Board Interlocks and Reputation Spillover Effects:

An Empirical Analysis of Financial Reporting Policies Following Material Adverse Events at Connected Firms*

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Abstract

I examine whether material adverse events such as financial fraud allegations at one firm affect the financial reporting policies of firms connected to it by a board interlock. I utilize enforcement actions initiated by the Securities and Exchange Commission (SEC) to identify heinous high-profile financial fraud cases. I develop and test two hypotheses: Information and High Publicity that explain why and how the board members of non-investigated firms respond to material adverse events at connected firms. Based on a sample of enforcement events in the period between 1999 and 2014, 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. I also document higher audit committee activity and increased board independence for these firms. Additional tests show that the effect on earnings management persists in the following year in cases where the fraudulent firm was involved in operating earnings manipulations and shared an audit committee interlock with the non-investigated firm. Taken together, the evidence provided in this paper suggests that material adverse events at one firm influence the financial reporting policies of firms in its board network.

Keywords: Financial fraud; board interlocks; SEC enforcement actions; reputation.

Data availability: Data are available from the sources identified in the paper.

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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

[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.

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 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

[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.

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 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 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

[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 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.

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 year t+1[4].

The paper proceeds as follows. The next section describes the SEC enforcement process. Section 3 presents the relevant literature and the hypotheses. Section 4 reviews the methodology and presents the results. Section 5 concludes.

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

[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.

[Insert Figure 1 about here]

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 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

[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.

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.

3. PRIOR LITERATURE AND HYPOTHESES

3.2 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].

[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.

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 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 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 manipulation of operating earnings.

3.2 High Publicity Hypothesis

[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.

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.

4. METHODS

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.

4.2 Variables

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

[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.

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, ΔRec_{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}).

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.

4.2.3 Control variables

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

[Insert Table 1 about here]

4.3 Research Design

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

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:

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

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 $POST_i$ 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".

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

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

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 $POST_i$ and $HIGH\_PUBLICITY_i$ is expected to be negative and significant ($\beta_{3<} 0$).

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 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 2 presents a breakdown of enforcement actions by year. The sample also includes 4 firms with more than 1 enforcement event.

[Insert Table 2 about here]

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

[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.

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-investigated firms that are interlocked with 205 investigated firms[14]. Table 3 provides details on the connected sample selection process.

[Insert Table 3 about here]

4.5 Descriptive statistics

Table 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

[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).
[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.

(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 the audit committees of both firms.

[Insert table 4 about here.]

Table 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, 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.

[Insert table 5 about here.]

4.6 Regression results

Table 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 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 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 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 following year (t+1) [17].

[Insert Table 6 about here.]

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 7 reports the results of the additional analysis. Column [1] is the same as column [2] in Table 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

[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.

[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.

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.

[Insert Table 7 about here.]

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 and are even more robust.

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.

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 control variables.

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 an

[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)

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 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 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)

[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.

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.

[Insert Table 8 about here]

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 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 6 and 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.

[Insert Table 9 about here]

4.8 Additional Analysis:

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 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 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 6 and 7.

[Please insert Table 10 about here.]

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 75^{th} quantile than for the 25^{th} 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.

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 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.

[Please insert Table 11 about here.]

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.

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 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 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 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 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.

[Insert Table 12 about here.]

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).

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TABLES AND FIGURES

FIGURE 1
The timeline of SEC enforcement action (Karpoff et al., 2008a)

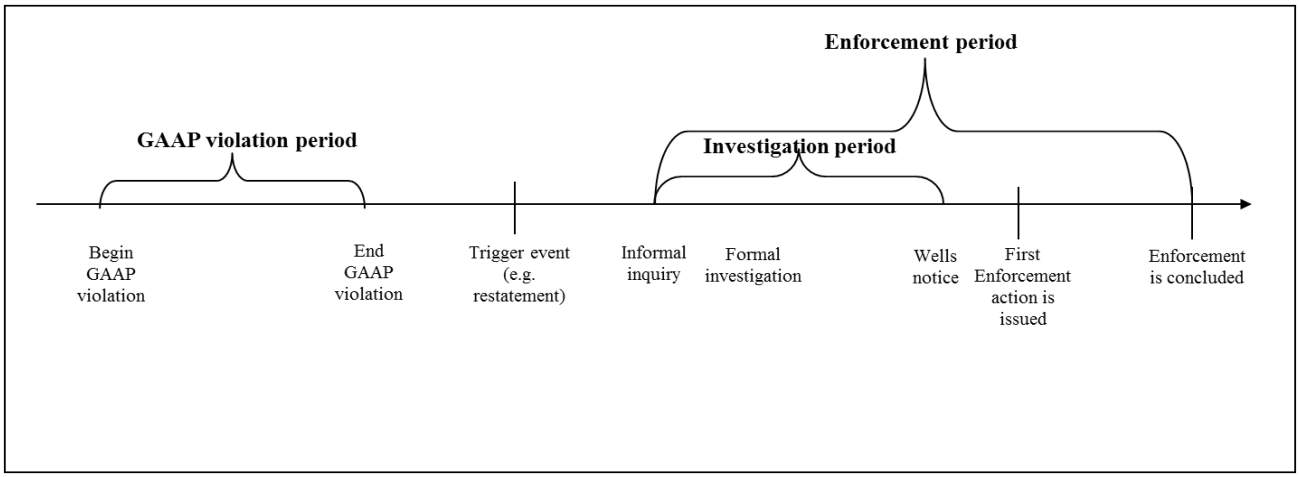

TABLE 1

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 $\Delta Rev_t$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*
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 $\Delta Rev_t$is change in revenues, $\Delta Rec_t$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 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.

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

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 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 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 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 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 3.

TABLE 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 by year. *, **, 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 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 by year. *, **, 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 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

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 by year. *, **, 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 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 by year. *, **, 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 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 by year. *, **, 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 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 by year 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 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 by year. *, **, 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.

APPENDIX 1

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[26] engaged in a variety of fraudulent accounting from AIPC[27]'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**

[26] Firm's former CEO, former CFO, and former executive vice president of corporate development and strategy, respectively.
[27] AIPC: short for American Italian Pasta Company.

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[28] **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 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

[28] Assistant controller of TheraDoc, Inc. ("TheraDoc"), a subsidiary of Hospira, Inc.