) document that the presence of "problem directors" on the audit committee of a firm is positively associated with real earnings management, but not associated with accrual earnings management. Moreover, there is anecdotal evidence that individuals, previously involved with a fraudulent firm, might engage in fraudulent behavior in a different firm. For example, on August 15, 2016, the SEC halted trading of Neuromama ltd.'s shares on suspicion of accounting manipulations[47]. The company was traded on the unregulated OTC market and its market capitalization has soared to over 35 billion even though the company had reported limited data on its performance and growth prospects. One of the people behind Neuroma ltd. was Steven Zubkis (also known as Steven Schwatzbard), who was found guilty of orchestrating a multi-million fraudulent scheme to defraud investors in the 1990s and then again in 2007, when he was also sentenced to a five-year jail sentence. While this is an extreme example of a fraudulent behavior of a single individual across several different ventures, it is very likely that the mere involvement of an individual previously connected to a fraudulent firm, in firm's governance can serve as a red flag to investors and the regulators and induce greater scrutiny. To test this assertion, we conduct additional analysis focusing on a sample of firms with "tainted" directors, which we define as directors that were serving on the boards of firms

[47] http://www.bloomberg.com/news/articles/2016-08-15/a-35-billion-stock-was-just-halted-on-manipulation-concerns (Accessed August 17, 2016).

subject to SEC enforcement when the fraud was committed.

The very preliminary analysis conducted thus far indicates that firms identified as connected to a fraudulent firm are significantly more likely to be subject to class action litigation and SEC enforcement than a control sample of firms. Connected firms also have a higher propensity to restate their earnings suggesting that the higher likelihood of scrutiny could be attributable to their more aggressive accounting practices. However, more in depth analysis is necessary before any conclusions could be drawn.

This paper relates to the literature on the factors that affect SEC's enforcement actions given SEC's limited resources (Kedia and Rajgopal, 2011) and to the literature on the antecedents of shareholder-initiated litigation. Prior studies have suggested that certain firm-specific characteristics such as headquarters' geographic location (Kedia and Rajgopal, 2011), political contributions (Correia, 2014), and labor-intensity (Heese, 2014) influence the probability of SEC enforcement, while the probability of class action litigation depends considerably on the ability of the firm to pay damages. In this paper, we introduce an additional variable that helps explain the likelihood of public and regulatory scrutiny.

The paper proceeds as follows. In Section 3.2, we review the literature on SEC enforcement and shareholder-initiated. Section 3.3 presents the theoretical background and the hypotheses. Section 3.4 introduces the model and the sample. Section 3.5 presents some preliminary findings. Section 3.6 discusses some additional analyses to be performed. Sections 3.7 and 3.8 conclude with a discussion of the next steps in the development of this project.

3.2. Background and Related Literature

The key aim of this study is to determine whether board connections to an allegedly

fraudulent firm influence the likelihood of regulatory and public scrutiny in future periods. We specifically focus on two types of enforcement mechanisms- SEC enforcement actions as a proxy for regulatory scrutiny and private shareholder lawsuits as a proxy for public scrutiny. While, both types of scrutiny serve as disciplining mechanisms, they differ in the objectives of the plaintiffs, the remedies sought, and the consequences to the alleged wrongdoers. The similarities and differences are discussed next.

3.2.1. SEC Enforcement Actions

One of the stated objectives of the SEC is to maximize the breadth of its reviews of public filings and investigations of potential wrongdoings and to deter fraudulent behavior through its enforcement actions. However, the SEC has limited funds and only some of the potentially fraudulent firms get under scrutiny. Kedia and Rajgopal (2011) note that the yearly SEC budget is less than 1% of the total stock market capitalization, which considerably restricts its choice of potential targets. Some of the key events that could trigger SEC scrutiny, as reported by the SEC, are earnings restatements, auditor departures, CEO dismissals, etc. However, not all firms reporting such events are investigated. In fact, Files (2012) reports that only about 10% of the firms restating their earnings are subject to an SEC enforcement action, suggesting that the SEC is "prioritizing" investigations and focusing on cases with specific characteristics. For example, Kedia and Rajgopal (2011) report that the SEC is more likely to investigate firms with headquarters close to SEC offices. Additionally, lobbying (Correia, 2014; Yu and Yu, 2012) and labor-intensity (Heese, 2014) reduce the likelihood of an SEC enforcement action. The key argument of these papers is that the SEC avoids investigating and sanctioning politically important firms and governmental preferences represent an important factor when deciding

which firms to investigate.

The extent of the sanctions for wrongdoing depends on the nature of the case. The SEC can file a complaint with the US District Court and request the court to impose a sanction on the firm and/or the involved individuals. Potential sanctions are disgorgement of ill-gotten benefits, monetary penalties, suspending of involved individuals from serving on the boards of public companies for a certain period of time or imprisonment in the most severe cases. The SEC may also decide to handle the case within and file an administrative action. Some potential sanctions are cease and desist orders, bars from associations, etc. Most cases are settled without admittance of wrongdoing. However, a number of studies have documented that the consequences for firms investigated by the SEC are considerably greater in scope than the penalties imposed by the SEC and the US District Court. An early example is a paper by Feroz, Park, and Patena (1991) who examine 224 AAERs between 1982 and 1989. They document that in their sample, 70% of the studied cases the top management resign, 80% of the firms are subject to class-action litigation and in 42% of the cases the firm's auditor is also sanctioned. In addition, the stock market responds negatively to disclosures of SEC enforcement actions: on average, the investigated firms in their sample experience a 13% loss in market value in the two-day period following the announcement. Nourayi (1995) reports that the magnitude of the negative price reactions depends on the severity of the imposed penalties. Karpoff, Lee, and Martin (2008a, 2008b) report that the legal penalties imposed on firms involved in wrongdoing average $23.5 million per firm. However, the penalties imposed by the market participants are about 7.5 times larger due to lost reputation (Karpoff, Lee, and Martin, 2008b).

Overall, this research provides considerable evidence that SEC enforcement actions are

harmful to the investors, auditors, managers, and board members of the investigated firms. Thus, a better understanding of how the SEC chooses targets for investigation is warranted.

3.2.2. Shareholder Initiated Litigation

Securities class-action lawsuits are usually initiated by firm's shareholders and are considered complementary to SEC enforcement actions in scrutinizing firms allegedly engaged in wrongdoing (Gande and Lewis, 2009, McTier and Wald, 2011). Strahan (1998) proposes two key motivations for the filing of a federal class-action lawsuit: rent-seeking and agency problems hypotheses. According to the rent-seeking hypothesis, class action lawsuits are initiated by opportunistic lawyers who target firms with volatile stock returns regardless of whether the targets have engaged in misleading or illegal practices. In fact, lawsuits filed before 1995 were often labeled as frivolous (Beck and Bhagat, 1997). In 1995, the Congress passed the Private Securities Litigation Reform Act (Reform Act) in response to the high number of frivolous lawsuits, which imposed considerable costs on defendants even when the claims lacked merit. After the passage of the Reform Act, plaintiffs need to demonstrate evidence of fraudulent behavior before filing a suit, which effectively reduces the likelihood of lawyers acting opportunistically.

According to the agency problems hypothesis, class action lawsuits serve as a mechanism to impose penalties for fraudulent or reckless behavior and to deter future malfeasance. The decision to file a class action lawsuit indicates the failure of other corporate governance mechanisms to protect the interests of shareholders in the event of a misleading representation or a material misstatement of reported accounting information (Gande and Lewis, 2009). In support to this hypothesis, Becht, Bolton, and Roell (2003), Bauer, Braun, and Moers (2008), and

McTier and Wald (2011) provide evidence that shareholder initiated litigation serves as a disciplining mechanism to managers and reduces *ex post* agency conflicts. In addition, while the SEC rarely holds directors personally liable for financial fraud, the class action lawsuits serve as a well-developed mechanism for investors to sue directors on behalf of the firm for failing to exercise their fiduciary duties and causing damages to the firm as a whole (Brochet and Srinivasan, 2014).

By and large, the penalties for firms and executives being subject to a class action lawsuit are less severe than the consequences of SEC enforcement actions. Extant research on the stock market effects of litigation initiation reports mixed results. Romano (1991) documents limited stock market reaction, while Gande and Lewis (2009) report significant negative market returns. However, their evidence suggests that shareholders form rational expectations about the probability of litigation ex ante, which are already partially incorporated in the price thus studies centered on the announcement days tend to underestimate the impact of litigation. Humphery-Jenner (2012) shows that following class action lawsuits CEOs and CFOs are more likely to suffer pay cuts or leave the firm. Additionally, firms reduce diversification (Denis, Denis, and Sarin, 1997; McTier and Wald, 2011), improve their board structure by increasing the number of independent directors (Ferris, Jandik, Lawless, and Makhija, 2007) and change their investment and financing policies to reduce agency problems (McTier and Wald, 2011). Autore et al. (2014) report that firms involved in fraudulent behavior also have a hard time raising debt and equity financing. The documented effect is even stronger for firms with greater information asymmetry.

Prior studies have suggested that certain firm-specific characteristics such as CEO stock option compensation (Bauer, Braun, and Moers, 2008; Denis, Hanouna, and Sarin, 2006; Peng

and Roell, 2008), and overinvestment (McTier and Wald, 2011) can trigger the initiation of a class action lawsuit. Additional characteristics such as firm size, age, analyst following, asset composition, leverage, etc. also significantly influence the probability of a lawsuit (Choi, 2007; McTier and Wald, 2011). However, to our knowledge there is no evidence whether firm's connections to a fraudulent firm influence its probability of being subject to class action litigation. We attempt to fill in this gap in the literature by specifically investigating whether connections to a fraudulent firm influence the probability of two important types of scrutiny-public scrutiny in the form of class action litigation and regulatory scrutiny in the form of SEC enforcement actions.

3.3. Theoretical Background and Preliminary Hypotheses Development

3.3.1. Connections to a Fraudulent Firm and the Likelihood of Scrutiny

The main objective of firm's board of directors is to foster long-term success of the firm consistent with its fiduciary duties to shareholders. In essence, directors should act in the best interest of the company as a whole and exercise reasonable judgement and care when evaluating strategic decisions and managerial choices regarding corporate policies. The key question that we aim to address in this study is whether an SEC enforcement action at one firm affects the probability of public and regulatory scrutiny at related firms. We focus on attribution, social contagion, and screening theories to develop our hypotheses.

First, attribution theory is concerned with the perceptions of stakeholders regarding the cause of an observed event and the consequences of such perception (Ross, 1977; Tetlock, 1985). As previously discussed, the SEC initiates an enforcement action upon finding substantial evidence that the firm (or specific chief executive) has engaged in financial fraud, insider

trading, delinquent filing, etc. These activities should have been directly monitored and prevented by the board of directors. Indeed, the main responsibility for good corporate governance lies with company's board. Board members provide oversight and monitor financial performance and reporting. Thus, drawing on attribution theory, we argue that firm's stakeholders might attribute the alleged wrongdoing to failure of the board to provide effective corporate governance.

Second, social contagion theory suggests that ties developed through board interlocks facilitate informational transfer between associated firms, which can considerably influence the adoption of corporate norms, values, policies, and procedures. Of special interest in this study is the diffusion of earnings manipulations and other questionable accounting choices. Information about unethical behavior is likely to transfer through private channels such as board interlocks. Indeed, board members are in an excellent position to observe the implications of selecting specific accounting policies and procedures as the corporate board is responsible for monitoring management and the quality of reported information. Extant literature has documented that board interlocks facilitate the diffusion of questionable accounting choices such as earnings management (Chiu et al., 2013) and aggressive tax reporting (Brown and Drake, 2013). Accordingly, if creative accounting aimed at increasing stock returns on earnings is "successfully" used at one firm, then the behavior may also transfer to associated firms. In the case of SEC enforcement, we argue that if firm A is allegedly involved in misrepresentation of accounting information, then the social contagion theory predicts that similar practices have been applied also at firms connected to firm A by a board interlock.

Third, screening theory suggests that in cases of information asymmetry, stakeholders are

likely to focus their attention on observable attributes and use them to make inferences about more unobservable ones (e.g. Arrow, 1973; Stiglitz, 1975, 2000). Screening theory has been mostly applied in labor economics and was in part developed by Arrow (1973) who proposes that employers use the educational degree of potential employees as a screening device that can yield some information about their professional qualities and abilities. In the context of enforcement actions, connections to fraudulent firms in the form of board interlocks may serve as a preliminary indication of poor monitoring and/or low reporting quality.

H1a: Connection by a board interlock to an allegedly fraudulent firm increases the likelihood of subsequent public scrutiny.

Additionally, as suggested by Kedia and Rajgopal (2011), the SEC is resource-constraint and cannot investigate all firms that might be engaged in fraudulent behavior. Nevertheless, the attribution and screening theories suggest that conviction of a connected firm might provide a low-cost indicator to the SEC that the focal firm might be engaged in wrongdoing as well. We argue that in the presence of other red flags such as financial distress or restatements firms connected to an allegedly fraudulent firm will be more likely to face SEC scrutiny than other firms will. Additionally, social contagion theory suggests that board interlocks might serve as efficient mechanisms for information transfer and conduits for diffusion of corporate practices and policies. Thus, social contagion theory would predict that if unethical accounting manipulations are observed at one firm, then similar practices might be observed at associated firms. If this is the case, we predict that if firm A is connected to firm B by a board interlock and

firm B is subject to an SEC enforcement action, then *ceteris paribus* firm A is also more likely to be subject to an SEC enforcement action than a control firm. More formally, this hypothesis is stated as follows.

H1b: Connection by a board interlock to an allegedly fraudulent firm increases the likelihood of subsequent regulatory scrutiny.

3.3.2. The role of the Connecting Director on the Board of the Fraudulent Firm and Likelihood of Scrutiny

Board members do not equally influence the adoption of practices and are not equally engaged in monitoring the firm. The Treadway Commission (National Commission on Fraudulent Financial Reporting 1987, p. 40) recommended that all public firms should maintain audit committees that are directly in charge of monitoring the quality of reported information. In 1999 NYSE and Nasdaq revised their listing requirements making it compulsory for listed firms to have audit committees comprised of at least three members, all of whom need to be independent (Klein, 2002) suggesting further that regulators perceive audit committees as a key part of the corporate governance. Empirical evidence suggests that the presence of an active audit committee is indeed associated with better disclosure quality (e.g. Karamanou and Vafeas, 2005; Vafeas, 2005). Moreover, while existing regulations and guidance emphasize the composition of audit committees and the characteristics of audit committee members such as independence and expertise, there are no rules against the same person sitting on the audit committees of two different firms. Yet, extant research suggests that audit committee interlocks considerably enhance the transfer of questionable accounting practices such as earnings

management (Chiu et al., 2013; Shi, Dharwadkar, & Harris, 2013) [48]. Additionally, if the audit committee is considered to be a direct monitor of management actions, then in case of fraudulent behavior, its members will be more likely to be blamed. Stated formally, we expect that:

> H2a: The positive effect of being connected to a fraudulent firm on the likelihood of public scrutiny will be stronger if the connecting director serves on the audit committees of both firms.
>
> H2b: The positive effect of being connected to a fraudulent firm on the likelihood of regulatory scrutiny will be stronger if the connecting director serves on the audit committees of both firms.

Additionally, studies on the diffusion of corporate practices (e.g. Chiu et al., 2013) document that the board chairperson has considerably greater impact on the adoption of certain corporate practices than the average board member. This finding is consistent with the psychology, sociology, and marketing literature that emphasize the role of opinion leaders on the diffusion of innovation[49]. Additionally, insiders who serve on the board (i.e. the CEO) can significantly influence the decision-making of the board because of their better knowledge and understanding of the operations of the firm. Thus, we expect that if the connecting director serves at an influential position such as CEO and Board Chair then the effect hypothesized above

[48] The business practice that occurs when the same individual simultaneously serves on the audit committees of two firms is commonly referred to as audit committee interlock.
[49] See Rogers (2003) for a review of the literature on the diffusion of innovation and the role of opinion leaders in the process.

will be stronger.

H3a: The positive effect of being connected to a fraudulent firm on the likelihood of public scrutiny will be stronger if the connecting director serves as the CEO and/or board chairperson of the fraudulent firm.

H3b: The positive effect of being connected to a fraudulent firm on the likelihood of regulatory scrutiny will be stronger if the connecting director serves as the CEO and/or board chairperson of the fraudulent firm.

3.3.3. Corporate Governance of Connected Firm and the Likelihood of Scrutiny

The characteristics of the connected firm's audit committee might influence the likelihood of scrutiny. The audit committee bears key responsibility for the oversight of the integrity of firm's financial reports, the compliance with applicable legal and regulatory requirements, the design and effectiveness of firm's internal controls, and the selection of firm's outside auditor. Although audit committee members do not participate in furnishing firm's financial statements, they are expected to regularly review critical accounting policies and estimates and discuss with management and firm's external auditors any issues and deviations. Prior literature documents that audit committee independence, activity level, and financial expertise are associated with better earnings quality and disclosure and lower likelihood of restatements (Klein, 2002; Abbott et al., 2004). Based on this evidence, we expect that firms with more effective corporate governance as evidenced by audit committee effectiveness will be less susceptible to the diffusion of questionable corporate practices and less likely to be scrutinized. Therefore, we expect that the main effect proposed in H1a-b will be attenuated for firms with

effective audit committees.

H4a: The positive effect of being connected to a fraudulent firm on the likelihood of public scrutiny will be attenuated for firms with effective audit committees.

H4b: The positive effect of being connected to a fraudulent firm on the likelihood of regulatory scrutiny will be attenuated for firms with effective audit committees.

3.4. Data and Research Methods

3.4.1. Data and Sample Selection Process

The sample selection process is conducted in two stages. First, we hand-collect data on SEC enforcement actions pertaining to accounting- and audit-related issues in the period between 1999 and 2014 from the SEC website[50]. We focus specifically on cases classified by the SEC as related to Issuer Reporting and Disclosure in its annual activity statements to restrict the sample to cases that that can be categorized as financial fraud. We read all cases to ensure that the issue scrutinized by the SEC is related to intentional alterations of financial data or fraudulent disclosure. We identify 607 cases that conform to this broad definition. Furthermore, we are interested in the timing of the financial fraud in order to be able to identify the directors that served on the board of the allegedly fraudulent firm when the fraud was committed. We collect these data from the enforcement releases related to the case provided by the SEC. The financial fraud in our sample lasts for 28.5 months on average. The longest lasting fraud in the sample is

[50] Information regarding Administrative Proceedings (APs), Litigation Releases (LRs) and Accounting and Auditing Enforcement Releases (AAERs) is availbele on the SEC website (https://www.sec.gov/litigation.shtml; last accessed on October 18, 2016).

the stock-option backdating case of Trident Microsystems Inc., which lasted for at least 14 years[51]. Trident Microsystems Inc. was subsequently required to restate its financial statements for the period 1994- 2006. The shortest financial fraud was related to fraudulent disclosure and lasted for less than a month.

Second, we use BoardEx, a proprietary database provided by Management Diagnostic Ltd., to identify the firms connected by a board interlock to the fraudulent firm when the fraud was committed. We eliminate connections through directors for which the exact timing of the position start or end date is not available on BoardEx. Furthermore, we require that the director served on the boards of the two firms (the fraudulent firm and the connected firm) when the fraud was committed. We identify 2009 firms with available Compustat identifier (gvkey) that were connected by a board interlock with a fraudulent firm when the fraud was committed. Subsequently, we investigate whether any of these firms were a subsidiary of the fraudulent firm. We identify 13 such cases and eliminate these firms from the sample, which leaves us with a sample of 1996 firms connected to 304 fraudulent firms through 993 directors. The average length of the connection between the fraudulent and connected firms in the sample is 5.62 years. The shortest length is about a month (30 days) and the longest is 31.87 years. Financial data on Compustat is available for 1386 distinct connected firms.

3.4.2. Variables

3.4.2.1. Dependent variables

Our dependent variable for the set of tests related to public scrutiny is the probability of a

[51] More information about the case is available at https://www.sec.gov/litigation/complaints/2010/comp21593.pdf (Last accessed October 18, 2016).

class-action lawsuit being filed against the firm (*P(CA_litigation=1)*). To this end, we collect data on class-action lawsuits from the Security Class Action Lawsuit Clearing House database, which is developed and maintained by Stanford Law School[52]. It reports that 3898 federal class action lawsuits were filed over the period between 1996 and 2014[53]. We are able to identify the Compustat identifier (gvkey) for 2880 unique firms against which 3565 lawsuits are filed. Most of the cases include one or more of the following issues: (1) failure to disclose material information and/or making false and misleading statements; (2) financial statements contained untrue statements of material acts and/ or omitted to state facts necessary to make the statements not misleading; (3) misrepresentation of assets, revenues, gains or concealment of expenses, liabilities, losses; (4) stock-trading irregularities and other violations related to company's Incentive Compensation Plan, etc. One concern with estimating the probability of shareholder-initiated litigation is that the lawsuits might be frivolous. The Private Securities Litigation Reform Act passed in 1995 limits the ability to file private class action lawsuits without merit, which mitigates the concern mentioned above as we limit our analysis to lawsuits filed between 1996 and 2014. Appendix 3.A provides more detailed information on class action litigation and the Reform Act of 1995.

For the second set of tests, we use the probability of being subject to an SEC enforcement action (*P(EA_SEC=1)*) as our dependent variable. As noted previously, we identify 607 enforcement actions initiated by the SEC in the period between 1999 and 2014 that are related to Issuer Financial Reporting and Disclosure. Appendix 3.B provides more information on the SEC

[52] http://securities.stanford.edu.
[53] Source: The Securities Class Action Lawsuit Clearing House. http://securities.stanford.edu/charts.html (Accessed 15 November 2015).

enforcement process.

3.4.2.2. Independent Variable

The independent variable (*CONN*) is an indicator for whether or not a firm is connected to a firm subject to an enforcement action by a board interlock when the fraud is committed. As noted previously the length of the overlap in the positions at both companies varies between 30 days and 31.87 years, which can influence the degree to which the interlocked firms are perceived as related. To account for this possibility, we control for the length of overlap between the firms (*OVERLAP_LGTH*). Additionally, as a robustness check, we restrict the analysis to only connections that last for at least two quarters (6 months).

3.4.2.3. Controls

To account for factors that can affect the probability of class action litigation, we consider a battery of controls. The first set of control variables are firm-specific characteristics that constitute important factors in the determination of damages awarded to the plaintiffs and therefore, are important determinants for the probability of a lawsuit being filed. Thus, we control for firm's size (*SIZE*) measured as the natural logarithm of market capitalization and share turnover defined as the average daily trading volume as a percentage of outstanding shares (*TURNOVER*) (Peng and Röell, 2007).

The second set of variables is related to aggressive accounting practices, which could increase the probability of litigation. First, we add an indicator equal to 1 if the firm restated its earnings during the year (*RES*). Second, prior literature documents a positive association between the probability of shareholder litigation and abnormal discretionary accruals (DuCharme, Malatesta, and Sefcik, 2004; Gong, Luis, and Sun, 2008; Peng and Roell, 2008).

Thus, the second measure of accounting aggressiveness, *ABN_ACCR* measures the degree of managerial discretion used in reporting operating earnings in the previous fiscal year. As a robustness check, we also consider an additional measure (*POS_ACCR*), which is an indicator variable for whether the abnormal accruals during the previous year are income-increasing or income-decreasing. This is based on the notion that investors are more concerned about firms overstating their earnings rather than understating earnings (Heninger, 2001).

The third set of variables relates to potential agency problems within the firm. We control for lagged sales growth (*GROWTH*) to account for the possibility that high- growth firms might be under more pressure to meet earnings targets and analysts forecasts. Firms that are experiencing suboptimal performance or suffering from financial distress might be more likely to be sued. Thus, we control for lagged profitability measured as the lagged return on lagged assets (*ROA*), efficiency (*TOBINQ*) and *LOSS*, which is an indicator variable equal to 1 if firm i experienced net loss in the previous year and 0 otherwise. More leveraged firms might be more likely to use aggressive accounting to avoid violating debt covenants. We measure leverage as the ratio of total debt to total assets (*LEVERAGE*) in year t-1. Raising additional equity and undergoing M&A activity during the year might create opportunities for opportunistic behavior. We control for this possibility by adding an indicator variable equal to 1 if firm i issued equity during the year and 0 otherwise (*SEO*) and an indicator equal to 1 if firm i engaged in any merger and/or acquisition activity during the year (*MA*). Finally, distributing dividends during the year mitigates agency problems. Thus, it is possible that firms distributing dividends are less likely to be subject to security litigation. We control for this by including an indicator, DIVIDEND, which assumes the value of 1 if firm i distributes dividends during the year and 0

otherwise.

The fourth set of variables relates to monitoring. We control for auditor (*BIG_N*), because firms audited by a BIG N audit firm might be less likely to have accounting problems and thus less likely to be subject to class action litigation. Better-governed firms are also less likely to engage in wrongdoing and less likely to be sued. Therefore, we control for board independence (*INDEP*), CEO/Board Chair duality (*DUALITY*), and the number of board meetings (*BRD_MEET*).

Finally, the fifth set of variables includes controls for the firm's litigation environment such as number of lawsuits filed previously against the same firm (*PREV_LIT*; Gande and Lewis, 2009), industry concentration of litigation (the yearly deviation from the average litigation intensity in an industry; *IND_LIT*; Khanna, Kim.and Lu (2015)), and controls for industries that are typically exposed to very high litigation risk e.g. pharmaceuticals or low risk of litigation e.g. utilities.

3.4.3. Model

To test the proposed hypotheses related to the likelihood of public scrutiny, we employ both univariate tests and multivariate probit regression analysis. For the multivariate tests, we apply a probit procedure in which the dependent variable is a dichotomous variable indicating whether the focal firm is subject to class action litigation.

The general model that we estimate is the following:

$$P(CA\_litigation_{it}=1)= \beta_0 + \beta_1 CONN_t + \Sigma\beta_n Controls_{i,t-1} + Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad [1]$$

where for each firm i and year t:

- $CA\_litigation_{,it,}$ is a dichotomous variable equal to one if a class action lawsuit is filed

against firm i in time t and zero otherwise.

- $CONN_i$ is the key variable of interest, which is an indicator for whether firm i is connected by a board interlock to a fraudulent firm.
- $Controls_{i,t-1}$ are firm-specific control variables that could influence the probability of misstatement and the probability of scrutiny. The control variables are lagged one year unless stated otherwise in the variable descriptions.
- *Year FE* and *Industry FE* are year- and industry-fixed effects. Model specifications, in which we control for *IND_LIT*, do not include industry fixed effects.

The standard errors are clustered at the firm level to account for possible correlations among same-firm observations. All continuous variables are winsorized at 1% in each tail to reduce the effect of outliers.

Further, to test whether board connections to a fraudulent firm affects the likelihood of a subsequent SEC scrutiny, we apply a probit procedure with the dependent variable being an indicator equal to 1 if firm i was subject to litigation in year t and 0 otherwise. The general model is as follows:

$$P(SEC\_EA_{it=}1) = \beta_0 + \beta_1 CONN_i + \Sigma\beta_n Controls_{i,t-1} + Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad [2]$$

where for each firm i in time t, $SEC\_EA_{,t,}$ is a dichotomous variable equal to one if a SEC enforcement action is filed against firm i in time t and zero otherwise and the other variables are as defined before. We exclude the control variables specific to the probability of class action litigation i.e. *PREV_LIT* and *IND_LIT*, because theoretically, there is no reason to believe that they could influence the probability of SEC scrutiny. Hypotheses 1a and 1b predict that the coefficient β_1 is positive and significant i.e. being connected to a fraudulent firm when the fraud

is committed increases the probability of subsequent public and regulatory scrutiny.

To test Hypotheses 2a and 2b and Hypothesis 3a and 3b, we introduce two additional variables: an indicator for whether or not the interlocked director serves on the firm's audit committee i.e. there as an audit committee interlock (*AUC_Interlock*), and whether or not the interlocked director serves as a chairman and/or CEO at the focal firm (*Chair_CEO*) and interact them with $CONN_{i,t}$. The resulting models are as follows:

$$P(CA\_litigation_{it}=1) = \beta_0 + \beta_1 CONN_i + \beta_2 AUC\_Interlock_i + \beta_3 CONN_i \, X \, AUC\_Interlock_i + \Sigma\beta_n Controls_{i,t-1} + Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad [3]$$

and

$$P(SEC\_EA_{it=}1) = \beta_0 + \beta_1 CONN_i + \beta_2 AUC\_Interlock_i + \beta_3 CONN_i \, X \, AUC\_Interlock_i + \Sigma\beta_n Controls_{i,t-1} + Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad [4]$$

where $AUC\_Interlock_i$ is 1 if the interlocking director serves on the audit committees of both firms and 0 otherwise and the other variables are as previously defined. If Hypotheses 2a and 2b are supported, we expect the coefficient β_3 to be positive and significant.

Finally, to test hypotheses 3a and 3b, we employ the following models:

$$P(CA\_litigation_{it}=1) = \beta_0 + \beta_1 CONN_i + \beta_2 Chair\_CEO + \beta_3 CONN_i \, X \, Chair\_CEO_i + \Sigma\beta_n Controls_{i,t-1} + Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad (5)$$

and

$$P(SEC\_EA_{it=}1) = \beta_0 + \beta_1 CONN_i + \beta_2 Chair\_CEO + \beta_3 CONN_i \, X \, Chair\_CEO_i + \Sigma\beta_n Controls_{i,t-1}$$

$$+Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad (6)$$

where $Chair\_CEO_i$ is 1 if the interlocking director serves as a Chairperson and/or CEO of the fraudulent firm and 0 otherwise and the other variables are as previously defined. If Hypotheses 3a and 3b are supported, we expect the coefficient β_3 to be positive and significant.

Finally, to test H4a-b, we measure audit committee effectiveness as a composite index comprised of three variables- the number of audit committee meetings (1 if above average for the industry and 0 otherwise), indicator for whether there is a financial expert on the audit committee (1 if there is a financial expert and 0 otherwise), and an indicator for whether the audit committee is fully independent (1 if fully independent audit committee and 0 otherwise). The resulting models are as follows:

$$P(CA\_litigation_{it}=1) = \beta_0 + \beta_1 CONN_i + \beta_2 AC\_Effectiveness_i + \beta_3 CONN_i \times AC\_Effectiveness_i + \Sigma\beta_n Controls_{i,t-1} + Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad (7)$$

and

$$P(SEC\_EA_{it}=1) = \beta_0 + \beta_1 CONN_i + \beta_2 AC\_Effectiveness_i + \beta_3 CONN_i \times AC\_Effectiveness_i + \Sigma\beta_n Controls_{i,t-1} + Year\ FE + Industry\ FE + \varepsilon_{i,t}, \quad (8)$$

where $AC\_Effectiveness_i$ is a composite index of audit committee activity, presence of a financial expert in the audit committee, and audit committee independence. If Hypotheses 4a and 4b are supported, we expect the coefficient β_3 to be negative and significant.

3.5. Preliminary Results

3.5.1. Descriptive Evidence

Table 4 presents the descriptive statistics of the connected and the control firm sample[54]. Relative to the population of control firms, connected firms are larger in terms of total assets and market capitalization, more profitable, and are more likely to be audited by a Big N audit firm. Moreover, they appear to have a lower reporting quality as evidenced by the greater percentage of firms in the connected firm sample that have restated their earnings during the period between 1998 and 2014 (12.9% of the firms in the connected firms sample versus 4.6% of the firms in the control sample). 11.5% of the connected firms restated their earnings subsequently to the financial fraud case at the interlocked firm. Further, we observe that 36.8% of the connected firms and 23.3% of the control firms are subject to class action litigation. The difference in means is significant at the 1% level providing initial support that firms connected to a fraudulent firms are more likely to be scrutinized by the public. Finally, 8.7% of the connected firms and 3.9% of the control firms are investigated by the SEC. The difference in means is significant at the 1% level suggesting that connected firms are also more likely to be subject to SEC scrutiny.

3.5.2. Robustness Checks

A caveat to keep in mind is that, in models (1) and (2), we are not capturing only the probability of scrutiny, but rather the joint probability of detection given the commission of financial fraud. Generally, we do not expect this partial observability to be problematic in the case of class action lawsuits, because they could be easily triggered by stock fluctuations or financial distress. However, the SEC initiates an enforcement action only if it detects an egregious financial misstatement. Due to this partial observability of financial fraud, the

[54] Control firms are firms with available financial data on Compustat and network data on BoardEx that are not identified as connected by a board interlock to a fraudulent firm during the period of the financial fraud.

previously reported results of the probit regression with $P(SEC\_EA_{t=1})$ as the dependent variable could be biased, because they rely on the assumption that the firms in the control sample, for which *CONNi*=0), are not engage and fraudulent behavior and thus are not scrutinized by the regulator. However, this might not be the case, because the SEC has limited resources and may not be able to investigate and sanction all firms that could be involved in fraudulent behavior. To overcome this concern, we follow Wang (2004, 2013), Chen et al., 2006), Wang et al. (2010), and Khanna et al. (2015) and employ a bivariate probit model to mitigate the concern about the partial observability of financial fraud[55]. For each firm i, F_i^*, is the latent probability to commit fraud and D_i^* is the latent probability of detection, which is expressed as follows:

$$F_i^* = x_{F,i}\,\beta + u_i$$

$$D_i^* = x_{D,i}\,\gamma + v_i$$

where $x_{F,i}$ represents the row vector of variables that explain the firm's probability of committing a fraud and $x_{D,i}$ represents the row vector of variables that explain the probability of detection. In this paper, we are interested in D_i^*. Instead, we observe $Z_{it} = F_{it}\,x\,D_{it}$, which is the joint realization of fraud and detection. Z_{it} is 1 if firm i engages in wrongdoing and is detected and is 0 if firm i does not engage in any wrongdoing or firm i commits an act of deviant behavior but it is not detected.

The empirical model for Z_{it} can be presented as follows:

$$P(Z_{it}=1) = P(F_{it}=1 \;\&\; D_{it}=1) = \phi\,(x_{1it}\beta_{1it};\, x_{2it}\beta_2)$$

[55] This model was first introduced in Poirier (1980).

$$= P(F_{it} = 0 \text{ or } D_{it} = 0) = 1 - \phi\,(x_{1it}\beta_{1it};\, x_{2it}\beta_2)$$

and the log-likelihood function of this model is:

$$L(\beta_1, \beta_2) = \Sigma \log[P(Z_{it}=1)] + \Sigma \log\,[P(Z_{it}=0)]$$

$$= \Sigma\{\, z_i \ln[\phi\,(x_{1it}\beta_{1it};\, x_{2it}\beta_2) + (1-z_i)\,\ln[1 - \phi\,(x_{1it}\beta_{1it};\, x_{2it}\beta_2)]\}$$

which can be estimated using maximum likelihood. If the probability of detection is different from 1 i.e. some financial fraud is not detected, then the coefficients of the simple probit model will be biased (Chen et al., 2006).

3.6. Additional Analysis

3.6.1. SEC Comment Letters

The main research question addressed in this study is whether connections by a board interlock to a fraudulent firm during the time of the fraud are associated with the likelihood of public and regulatory scrutiny. In the previous analysis, we use SEC enforcement actions as a proxy for regulatory scrutiny. However, as discussed earlier, SEC enforcement actions are rare events initiated in the presence of other major red flags such as restatements and financial distress. A related research question to address is whether related firms are more likely to be scrutinized by the SEC even in the absence of major red signals. To shed some light on this issue, we conduct an additional test involving SEC comment letters as the dependent variable.

Following the adoption of Sarbanes-Oxley Act in 2002 (SOX Section 408 paragraph (a)), the SEC conducts periodic in-depth reviews of registrants' filings. The key purpose of these reviews is to improve the quality of reported information including clarity and readability and to detect potential security law violations, which could trigger a formal investigation. If the SEC stuff determines that additional clarification or adjustment to the reported information is needed

they would send a comment letter to the filing firm. The comments can be on a broad array of topics ranging from requests for clarification to questioning specific reported numbers or assumptions and suggesting improvements. If the reviewed filing satisfies the disclosure requirements of the SEC stuff, no SEC comment letter is issued. Consequently, it is impossible to know exactly how many and which firms were reviewed by SEC during each given year. Yet, we believe that examining SEC comment letters can provide some interesting insights on whether the SEC reviews more often the financial statements of firms connected to a fraudulent firm, because SEC comment letters are considerably more common than enforcement actions and do not necessarily indicate the presence of a security violation. Moreover, there is some evidence that financial statement reviews can trigger an SEC enforcement action suggesting that comment letters might be an early indication of a formal investigation (Heese, 2014). The SEC discloses the correspondence publicly on the Electronic Data-Gathering, Analysis, and Retrieval (EDGAR) system about 20 days after the final correspondence is received. In 2005 the SEC made all of the correspondence between the SEC filers and the stuff for registrants' filings after August 2004 publicly available on EDGAR, which allows us to examine the likelihood of receiving an SEC comment letter for a sample of connected firms in the period between August 2004 and December 2012.

3.6.2."Tainted" Directors and Probability of Class Action Litigation and SEC Enforcement

Habib and Bhuiyan (2016) examine whether the prior involvement of audit committee members in material adverse events such as bankruptcies, major accounting restatements, or other events related to accounting issues influences the financial reporting quality of firms. They report higher levels of real earnings management for firms with "tainted" audit committee

members, but no considerable differences in accrual earnings management[56]. To the extent that directors' prior involvement in material adverse events such as financial fraud influences firm's financial reporting behavior, it is interesting to explore whether it also has an impact on the probability of public and regulatory scrutiny against the firm. To this end, we include subsequent positions of directors, serving on the board of the fraudulent firm when the fraud was committed. These firms do not necessarily share a board interlock with the fraudulent firm when the fraud was committed. Rather, to be included in the "tainted" sample, they need to have a "tainted" director on the board, which could make them more susceptible to public scrutiny. We identify 2830 firms that meet this broad criterion. 1567 of these firms were connected to the fraudulent firm by a board interlock i.e. the connecting board director served on the boards of both firms at the same time. 1661 of these firms were not connected by a board interlock to the fraudulent firm at any time, but have a "tainted" director on their board.

3.7 Conclusion

With this study we contribute to the literature on the effect of board interlocks and more specifically to the literature studying the effects of connections by a board interlock to firms convicted of wrongdoing (e.g. Fich and Shivdasani, 2007; Kang, 2008). The study also relates to the growing literature on SEC enforcement actions and mainly to the studies exploring the factors that increase the likelihood of being sanctioned by the SEC. It also suggests that board members holding positions at different firm might face additional costs for weak monitoring and

[56] We follow the terminology used by Fich and Shivdasani (2007) and define a tainted director as a director who served on the board of an allegedly fraudulent firm when the fraud was committed. Habib and Bhuiyan (2016) use the term "problem" director to refer to audit committee members that were previously involved in a material adverse event at another company i.e. bankruptcy, major accounting restatement or other accounting scandals.

disseminating questionable corporate practices if the associated firms are also at a higher risk of being sanctioned. While other types of interfirm ties (i.e. acquaintances among executives, buyer-supplier networks, etc.) can also affect the likelihood of SEC investigation and/or class action litigation, we focus specifically on board ties, because they are highly visible and concerns about maintaining these ties have been discussed largely in the business press.

Our preliminary analysis suggests that connected firms are more likely to be subject to regulatory and public scrutiny in the form of SEC enforcement and class action litigation respectively than a control sample of firms. Connected firms are also more likely to restate earnings consistent with the evidence provided by Chiu et al. (2013). However, a more thorough analysis is required before any inferences could be made.

The study also has certain limitations. Our research design allows us to observe whether an association by a board interlock with a sanctioned firm increases the likelihood of an SEC enforcement action given a certain probability of committing fraud, but not the likelihood of an SEC investigation. We attempt to address this question partially by examining the likelihood of an SEC comment letter, which provides an early indication that the firm is under SEC scrutiny.

Additional concern is that the inference in this paper is relational, but not causal. It is possible that there are some unobservable firm characteristics that affect both our dependent and independent variables. For example, it is possible that board members are attracted to firms with some unobservable characteristics in common that also make them more susceptible to public and regulatory scrutiny. Conversely, firms facing *ex ante* high threat of litigation might be looking to attract a certain type of directors e.g. directors with a law degree or prior experience. To mitigate this concern, we control for a battery of factors previously shown to influence the

likelihood of scrutiny as well as prior lawsuits and SEC enforcement actions.

3.8. Next Steps in the Analysis

Next, additional data required for the analysis will be collected e.g. corporate governance variables, market volatility, etc. The control sample will be further refined and a propensity score matching technique would be employed based on the probability to commit financial fraud. The better matching procedure would reduce endogeneity concerns and would allow us to better disentangle the effect of connections to fraudulent firms on public and regulatory scrutiny.

TABLES

TABLE 3.1

Sample Selection: Connected Firms

		Deleted	Remaining
(1)	All distinct firm observations identified as connected to a fraudulent firm with available gvkey		2,009
(2)	Less firms identified as subsidiaries of fraudulent firm	13	1996
(3)	Less observations with missing total assets, total sales, operating cash flows, net income, stock outstanding, or stock price	610	1386
	Total unique firms		1386
	Total firm-year observations		17101
	Fiscal years		1998-2014

TABLE 3.2

Number of class action lawsuits filed in the period 1996 -2014 by industry

Industry	Number of lawsuits	% of all lawsuits filed between 1996-2014	Number of firms against which a lawsuit was filed	% of all firms covered by Compustat in this industry
Consumer Nondurables	115	3.23%	103	10.12%
Consumer Durables	80	2.24%	66	13.31%
Manufacturing	166	4.66%	150	8.21%
Oil, Gas, and Coal Extraction and Products	104	2.92%	87	5.60%
Chemicals and Allied Products	44	14.28%	40	8.97%
Business Equipment -- Computers, Software, and Electronic Equipment	1087	30.49%	871	21.12%
Telephone and Television Transmission	164	4.60%	131	14.88%
Utilities	57	1.60%	46	8.58%
Wholesale, Retail, and Some Services (Laundries, Repair Shops)	296	8.30%	246	12.84%
Healthcare, Medical Equipment, and Drugs	500	14.03%	399	16.46%
Finance	547	15.34%	395	4.93%
Other -- Mines, Constr, BldMt, Trans,Hotels, Bus Serv, Entertainment	405	11.36%	346	7.85%
All	3565	100%	2880	10.42%

Columns [1] and [2] present the total number of lawsuits filed between 1996 and 2014 and the percent of total cases by industry (Fama-French 12 industry classification). Column [3] presents the number of firms against which a class action lawsuit was filed between 1996 and 2014. Column [4] presents the number of firms subject to class action litigation as a percentage of all firms in Compustat by industry.

TABLE 3.3

Variable Descriptions

Variable Name	Definition[57]
CA_litigation	Indicator=1 if a class action lawsuit is filed against the firm in year t and 0 otherwise; *Security Class Action Lawsuit Clearing House*
EA_SEC=1	Indicator=1 if the SEC initiated enforcement action against the firm in year t and 0 otherwise; *The SEC Litigation releases*
CONN	Indicator variable = 1 if the firm was connected to an investigated firm during the fraudulent period; *BoardEx*
OVERLAP_LGTH	The natural logarithm of the number of months the firms share a common director; *BoardEx*
RES	Indicator variable=1 if firm i restated its earnings in year t; *Audit Analytics.*
ABN_ACCR	Discretionary earnings management estimated as the residuals of the regression of the Modified Jones model (Dechow et al., 1995): $ACCR_{it} = \beta_{0+}\beta_1(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_3 PPE_{it} + \varepsilon_t$ where $\Delta Rev_t$is change in revenues, $\Delta Rec_t$is the change in accounts receivable from previous year and PPE_t is the gross property, plant and equipment in year t. All variables are deflated by beginning total assets (*at*); *Compustat*
POS_ACCR	Indicator variable= 1 if the abnormal accruals in t-1 are income-increasing and 0 if abnormal accruals in t-1 are income-decreasing; *Compustat*
SIZE	Natural logarithm of firm's total market capitalization (*prcc_f*csho*) in year t; *Compustat*
TURNOVER	Average daily trading volume as a % of the total number of outstanding shares; *CRSP*
ROA	Income before extraordinary items (*ib*) divided by total assets (*at*); *Compustat*
TOBINQ	Firm's market capitalization (*prcc_f*csho*) plus the book value of total liabilities divided by the book value of total assets (at) in year t-1. *Compustat*
LOSS	Indicator variable = 1 if a firm reported a loss (*ni<0*) in year *t*, and 0 otherwise; *Compustat*
GROWTH	Natural logarithm of sales in t to sales in t-1 (sale); *Compustat*
DIVIDEND	An indicator variable = 1 if the firm distributed dividends during the year; *Compustat*
MA	Indicator variable =1 if the firm had reported a merger or acquisition

[57] Where possible, Compustat mnemonics are indicated in parentheses. The data sources are indicated in italics.

	during the year (*compst*); *Compustat*
SEO	Indicator variable=1 if the firm issues equity during the year; *Compustat*
BIG_N	Indicator variable = 1 if a firm's financial statements were audited by a BIG N auditor in year t, and 0 otherwise; *Compustat*
INDEP	The number of independent directors as a percentage of total directors serving on the board of the firm in year t; *Proxy Statements*
DUALITY	Indicator variable=1 if the CEO serves also as the Chairman of the Board; *Proxy statements*
BRD_MEET	The number of board meetings during the year; *Proxy statements*
PREV_LIT	The number of lawsuits filed previously against firm i. *Security Class Action Lawsuit Clearing House*
IND_LIT	The yearly deviation from the average litigation intensity in an industry. *Security Class Action Lawsuit Clearing House*

TABLE 3.4

Descriptive Statistics

	CONN Firms			Control Firms			Difference CONN-Control	
Variable	Obs	Mean	St. Dev.	Obs	Mean	St. Dev.		
SIZE	17101	6.931	2.295	66579	5.314	2.140	1.617	***
SIZE (Total Assets)	17101	6.912	2.235	66579	5.345	2.076	1.567	***
MKT_BK	17101	2.767	4.438	66579	2.704	6.565	0.063	*
LEV	17101	0.223	0.271	66579	0.200	0.662	0.023	
ROA	17101	-0.003	0.243	66579	-0.056	0.972	0.053	**
ROE	17101	-0.044	3.778	66579	-0.123	4.607	0.079	***
BIG_N	17101	0.915	0.279	66579	0.782	0.413	0.133	***
RES	17101	0.129	0.089	66579	0.046	0.210	0.083	***
Subsequent RES	17101	0.115	0.122	-	-	-	-	-
CA_litigation	17101	0.368	0.482	66579	0.233	0.423	0.135	***
Subsequent CA_litigation	17101	0.251	0.433	-	-	-	-	-
EA	17101	0.087	0.281	66579	0.039	0.193	0.048	***
Subsequent EA	17101	0.072	0.259	-	-	-	-	-
Number of connections to fraud firm	17101	1.111	0.355	-	-	-	-	-
Director left fraud firm	17101	0.355	0.478	-	-	-	-	-
Duration of Overlap	17101	2321.4	1750.5	-	-	-	-	-

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APPENDICES

APPENDIX 1.A

Codification of violations involving manipulations of core earnings (CORE)

CORE is an indicator variable equal to 1 if the investigated firm is allegedly involved in manipulations of income before special and extraordinary items and more specifically manipulations that result in misstatement of sales, cost of goods sold (COGS), selling, general, and administrative expenses, research and development expenses (R&D) and use of reserves to smooth income.

I. Examples of cases that are classified as affecting core earnings (CORE=1):

1) W.R. Grace & Co.: AAER 1140 (June 30, 1999)

"...during the relevant period, the former Grace and NMC senior management deferred reporting income earned by NMC primarily to smooth the earnings of the Health Care Group, i.e., to bring the reported earnings of the Health Care Group in line with Grace's targeted earnings. At the direction and/or with the knowledge of former Grace and NMC senior management, Grace **deferred reporting income by increasing or establishing reserves not in conformity with generally accepted accounting principles** ("GAAP") (hereinafter, the "excess reserves"). Grace, as directed by former Grace senior management and implemented by former NMC senior management, used the reserves to manipulate the reported quarterly and annual earnings of the Health Care Group and Grace." (Emphasis added)

Source: AAER 1140/ June 30, 1999. www.sec.gov/litigation/admin/34-41578.htm

2) Acrodyne Communications, Inc.: AAER 1731 (March 6, 2003)

"Acrodyne materially **misstated figures reported for its inventory, cost of sales, revenue, gross profit, and net loss** in its financial statements for the year ended December 31, 1998; the first three quarters of 1999; the year ended December 31, 1999; and the first quarter of 2000. Acrodyne included its misleading financial results in press releases and its filings with the Commission relating to these periods. …Acrodyne misstated these line items in its financial statements as a result of its faulty cost accounting and improper revenue recognition. " (Emphasis added)

Source: AAER 1731/ March 6, 2003. https://www.sec.gov/litigation/admin/34-47454.htm

3) American Italian Pasta Company: AAER 2877 (September 15, 2008)

"The Commission's complaints, filed in federal district court in the Western District of Missouri, allege that Webster, Schmidgall, and Watson[58] engaged in a variety of fraudulent accounting from AIPC[59]'s fiscal year 2002 through the second quarter of its fiscal year 2004 to inflate AIPC's reported earnings. This caused **period costs to be fraudulently capitalized** in order to meet AIPC's external targets. The Commission further alleges that AIPC and its former executives **manipulated AIPC's trade promotion accounting; failed to write off obsolete or missing spare parts; structured fraudulent round-tripping of cash transactions; and recorded false receivables.**" (Emphasis added)

Source: AAER 2877/ September 15, 2008.
https://www.sec.gov/litigation/litreleases/2008/lr20715.htm

II. Examples of cases not classified as affecting core earnings (CORE=0):

1) General Motors Corporation: AAER 3033 (January 22, 2009)

"With regard to GM's **pension plans**, the complaint alleges that GM made material misstatements or omissions in its 2002 Form 10-K **concerning the disclosure of two critical pension accounting estimates** - its pension discount rate for 2002 and its expected return on pension assets for 2003." (Emphasis added)

Source: AAER 3033/January 22, 2009.
https://www.sec.gov/litigation/litreleases/2009/lr20861.htm

2) Countrywide Financial: AAER 3023 (June 4, 2009)

"In its complaint filed in federal district court in Los Angeles, the SEC alleges that Mozilo, Sambol, and Sieracki **misled the market by falsely assuring investors that Countrywide was primarily a prime quality mortgage lender** that had avoided the excesses of its competitors." (Emphasis added)

Source: AAER 3023/ June 4, 2009. https://www.sec.gov/litigation/litreleases/2009/lr21068a.htm

3) Hospira Inc: AAER 3216 (December 8, 2010)

"The Commission's complaint alleged, among other things, that beginning in at least July 2009, Beckwith[60] **began systematically withdrawing funds** from TheraDoc's operating account and depositing them into an account under the name of Paul Beckwith CPA's. Upon transferring the misappropriated funds to Beckwith CPA's account, the complaint alleged that Beckwith then made further transfers from that account into his personal checking and savings accounts and

[58] Firm's former CEO, former CFO, and former executive vice president of corporate development and strategy, respectively.
[59] AIPC: short for American Italian Pasta Company.
[60] Assistant controller of TheraDoc, Inc. ("TheraDoc"), a subsidiary of Hospira, Inc.

then transferred funds to an account maintained at a national broker-dealer for his personal use. The complaint further alleges that Beckwith provided false reconciliation records to Hospira's internal accounting department and generated false reconciliation spreadsheets that did not reflect his withdrawals and deposits and also provided Hospira's accountants with bank records that deleted the records of the withdrawals that he made."

Source: AAER 3216/ December 8, 2010. https://www.sec.gov/litigation/admin/2010/34-63473.pdf

Appendix 3.A: Class action litigation

Securities Acts of 1933 and 1934 regulate the offer and sale of securities, identify and prohibit certain activities related to the offer and sale of securities, and authorize the SEC to undertake actions aimed at preventing material misrepresentations and fraudulent behavior in the securities markets and to investigate potential violations of the securities laws. Since 1947, when courts first recognized the rights of investors to initiate private action, private shareholder actions serve as an alternative mechanism to enforce the securities laws and to protect the rights of investors[61]. Generally, there are three forms of private shareholder actions: a direct shareholder action, a derivative suit, and a class action lawsuit. However, in most cases there are strong financial incentives for investors to seek damages or corporate actions through class action lawsuits and hence, they remain the most common type of private shareholder litigation.

Commonly, private attorneys file the lawsuits on behalf of a large number of private investors. On theory, securities litigation should arise in cases of intentional violations of the Securities Acts of 1933 and 1934. However, according to the rent-seeking hypothesis suggested by Strahan (1998), attorneys act opportunistically and initiate class action litigation even if there is no conclusive evidence of fraudulent corporate behavior. When faced with frivolous lawsuits, companies prefer to settle the case than to be exposed to negative publicity and lengthy litigation. In response to concerns that a considerable number of class action lawsuits lack merit and as a result companies bear unwarranted costs, in 1995, the US Congress enacted the Private Securities Litigation Reform Act (PSLRA). The PSLRA imposes new rules on the filings of

[61] In 1947, in Kardon v. National Gypsum Company (1947)the federal courts ruled that investors could bring private courses of action for violations of the antifraud provisions of Rule 10(b)(5)3 of the Securities and Exchange Act of 1934. For more information, refer to http://law.justia.com/cases/federal/district-courts/FSupp/73/798/2125350/

class action litigation and more importantly, puts the burden on plaintiffs to show that the company acted recklessly and/or intentionally in committing the allegedly misleading (or fraudulent) act:

> "…. in any private action arising under this chapter in which the plaintiff may recover money damages only on proof that the defendant acted with a particular state of mind, the complaint shall, with respect to each act or omission alleged to violate this chapter, state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind. (*15 U.S. Code § 78u–4 - Private securities litigation)*"

These additional requirements considerably reduce the number of frivolous lawsuits after 1996 (Peng and Röell, 2008).

Appendix 3.B: The SEC Enforcement Process

The SEC Enforcement Division was created on August 1972 to handle security violations and enforcement actions. Its main goal according to the SEC website is to protect investors by investigating potential violations of the federal securities laws and prosecuting perpetrators[62]. The SEC does not disclose the selection process of investigation targets but provides an example of several sources that can trigger an investigation such as whistleblowers, market surveillance, accounting restatements, news in the business press, etc., suggesting that the SEC may initiate investigation based on information from essentially any source[63].

The SEC investigations are conducted in two stages. During the initial stage, SEC conducts an informal investigation, which may take the form of unofficial inquiry, conducted in

[62] http://www.sec.gov/divisions/enforce/about.htm#.VB_YuvmSzKJ (Accessed September 22, 2014).
[63] http://www.sec.gov/News/Article/Detail/Article/1356125787012#.VC0Bzfl_vTo (Accessed October, 2, 2014).

confidentiality to prevent undesirable consequences such as destruction of material evidence or damaging the reputation of corporations or individuals not yet proven to be guilty of security law violations. If the SEC finds some preliminary evidence of wrongdoing, it undertakes a formal investigation in order to establish violation of security laws beyond a reasonable doubt. If sufficient evidence is collected, the SEC files an action in court or an administrative proceeding, which constitutes the second stage of the process. Violations related to accounting and audit issues give rise to Accounting and Auditing Enforcement Releases (AAERs).

A considerable number of enforcement actions have been reported during the past several years. In 2013 alone, the number of enforcement actions was 686. Some common allegations were misrepresentation and omission of material information, unlawful appropriation of customer funds, insider trading, manipulating security prices, running Ponzi schemes, etc. The accounting-based enforcement actions and proceedings receive a secondary designation of Accounting and Auditing Enforcement Releases (AAERs). All enforcement actions (including AAERs) are publicly available on the SEC website[64].

Investigated firms often choose to voluntary disclose ongoing SEC investigations. The 2001 Seaboard Report provides anecdotal evidence that the SEC is willing to be lenient towards firms that fully cooperate in the investigation and promptly disclose any wrongdoing to the stakeholders[65]. Such disclosures receive considerable media attention. For example, in September 2014 the mutual fund giant Pacific Investment Management Company (PIMCO)

[64] The AAERs can be viewed and/or downloaded from the SEC website http://www.sec.gov/divisions/enforce/friactions.shtml (Accessed September 22, 2014).

[65] The management of Seaboard fully cooperated with the SEC, restated their earnings, and fired the controller who was responsible for the misconduct and as a result of this prompt action the SEC decided not to undertake any further actions against the company. The full text of the report is available at http://www.sec.gov/litigation/investreport/34-44969.htm.

reported that it was being investigated by the SEC on allegations of artificially inflating the prices of bonds that it was trading. News about the investigation were reported in prominent business news outlets such as the Law Street Journal, Time, CNN Money, USA today, and many others even though the SEC had not undertaken any official action[66]. The SEC does not disclose that it is investigating a firm until the completion of the investigation process to prevent labelling companies as "fraudulent" before any evidence of wrongdoing has been established. However, it can freeze executives and director personal accounts and impose temporary halts on trading firm's stock if it believes this could protect investors.

If the SEC establishes that a violation of a security law has been committed, it imposes penalties for misconduct that can range from fines and injunctions to cease and desist orders, imprisonment and suspension of individuals from acting as corporate officers or sitting on the Board of Directors. In cases where the investigated firm is a regulated entity (e.g., brokers and investment advisers) the SEC can suspend or revoke licenses and registration.

[66] See for example http://online.wsj.com/articles/pimco-etf-draws-probe-by-sec-1411524226; http://time.com/money/3425306/pimco-sec-bond-investigation/; http://www.latimes.com/business/la-fi-0925-pimco-investigation-20140925-story.html; Accessed October 2, 2014.