Unraveling Financial Fraud: The Role of Audit Committees and Outside Advisors in Conducting Internal Investigations

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ABSTRACT: When faced with allegations of corporate wrongdoing, the SEC's 2001 Cooperation Initiative encourages boards to initiate their own internal investigations and, specifically, to appoint independent investigation leaders and outside advisors. We explore the role of these participants in the remediation of accounting irregularities. We find that boards are more likely to appoint the audit committee (AC) as the investigation leader after SOX, when these committees are fully independent, and when AC members have more accounting/finance expertise. We also find that investigations led by ACs are more likely to engage independent outside advisors. CEO turnover is higher when the investigation evidence is collected by outside advisors, specifically forensic accountants. Finally, the likelihood of an SEC sanction is (1) *lower* when evidence comes from AC-led investigations and (2) *higher* when evidence is collected by outside legal advisors. Our findings suggest that the discovering AC effectively manages the investigatory process following accounting fraud.

Keywords: Board of Directors, Audit Committee, Sarbanes-Oxley, SOX, Corporate Governance, Executive Turnover, Founder CEOs, Restatements, Irregularities, SEC

JEL Classifications: G32, G14

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1. INTRODUCTION

Internal investigations have become standard practice for businesses responding to serious allegations of financial misconduct. They are critical in determining the credibility of the allegations, the responsible parties, and the impact of the fraud on the company's financial statements. Moreover, they are often viewed as one of the board's most effective defenses against a regulatory enforcement action (SEC, 2001; Caldwell, 2015). Despite the prevalence and importance of internal investigations, especially in today's increasingly complex legal environment, there is little-to-no academic research on how internal investigations are conducted or how differences in the leadership structure of these investigations can impact the findings. Our study undertakes a comprehensive examination of the internal investigations conducted by firms reporting accounting irregularities, with a particular focus on the role of the audit committee and outside advisory firms in the investigatory process.

The motivation for this paper stems from the Securities and Exchange Commission's (SEC) 2001 Seaboard Cooperation Initiative. In the Seaboard report, the SEC states that *how* companies conduct their internal investigation is as important a factor in determining the outcome of its inquiry as *whether* the firm conducts an internal investigation.[1] Of particular importance to the SEC when deciding whether to rely on evidence collected from a firm's internal investigation are (1) the positions of the investigation leaders (e.g., management, the board of directors, or a committee of outside directors) and (2) whether the company engaged

[1] On October 23, 2001, the SEC issued a report (AAER No. 1470) outlining the impact of cooperation in agency enforcement decisions. This report, commonly referred to as the Seaboard Cooperation Initiative, highlights the SEC's preferences regarding the persons chosen to oversee the investigation and whether outside advisors are hired, among other factors (SEC, 2001). The report is available at: https://www.sec.gov/litigation/investreport/34-44969.htm. See Files (2012) for a discussion of potential actions the SEC can take against a company, including issuing sanctions and levying fines and penalties.

outside counsel or other persons to perform the review (SEC, 2001). Although regulators pay careful attention to the parties responsible for running the investigation, they also admit that "there is no 'off the rack' internal investigation that can be applied to every situation at every company" (Caldwell, 2015). With that in mind, companies are afforded considerable discretion when undertaking an internal investigation and little is known about the parties typically involved in the investigatory process, or the impact that these parties have on the collection and evaluation of evidence.

To better understand these issues, we examine a sample of 415 firms that report accounting irregularities between 1997 and 2013. We focus on accounting irregularities because they represent severe misstatements of previously recorded earnings that result in extreme negative consequences for the announcing firm (Hennes et al., 2008). Our fundamental premise is that every firm facing an accounting irregularity will initiate some type of internal investigation into the misconduct.[2] We also assume that the parties leading the investigation are responsible for the collection of evidence, either directly or indirectly via a supervisory role.

Our first analysis examines the factors that influence whether the audit committee, a special committee, or another group such as the board, management, or the Company is chosen as investigation leader. This designation is important because the leader is ultimately responsible for the scope, timing, and outcome of the investigation. Moreover, those chosen for the role must have the appropriate level of independence, authority, and experience with which to coordinate the firm's overall response to the irregularity. Using data hand-collected from restatement disclosures, we find that 47% (n = 193) of the 415 irregularity firms in our sample designate the

[2] This premise is reasonable considering that every firm in our sample issues a restatement of past financial statements. Therefore, at a minimum, the firm needs its accounting department to estimate the extent and magnitude of the misstatement in order to file corrected financial statements with the SEC. Moreover, the SEC acknowledges that "internal investigations have now become common, a clear best practice for any company that discovers significant misconduct" (Andrew Ceresney, Director of SEC's Division of Enforcement, 2015).

audit committee (AC) as the investigation leader, and another 11% (n = 47) appoint an ad hoc special committee as the leader. The remaining 42% (n = 175) are led by other parties, including the board as a whole, management, the Company, or unknown. Appendix B provides examples of corporate disclosures regarding each type of investigation leader.

In a multivariate analysis, we find that the likelihood of the AC leading the investigation is associated with specific AC member characteristics – accounting/finance expertise, the extent of postgraduate education, and CEO/partner work experience – which suggests that the board views more highly educated and experienced ACs as being better equipped to handle the investigatory process. Special committees, on the other hand, are more often formed when AC members have less accounting or finance expertise. We also learn that special committees are more often designated as investigation leader when (1) the restatement results in larger downward adjustments to past earnings, and (2) the irregularity firm is relatively large. We posit that boards and shareholders of irregularity firms may lose confidence in the ability of the AC to remediate fraud when the misstatement is relatively severe. This is consistent with AC members at the time of *discovery* bearing the negative stigma of accounting irregularity allegations, even if they were not members during the fraud period (Kachelmeier et al., 2014). Another explanation is that the board shields the AC from taking on additional responsibilities when the AC's job is particularly complex (e.g., in large firms) or when the internal investigation is expected to be particularly time-consuming.

Once appointed, the internal investigation leader must decide whether to conduct the investigation themselves or to hire outside advisory firms to aid in the investigatory process. The leader's decision to hire (or not to hire) an outside firm is fraught with conflict and tension for several reasons: By *not hiring* an outside firm, the leader can more tightly control the

investigation, keep costs at a minimum, and influence subsequent outcomes, but doing this may call into question the objectivity of the investigation. In contrast, by *hiring* an outside firm, the leader agrees to a potentially costlier and longer investigation, but the evidence gathered may be viewed by the SEC as being more objective. Consistent with this notion, regulators have explicitly stated their preference for outside advisors that are "independent" and "not [currently] employed by the company or its counsel" (McTague 2007). Different types of advisory firms, such as forensic accountants or lawyers, also bring distinct experience and expertise to the investigation team.

In our second analysis, we find that 41% of irregularity firms hire outside advisors to assist in the investigation, with outside legal counsel being the most frequently mentioned group, followed by accounting advisors. The likelihood of retaining these advisors significantly increases when the AC leads the investigation compared to other leader groups. Moreover, greater accounting expertise (legal expertise) on the AC increases the probability of hiring outside legal advisors (accounting advisors), respectively, which suggests that specific types of advisors are targeted in order to complement the existing expertise of AC members. We also find that the likelihood of hiring legal advisors, in particular, increases with restatement severity, firm size, and the incidence of irregularities in an industry in the previous year.

In our final set of tests, we explore whether the evidence collected by different investigation leaders and advisory firms affects two key outcomes: the probability of CEO turnover and the likelihood of SEC sanctions. We use a full information maximum likelihood (FIML) bivariate probit model to control for endogeneity that may arise when modeling the relation between firm actions (e.g., the choice of investigation leader) and investigation outcomes. Our results suggest that CEO turnover rates are not affected by the choice of

investigation leader; however CEO turnover significantly increases when the investigation evidence is collected by outside advisors, particularly accounting advisors. There are two likely reasons for this finding: (1) outside advisors perform more thorough investigations, thereby discovering more instances of CEO culpability (compared to internal investigations conducted by other parties); or (2) all else equal, outside advisors are more objective than the board with respect to CEO culpability and, as such, take actions that result in greater CEO turnover.

Finally, we find that AC-led investigations are associated with a *lower* likelihood of SEC enforcement actions. This is consistent with the SEC granting leniency to firms that engage independent ACs to perform the internal investigation, perhaps because these individuals gather unbiased evidence that SEC staff can rely upon. We also find evidence that retaining outside *legal* advisors increases SEC sanction likelihood. At first glance, this result may appear contradictory to the SEC's guidelines. However, given that the SEC's Seaboard Report encourages firms that hire outside counsel to waive attorney-client privilege (a choice that is discretionary but not publicly disclosed), this finding is consistent with some firms invoking this privilege. As a result, the SEC may not view internal investigations conducted by law firms to be cooperative. Collectively, our outcome tests highlight the influential role that the AC and outside advisors play in determining the consequences of accounting irregularities.

Our study has implications for several streams of research. First, our findings help us better understand the effect of the 2001 Seaboard Cooperation Initiative on the individuals assigned to investigate financial fraud.[3] Given the significant costs associated with recruiting accounting and finance experts to the AC, and of hiring outside advisors, irregularity firms

[3] Leone and Liu (2010) call for additional research into "the nature and level of independence involved in the investigatory process around accounting irregularities (page 290)." Our findings suggest that the nature and outcome of the investigation vary according to the party assigned to lead it, whether that is the discovering audit committee, an ad hoc special committee, the board as a whole, or outside advisors.

should find our results useful in assessing the potential benefits of such decisions. In light of the emerging literature that analyzes the SEC's choice of enforcement targets (Kedia and Rajgopal, 2011; Files, 2012; Thevenot, 2012; Correia, 2014; Files et al., 2015), as well as the SEC's expansion of its Cooperation Initiative in 2010 (towards individuals), regulators should find our results interesting as well (SEC, 2010). Second, we contribute to the AC literature by examining the unique role of the discovering AC in remediating financial fraud. While prior research has examined the role of the AC in *preventing* financial reporting problems such as restatements, fraud, and internal control weaknesses (e.g., Beasley, 1996; Abbott et al., 2004; Hoitash et al., 2009), there is little empirical evidence on the AC's role in gathering evidence during investigations and/or resolving financial reporting problems after fraud is discovered.[4] We identify specific instances in which the discovering AC actually leads the investigation and therefore directly manages the remediation of fraud. We urge future research to make this distinction; otherwise it is unclear whether the AC has the authority or resources to influence restatement outcomes.

2. MOTIVATION AND HYPOTHESIS DEVELOPMENT

> *"We [the SEC] are not taking action against the parent company [Seaboard], given the nature of the conduct and the company's responses. Within a week of learning about the apparent misconduct…the company's internal auditors had conducted a preliminary review and had advised company management who, in turn, advised the Board's audit committee…[t]he full Board was advised and authorized the company to hire an outside law firm to conduct a thorough inquiry… The company pledged and gave complete cooperation to our staff… and it did not invoke the attorney client privilege…"*
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> *Seaboard Cooperation Initiative, SEC AAER No. 1470 (2001)*

As highlighted in the above excerpt from the SEC's Cooperation Initiative, conducting a thorough internal investigation can be one of the board's most effective defenses against a

[4] Noteworthy exceptions include Keune and Johnstone (2012) and Schmidt and Wilkins (2013), who examine the role of the AC in determining the materiality of misstatements and the timeliness with which restatement details are announced, respectively.

regulatory enforcement action (SEC, 2001). Earning cooperation credit from the SEC is based upon more than simply *conducting* an internal investigation, however (SEC, 2001; Files et al., 2015); the SEC has clearly stated that it considers the position and independence of the parties leading the investigation when it decides whether or not to rely on the evidence collected during the investigatory process. Despite the prevalence and importance of internal investigations, however, there is little-to-no academic research on how internal investigations are conducted, who leads them, or how these choices impact investigation outcomes.[5] To better understand these issues, we develop a novel, hand-collected dataset containing information on the internal investigations at accounting irregularity firms.

Based on our reading of corporate disclosures, we find that most firms begin an internal investigation by having the board of directors decide on the timing and scope of the investigation. The board then assigns an individual (or group of individuals) to oversee the collection and analysis of evidence. Once the investigation leader is chosen, one of the group's first decisions is whether or not to hire an outside advisory firm to aid in the investigation. The leaders (and outside firms, if hired) then employ various investigative procedures to gather evidence and uncover the facts of the case. Disclosure of the investigative procedures used in internal investigations is at the discretion of the firm and occurs infrequently, perhaps because of the confidential nature of the information revealed. Nevertheless, the three investigative procedures that are most commonly mentioned in corporate disclosures are interviews with individuals, document review, and email review.[6] Once the evidence is collected and the

[5] Files (2012), Karpoff et al. (2014), and Hogan et al. (2015) document the frequency of self-disclosed internal investigations among their sample of misreporting firms. However, these studies do not examine who is assigned responsibility for conducting these investigations, whether outside advisors are involved, or how these choices impact investigation outcomes.

[6] To illustrate, in an 8-K dated June 6, 2007, Sycamore Networks (SCMR) revealed the following details pertaining to its one-year investigation: "The 2006 Investigation…included a review of more than 1.8 million pages of electronic and hard copy documents and a comprehensive examination of all of the approximately 5,100 stock

investigation is deemed complete, the investigation leader writes a report summarizing the findings. The leader and the board must then collectively decide what actions (if any) to take based upon the information obtained, including whether or not to share the results of the investigation with regulators, and whether remedial or disciplinary actions are needed. If the findings of the report are shared with the SEC, its staff will consider the quality and objectivity of the information obtained before deciding to rely on the information in its own inquiry.

In the following sections, we develop our hypotheses regarding the choice of investigation leaders, the hiring of outside advisors, and whether the evidence gathered by these participants impacts the board's CEO turnover decision and the SEC's sanction decision.

2.1 Leaders of accounting irregularity investigations

Assigning the appropriate individual or collection of individuals to lead the internal investigation is a critical component of the firm's response to an accounting irregularity allegation. Those chosen for the role must have the appropriate level of authority and experience with which to coordinate the firm's overall response to the fraud. Investigations that require complex electronic data retrieval or numerous employee interviews, for instance, may require a larger and more experienced investigative team. Accounting irregularity investigations, in particular, may require one or more members of the investigation team to be well versed in the Company's accounting practices, as well as the financial reporting implications of the alleged misconduct. Perhaps most importantly, though, regulators expect internal investigation leaders to maintain a high degree of independence and objectivity. The firm wants to prevent suspected wrongdoers from influencing the outcome of the investigation in any way; this means that, in some cases, management or the board should not lead the internal investigation. Even

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option and restricted stock grants made during the period from the Company's incorporation in 1998 through the present." Sycamore also stated that "numerous interviews were conducted with current and former employees and members of our Board of Directors." See Appendix A for additional examples.

investigations conducted by affiliated individuals that are not suspected of wrongdoing, such as in-house legal counsel, tend to be discounted by the SEC as biased and may limit the firm's ability to earn cooperation credit (SEC, 2001).

Our study focuses on three groups that the board could appoint as investigation leaders: (1) the audit committee (AC), (2) an *ad hoc* special committee, or (3) other groups (including the board, management, and the Company).[7] Appendix B provides examples of the investigation leaders for eight firms in our sample. The board might choose the standing AC to lead the investigation for the following reasons: First, after the Sarbanes-Oxley Act (SOX) of 2002, the AC consists entirely of independent directors. Second, due to the annual election of directors, the AC members at the time of the *discovery* of the accounting irregularity may not be the same members present when the prior wrongdoing was *committed*. Moreover, because of the potential time lag between the start of an accounting irregularity investigation and any shareholder recommendations that would take effect, the discovering AC members bear the responsibility for ensuring that the company is pursuing careful application of GAAP going forward. Discovering AC members also have an additional incentive to remediate the fraud, as they often bear the consequences of the restatement, even in cases where they were not present during the fraud period (Kachelmeier et al., 2014).

If the board of directors has lost confidence in the standing AC, however, it may elect not to appoint it as investigation leader. Instead, it can appoint an ad hoc special committee, which usually consists of independent directors chosen specifically for this task. Even if the board remains confident in the AC's ability, it can still appoint a special committee to reconfigure the

[7] The investigation team can vary substantially from one firm to the next; for instance, one irregularity firm could use the AC plus outside advisors to complete the investigation, another could use in-house legal counsel and the firm's compliance department (e.g., the "Company"), and another may assign an *ad hoc* special committee to complete the task.

size or expertise of the committee in charge of the investigation. Moreover, the board may elect to shield the AC from additional responsibilities, especially if the internal investigation is expected to be particularly time-consuming or complex, or if the investigation falls during the year-end audit. There are no official requirements concerning the composition or characteristics of a special committee.[8]

2.2 Audit committee characteristics

We hypothesize that "high quality" ACs are more likely to be appointed to lead an accounting irregularity investigation, regardless of whether one or more AC members were present at the time of the wrongdoing. Although the debate over what constitutes a "high quality" committee has grown since the SEC Release No. 34-42233 on this subject in 1999 and the mandates of SOX in 2002, several studies have documented the benefits of the AC having certain characteristics, especially in the aftermath of accounting misstatements. For instance, Keune and Johnstone (2012) show that ACs with greater financial expertise are less likely to waive material misstatements once they are detected. Moreover, AC expertise increases the likelihood that detected material misstatements will be communicated to the AC and corrected in a timely fashion (DeZoort and Salterio, 2001; Knapp, 1987). Schmidt and Wilkins (2013) also find that restatement details are disclosed more quickly to investors when the restating firm's AC has greater accounting expertise.

We examine the following biographical characteristics of the discovering AC. First, we consider a committee of be of higher quality if it has a large percentage of accounting or finance experts. ACs are required to have at least one accounting/financial expert, as articulated in SEC Release No. 34-42233, SOX Section 407, and the recommendation of the Treadway

[8] In the case of Agile Software Corporation, for instance, the special committee consisted of only one director, whose identity we could not ascertain based on the filings. See http://www.sec.gov/Archives/edgar/data/1088653/000119312507046438/d10k.htm.

Commission.[9,10] Second, we consider larger ACs to be of higher quality. We argue that larger ACs are legitimized by the board of directors and are more likely to be acknowledged as an authoritative body (Kalbers and Fogarty, 1993; Abbott et al., 2004). However, Karamanou and Vafeas (2005) argue that size will have an ambiguous effect on the ability to monitor due to diffusion of responsibility. Third, we consider more frequent AC meetings to proxy for higher quality. Abbott et al. (2004) suggests that AC's that meet frequently are more diligent in their oversight of the financial reporting process, suggesting that they may be well suited for the task of investigation leader. Finally, we consider ACs whose members have more postgraduate education, employment experience as a chief executive officer (CEO) or partner, and legal expertise, to be of higher quality. These characteristics may allow AC members to better understand, communicate, and resolve complex accounting issues, and may enable them to better negotiate with the SEC.

Our first hypothesis predicts that boards will view ACs with high quality characteristics as being more effective in conducting investigations:

> **H1:** After the discovery of an accounting irregularity, high quality audit committees are more likely to be appointed to lead the investigation.

2.3 The hiring of outside accounting advisors and outside legal advisors

[9] SEC Release No. 34-42233 states that "each member of the audit committee must be financially literate" and "at least one member of the audit committee must have accounting or related financial management expertise." SOX Section 407 requires each AC to disclose whether they have at least one financial expert, while the other members must have knowledge of accounting and internal controls. The Treadway Commission Report on Fraudulent Financial Reporting states that "because the audit committee is the ultimate monitor of the financial reporting process, the audit committee's financial expertise is a key determinant of its effectiveness" (Treadway, 1987).

[10] Requiring the AC to have an accounting or finance expert is somewhat controversial because it exerts strong pressure on firms to obtain a financial expert, even if these individuals would not have otherwise been qualified to serve on the board (Erkens and Bonner, 2013; Engel, 2005). Additionally, there is considerable debate as to whether the AC member must have *accounting* financial expertise or *general* financial expertise, and several studies have documented the benefits of accounting expertise in particular (Erkens and Bonner, 2013; Defond et al., 2005; and Schmidt and Wilkins, 2013). Moreover, the precise definition of "financial expertise" has also been controversial; Carcello et al. (2011) argue that the SEC's final implementation guidance under Section 407 of SOX allows senior management who have supervised accounting functions to qualify as financial experts.

Next, we investigate the factors that influence whether the leader of the accounting irregularity investigation hires an outside advisory firm to help with the investigation.[11] The SEC's Cooperation Initiative encourages internal investigations to be conducted with the assistance of outside firms that "have not been employed by the company in the past," primarily because these firms bring experience and a perception of impartiality to the investigation (SEC, 2001; McTague, 2007). Having an independent outside advisor collect and report evidentiary facts can be vital to the integrity of the investigation because, otherwise, company employees that report incriminating information may face retaliation in the form of harassment or job loss if the guilty individuals intercept such information. This issue is alluded to in the SEC's Cooperation Initiative in 2001 and explicitly addressed (in the case of federal agencies) in the Whistleblower Protection Act of 2012.[12]

Not all advisors are created equal, however. We believe there is a distinction in the services provided by accounting advisors versus legal advisors and, as such, each is likely to be perceived differently in the eyes of the board and the SEC. To illustrate, accounting advisors, such as forensic accountants, collect and gather evidence, and this is likely to aid both internal parties (such as the board) and external parties (such as the SEC). Luis Aguilar, SEC Commissioner, echoed this sentiment when he stated that, "[A]ccountants in the private sector are an important component to pursuing violations of the securities laws. This is particularly true

[11] Although SOX gave the AC the explicit authority to hire outside advisory firms should the need arise, these outside firms can also be hired by other parties such as management, the board, the special committee, and even by one of the already hired outside advisory firms. We assume, however, that the ultimate decision to hire these firms is approved by the investigation leader because the investigation leader bears the responsibility for the financial cost of the investigation, which includes the cost of outside advisors.

[12] See https://www.sec.gov/eeoinfo/whistleblowers.htm

of forensic accountants. The expertise to undertake corporate internal investigations of accounting fraud…is a necessary skill in today's world of complicated financial transactions."[13] In contrast, the involvement of legal advisors (i.e., law firms) offers a company legal advice that is protected by attorney-client privilege.

We examine whether (1) the leader of the internal investigation, or (2) AC characteristics, influence the probability of hiring an outside advisory firm. We do not have clear predictions on these issues, so our hypotheses are non-directional:

> **H2(a):** After the discovery of an accounting irregularity, firms with audit committee-led investigations are more (or less) likely to hire outside accounting advisors and outside legal advisors to assist in the investigation.
>
> **H2(b):** After the discovery of an accounting irregularity, firms with high quality audit committees are more (or less) likely to hire outside accounting advisors and outside legal advisors to assist in the investigation.

2.4 CEO turnover likelihood

Prior research has documented CEO turnover rates of approximately 50 percent following restatement announcements, which is statistically and economically higher than the turnover rate of CEOs at non-restatement firms (Desai et al., 2006; Hennes et al., 2008; Leone and Liu, 2010). The implicit assumption of these studies is that the board uncovers evidence that implicates the CEO in the misconduct and, as such, takes actions that result in CEO departure. We posit that this evidence is often gathered during internal accounting irregularity investigations. It is unclear, however, the extent to which the investigation leader affects the type and credibility of this evidence. For example, if ACs gather more objective evidence that implicates the CEO, then we predict that AC-led investigations will result in higher CEO turnover rates compared to investigations led by the board. Similarly, outside advisors might also

[13] Speech by SEC Commissioner Luis Aguilar: "Combating Securities Fraud at Home and Abroad" (May 28, 2009), available at: https://www.sec.gov/news/speech/2009/spch052809laa.htm .

be better equipped to gather persuasive evidence to convince the board to fire the CEO. In this setting, our research design tests whether the board and investigation leaders *take action upon* the information gathered by these outsiders, which would result in a positive relation between outside advisor involvement and CEO turnover.[14] We make the following predictions:

> **H3(a):** After the discovery of an accounting irregularity, audit committee-led investigations are associated with higher CEO turnover.
>
> **H3(b):** After the discovery of an accounting irregularity, investigations with hired outside accounting advisors and outside legal advisors are associated with higher CEO turnover.

2.5 SEC enforcement likelihood

An SEC enforcement action is costly for the firm, with average penalties and fines ranging from $13 million to $106 million, depending on the time period studied (Karpoff et al., 2008a, b; Files et al., 2015). These monetary penalties represent only a small portion of the costs borne by sanctioned firms, however. Karpoff et al. (2008b) find that firms lose 38% of their market value when news of their misconduct is reported, and much of this loss is related to reputation damage. Moreover, market-adjusted returns average -13% when SEC or Department of Justice (DOJ) investigations are first announced to investors.

Internal investigations are often lauded as one of the firm's most effective defenses against enforcement actions (SEC, 2001; Baker and McKenzie, 2012). The SEC's Seaboard Cooperation Initiative suggests that leniency may be granted to firms that initiate an internal investigation and make their findings available to SEC staff. Prior research has found that self-disclosure of independent internal investigations actually *increases* enforcement likelihood, but

[14] We acknowledge that increased CEO turnover is an imperfect measure of a CEO's true guilt or innocence. In fact, anecdotal evidence suggests that companies terminate CEOs, even in cases where the CEOs are eventually found to be not guilty, to appease the SEC and investors and to improve their reputation (Chakravarthy et al., 2014). A good discussion of this issue is found in Leone and Liu (2010). In untabulated tests, however, we document a positive relation between a CEO subsequently receiving a sanction from the SEC and CEO turnover within a six month window before and after the restatement.

decreases the magnitude of monetary penalties associated with these sanctions (Files, 2012). It is an open empirical question, however, whether certain characteristics of these internal investigations impacts enforcement likelihood.

We examine whether the evidence gathered by specific leaders and outside advisors during an investigation affects the SEC's decision to issue a sanction. If ACs are relatively more effective in communicating their findings with the SEC (or are better at collecting evidence) than other groups, then we predict that AC-led investigations are less likely to result in an SEC sanction against the firm. Furthermore, if high-quality ACs are better able to articulate and resolve complex accounting issues, then we expect firms with high quality ACs to be less likely to receive an SEC sanction. We make the following predictions:

> **H4(a):** After the discovery of an accounting irregularity, firms with high quality audit committees are less likely to be sanctioned by the SEC.
>
> **H4(b):** After the discovery of an accounting irregularity, firms with audit committee-led investigations are less likely to be sanctioned by the SEC.

Although the SEC states that it will factor in whether work was performed by persons outside or inside the firm, prior research has not made this distinction. Forensic accountants are hired to gather evidence, which would aid the SEC in evaluating the investigation. In contrast, outside legal advisors are sometimes hired because of their past experience in dealing with the SEC and/or the fact that they employ former SEC lawyers; legal advisors also offer attorney-client privilege.[15] If investigation leaders depend on these hired outside advisors to help them negotiate with the SEC (and if they waive attorney-client privilege), then we expect such firms to have a lower likelihood of receiving an SEC sanction. On the other hand, hiring outside legal

[15] Although the SEC's Cooperation Initiative explicitly states that it considers whether the firm decided to invoke or waive attorney-client privilege (SEC, 2001; item 10, paragraph 2), the SEC has since clarified its position and states that waiving this privilege is not necessary to receive cooperation credit (McTague, 2007).

advisors could draw attention to a case that would have otherwise escaped notice by SEC staff, and firms may choose to invoke attorney-client privilege. Our final hypothesis is non-directional:

> **H4(c):** After the discovery of an accounting irregularity, the decision to hire outside accounting advisors and outside legal advisors is associated with the likelihood of being sanctioned by the SEC.

3. SAMPLE SELECTION AND DATA DESCRIPTION

3.1 Sample selection procedures

Our sample of restatement observations spans seventeen years, 1997 to 2013, and is a compilation of data from two sources: the Government Accountability Office (GAO) restatement database and the Audit Analytics (AA) restatement database. The GAO restatement database identifies 2,687 restatements announced between January 1, 1997 and June 29, 2006 (GAO 2002, 2003, 2006). We supplement this data with an additional 7,006 restatement observations from Audit Analytics between June 30, 2006 and August 30, 2013.[16] The union of these two sources results in an initial sample of 9,693 restatement observations. Table 1 details the sample attrition due to necessary data requirements. First, we require all restatement observations to have Compustat information as of the year prior to the restatement, which eliminates 4,103 observations. The number of observations with missing Compustat data is consistent with prior restatement research (Scholz, 2008; Peterson, 2012). Next, we use the classification scheme developed in Hennes et al. (2008) to narrow our restatement sample to irregularities, which represent intentional misstatements, as opposed to unintentional errors. Each restatement is classified as an accounting irregularity if any one of the following conditions is met: (1) the firm uses variants of the words "irregularity" or "fraud" in describing the misstatement in a press

[16] We note that Audit Analytics begins coverage of restatement announcements in 2002. To avoid duplicate observations, however, we use non-overlapping time periods from each dataset. In addition, we manually check each restatement observation announced in the six months before and six months after the union date of June 30, 2006 to ensure that each observation is unique.

release or SEC filing; (2) the firm announces an independent internal investigation into the misstatement; or (3) the firm announces an SEC or Department of Justice (DOJ) investigation.[17] Restatements in which none of the above occurs are classified as errors and excluded from our irregularity sample, eliminating 4,608 observations. We keep only the first irregularity for each firm during our sample period, which eliminates an additional 129 observations.

We further restrict the irregularity sample to those firms for which an initial public offering (IPO) date could be determined using the IPO information provided on Jay Ritter's website, which reduces the sample by 395 observations.[18] We require the restatement to occur in the year of or after the IPO. Finally, we eliminate observations for which we cannot locate information regarding the restatement, AC members, the number of AC meetings, or CEO biography or turnover information. Our final sample consists of 415 accounting irregularities announced between 1997 and 2013.

Table 2 reports the distribution of our irregularity sample by year and Fama and French (1997) industry classifications. As shown in Panel A, the largest number of irregularities (n = 77) occurs in 2006, which is the year that many firms announced restatements due to option backdating. Table 2, Panel B, also shows that a large portion of our sample is from the business services industry (n = 102) and the electronic equipment industry (n = 39).

3.2 Disclosures of details concerning the investigation of accounting irregularities

For each of the 415 accounting irregularity observations, we carefully review all

[17] For the GAO sample of restatements, we use information from Andy Leone's website (http://sbaleone.bus.miami.edu/) to categorize each restatement as an error or an irregularity. For the Audit Analytics sample, we identify irregularities using a two-part method: First, we search through the disclosures of each restatement for the terms from the Hennes et al. (2008) irregularity classification method (i.e., irregularity, fraud, internal investigation, SEC or DOJ investigation) and code that observation as an irregularity if any of the terms are used to describe the restatement. Second, if the firm reports a restatement in Audit Analytics related to fraud ("res_fraud") or involving an SEC investigation ("res_SEC_invest"), it is classified as an irregularity. Restatements in which none of the above occurs are classified as errors.

[18] The founding dates of 9,539 firms with an initial public offering in the United States between 1975 and 2013 are obtained from Jay Ritter's website at: http://bear.cba.ufl.edu/ritter/ipodata.htm.

corporate press releases and SEC filings beginning six months before and ending six months after the restatement announcement date. We rely on specific wording in the press release(s) or SEC filing(s) in order to identify (1) the "investigation," "inquiry," or "review" that is being conducted (hereafter referred to as "investigation"), (2) which individual or collection of individuals has the decision-making authority with respect to the results of this investigation, and (3) whether outside advisors are hired to aid in the investigation.[19] Examples of the wording found in corporate press releases and SEC filings denoting the investigation leader(s) and the hiring of outside advisors are included in Appendices B and C, respectively.

Table 3 provides details about the accounting irregularity investigations undertaken by our sample firms. In Table 3, Panel A, we report the average length (in days) and cost (in millions) of the internal investigations, when such details are publicly disclosed. We identify 236 firms (56.9% of sample) and 154 firms (37.1% of sample) that self-report the length and cost of their internal investigation, respectively. The mean (median) investigation in our sample lasts 127 days (98 days), which equates to 4.2 months (3.3 months). The mean firm spends $6.95 million on the investigation, which represents 4% of lagged assets, but the median firm spends far less, $2.94 million, which is 1% of lagged assets. The minimum investigation cost in our sample is $113,000 (Cytrx Corporation), while the maximum cost is $124 million (Wellcare Health Plans). The considerable variation in the cost of internal investigations is likely due to differences in the scope and severity of misconduct. As pointed out in Karpoff et al. (2014), these self-reported expenses may also reflect reporting biases.[20] Nevertheless, this data provides

[19] If the disclosure mentions that more than one party is in charge of the investigation, we make a determination as to whether the parties are co-leaders of the investigation, or whether one party is the leader while the other is the subordinate.

[20] For instance, it is possible that companies under-report or over-report the actual expenses incurred, as well as the amount of managerial time allocated to the internal investigation. It is also unclear whether the self-reporting firms are systematically different in terms of investigation length and/or cost compared to the subset of firms that do not disclose this information. Information on the cost of internal investigations is limited, however, especially for firms

a rough estimate of the costs of internal investigations undertaken by irregularity firms, a group for which data has thus far been limited.

Table 3, Panel A, also examines how the length and cost of internal investigations varies depending on the investigation leader and the presence or absence of outside advisors. We see only small differences in cost and length when the AC is designated as investigation leader relative to other groups. However, the descriptive statistics suggest that investigations tend to be longer and more costly when outside advisors are involved. The latter result is unsurprising, considering the large fees charged by outside advisory firms.

Next, Table 3, Panel B, reports the most common internal investigation leaders. Forty-seven percent of irregularity firms (n = 193) designate the discovering AC as leader, and another 11.3% (n = 47) appoint an ad hoc special committee as the leader. The remaining 42.2% (n = 175) of our sample fall into the category of "other," which includes instances in which the leader is the board (n = 6), management (n = 25), or the company (n = 100); also included in this category are cases in which no mention of the investigation or the leader of the investigation is made (n = 44). We also find that 41.2% (n = 171) of irregularity firms retain at least one outside advisor during the investigation process, with outside legal counsel being the most frequently mentioned group, followed by accounting advisors.[21]

Figure 1 and Table 3, Panel B, also show the trend in investigation participants across time, with the Seaboard Cooperation Initiative delineated as of October 23, 2001. The frequency

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investigating accounting irregularities. The literature to-date has identified 48 bribery firms that self-report data on their investigation and legal expenses (Karpoff et al., 2014). The mean (median) investigation cost was $65 million ($10 million). Bernile and Jarrell (2009) report an investigation cost of $70 million for Mercury Interactive, a firm prosecuted for option backdating.

[21] We classify outside advisors into three categories: (1) accounting advisors, which includes audit firms and forensic accountants, (2) legal counsel, and (3) consultants/advisors – nonspecific. Although there are some instances in which the irregularity firm specifically mentions the name of the hired firm (see Appendix C for examples involving The Street.com and Fine Host), this does not occur frequently enough to use the data in our analyses.

with which the AC leads the investigation is significantly lower in the early years of our sample compared to the later years (23.4% in the pre-Seaboard period and 53.3% in the post-Seaboard period, p = 0.01). The increasing trend in AC investigations is likely due to: (1) a perceived increase in the SEC's willingness to give cooperation credit to firms that undertake independent internal investigations, as outlined in the Seaboard Initiative; and (2) the mandate in SOX that ACs be comprised of only independent members, thus making the AC a natural choice to lead the internal investigation.[22] We see a similar increase in the use of outside advisors over our sample period. Prior to the Seaboard Initiative, 29.8% of irregularity investigations retained outside advisors, with this rate rising to 44.5% in the post-Seaboard period (the difference is significant with p = 0.01). Both accounting and legal advisors are retained more often in the post-Seaboard time period than in the pre-Seaboard period.

Additionally, after the SEC's Cooperation Initiative in 2001, CEO turnover rates and SEC sanction likelihood have declined significantly (see Figure 2 and Table 3, Panel B). Whereas CEO turnover was 42.6% prior to Seaboard and SOX, it declined to 26.2% afterwards. It is possible that, because CEOs must certify their company's financial statements after SOX, there are fewer financial statement irregularities that implicate the CEOs. Another possibility is that boards may view CEO turnover as an unnecessary condition to receive cooperation credit from regulators if they have already cooperated by designating independent leaders and hiring outside advisors. The SEC sanction rates have also decreased from 44.7% pre-Seaboard to 28.4% post-Seaboard but, given that the SEC has several years to decide on sanctions for recent restatements, our post-Seaboard sanction rates may be understated.

Finally, Table 3, Panel C, reports a 2x2 contingency table examining the frequency with

[22] In many of the pre-SOX press releases, the board explicitly indicates that it appointed a special committee to lead the investigation because the AC did not consist entirely of independent members.

which the AC leads the investigation and outside advisors are hired. We find that outside advisors are hired more frequently when the AC leads the investigation versus when it does not. Specifically, when the AC is assigned as investigation leader, 56% of irregularity firms hire outside advisors. When someone other than the AC leads the investigation, outside advisors are hired in only 28% of the cases.

4. THE LEADER OF THE ACCOUNTING IRREGULARITY INVESTIGATION

4.1 Empirical model and variable descriptions

To test H1, we estimate the following probit regressions on our sample of accounting irregularities from 1997-2013:

$$AC\_Led = a + b_1\text{-}b_6(\text{AC Characteristics}) + b_7 Big5Auditor + b_8 Seaboard + b_9 Restate\_Magnitude\_UpDown + b_{10} Concurrent\_Return + b_{11} Prior\_Return + b_{12} Log(Assets) + b_{13} TotalAccruals + e \quad (1a)$$

$$Special\_Led = a + b_1\text{-}b_6(\text{AC Characteristics}) + b_7 Big5Auditor + b_8 Seaboard + b_9 Restate\_Magnitude\_UpDown + b_{10} Concurrent\_Return + b_{11} Prior\_Return + b_{12} Log(Assets) + b_{13} TotalAccruals + e \quad (1b)$$

where *AC_Led* in equation (1a) is an indicator variable equal to 1 if firm disclosures indicate that the audit committee leads the accounting irregularity investigation and 0 otherwise. *Special_Led* in equation (1b) is an indicator variable equal to 1 if firm disclosures indicate that an appointed ad hoc special committee leads the accounting irregularity investigation and 0 otherwise. All variables are defined in detail in Appendix D.

We hand-collect information about the discovering AC from the most recent proxy statement (DEF 14A) prior to the restatement announcement.[23] Our sample of 415 irregularity firms includes 1,317 unique AC director biographies. Following the definitions used in previous studies (e.g., Krishnan, 2005; Defond et al., 2005; Keune and Johnstone, 2012), we identify the

[23] Ideally, we would also collect information on any ad hoc special committees formed to investigate the accounting irregularity. However, we find that irregularity firms disclose very few details about these special committees; most notably, these disclosures omit the names and other identifying characteristics of the individuals involved.

percentage of AC members that have (1) accounting expertise (*AC_Acct*); (2) finance expertise (*AC_Fin*); (3) either accounting *or* finance expertise (*AC_AcctFin*); (4) a postgraduate education, defined as a master's degree, a master's in business administration degree, or a doctorate (*AC_MasterDoctor*); (5) a law degree (*AC_Lawyer*); and (6) experience as a CEO or partner at another company (*AC_CEO_Partner*). We use the number of AC meetings during the year to proxy for AC diligence (*AC_Nmeet*). Lastly, *AC_Size* is the number of directors on the AC.

Our first hypothesis predicts that higher quality ACs will be associated with a higher likelihood that the board assigns the AC to lead the investigation. We expect positive coefficients on the AC characteristics in equation (1a). However, if the board wants to reconfigure the expertise of the investigation leaders, it can appoint an ad hoc special committee comprised of any directors it chooses; we therefore expect negative coefficients on AC characteristics in explaining *Special_Led* in equation (1b).

4.1.1 Restatement severity, firm characteristics, and other controls

We also incorporate a number of additional variables that may impact the choice of investigation leader, including controls for restatement severity, auditor, firm size, and other firm characteristics. Recall that our sample is limited to only accounting irregularities, which are more severe in nature than accounting errors. Nevertheless, variation in severity still exists among our sample firms, so we include two additional measures of restatement severity commonly found in prior research (Scholz, 2008; Hennes et al., 2008; Leone and Liu, 2010; Files, 2012): (1) the cumulative earnings impact of the restatement, with positive (negative) values for upward (downward) adjustments to previously recorded earnings (*Restate_Magnitude_UpDown*), and (2) the three-day cumulative abnormal return around the restatement announcement (*Concurrent_Return*). More negative adjustments to past earnings and more negative market

reactions represent more severe restatements. We expect that boards are more likely to assign the AC or a special committee as investigation leader when the restatement is more severe.

We also include an indicator variable, *Seaboard*, which is equal to 1 for restatements occurring on or after the date of the SEC's Seaboard Cooperation Initiative, October 23, 2001, and 0 otherwise. We predict a positive coefficient on *Seaboard* in both model (1a) and (1b) because the Seaboard Initiative encouraged firms to undertake independent internal investigations in an effort to earn cooperation credit from regulators (SEC, 2001).[24] We do not, however, directly test for the independence effect because ACs have become fully independent after SOX. For the portion of our sample that occurs prior to SOX, we find very little variation in the independence of ACs. We also include an indicator variable for *Big5Auditor*, as well as controls for firm size (*Log(Assets)*), *Total Accruals*, and past performance (*Prior Return*).

4.2 Descriptive statistics and regression results

Table 4 reports descriptive statistics for each variable included in models (1a) and (1b). In Table 4, Panel A, we see that the median AC has three members (*AC_Size*) and meets an average of 5.31 times during the year (*AC_Nmeet*). On average, 30% of AC members have finance expertise, whereas only 23% have accounting expertise (36% of the members are experts in either accounting *or* finance). In addition, more than half of the average committee (58%) is comprised of current or former CEOs or partners, 21% of members have a masters or doctorate degree, and 8% have a law degree.

We report correlations among our variables of interest in Table 4, Panel B. We note that several AC characteristics are positively correlated with the decision to assign the discovering

[24] The timing of the Seaboard Cooperation Initiative (October 23, 2001) also closely aligns with that of SOX (July 30, 2002), which allows us to examine whether the nature and outcome of irregularity investigations has changed since the joint announcement of both the Seaboard Initiative and SOX. We are limited, however, in our ability to disentangle the individual effects of each of the two regulatory regime changes.

AC as the investigation leader: these are accounting expertise, finance expertise, the presence of a master's or doctorate degree, and the number of meetings. In addition, accounting expertise and the number of meetings are positively correlated with the hiring of outside advisors. Note that none of these characteristics are correlated with *Restate_Magnitude_UpDown*, suggesting that pre-existing AC characteristics are unrelated to misstatement severity. The significantly negative correlation between *Seaboard* and both *CEO_Turnover* and *SEC_Sanction* confirms that these rates have decreased after the Cooperation Initiative and SOX.

Table 5 reports the results of probit regressions modeling the board's choice of investigation leader following an accounting irregularity. Columns 1 and 2 show the results of model (1a) predicting *AC_Led*, while columns 3 and 4 show the results of model (1b) predicting *Special_Led*. We find that the AC is more likely to lead the investigation when the committee has a greater percentage of members with accounting or finance expertise. The coefficient of 0.544 on *AC_AcctFin* is significant at the 1% level. When we decompose *AC_AcctFin* into its two parts, *AC_Acct* and *AC_Fin*, we find that both variables are positive, but only weakly predictive of *AC_Led*. In contrast, both variables are positive and significant at the $p < 0.05$ level when included in the model separately (untabulated). Other AC characteristics are also associated with the choice of the AC as investigation leader. The coefficients on *AC_MasterDoctor* and *AC_CEO_Partner* are both positive and significant, suggesting that more highly educated and experienced ACs are better equipped to handle the investigatory process. The coefficients on *AC_Size, AC_Nmeet,* and *AC_Lawyer* are not significantly different from zero.

Whereas *AC_AcctFin* is positively related to *AC_Led* in model (1a), it is negatively related to *Special_Led* in model (1b), as shown in Table 5, column 3. The switch in coefficient

signs between models (1a) and (1b) supports the premise that special committees are formed when the AC lacks the expertise necessary to lead the investigation. The other characteristics that predict *AC_Led* are not significant predictors of *Special_Led* (*AC_MasterDoctor* and *AC_CEO_Partner*), although we do find evidence that a special committee is more likely chosen as investigation leader when the AC is smaller and meets more frequently. If the number of AC meetings proxies for the complexity of the AC's tasks, then the board of directors may delegate the role of leading the internal investigation to another group.

We also find that the coefficient on *Restate_Magnitude_UpDown* is negative and significant ($p < 0.01$) when predicting *Special_Led* in columns 3 and 4; however, restatement magnitude is unrelated to naming the AC as leader in columns 1 and 2. This result is intriguing as it suggests that firms lose confidence in the ability of the AC to remediate fraud when the misstatement is particularly severe. Also interesting is the coefficient on *Log(Assets)*, which is negative and significant in model (1a) and positive and significant in model (1b). It appears that larger firms rely more (less) on special committees (ACs) to investigate accounting irregularity allegations. Given the complexities of the AC's job, especially at large firms, the board may shield the AC from additional responsibilities (especially those as time-consuming as an internal investigation) and instead form an ad hoc committee of directors that have the necessary time and expertise to oversee the task.

5. THE HIRING OF OUTSIDE ACCOUNTING AND LEGAL ADVISORS

5.1 Empirical model and variable descriptions

To test H2, we estimate the following probit regression:

$$\begin{aligned} \textit{Outside\_Advisor} = {} & a_0 + b_1 \textit{AC\_Led} + b_{2\text{-}8}(\text{AC Characteristics}) + b_9 \textit{Big5Auditor} + \\ & b_{10} \textit{Seaboard} + b_{11} \textit{\%IndustryIrreg} + b_{12} \textit{ClassAction} + \\ & b_{13} \textit{Restate\_Magnitude\_UpDown} + b_{14} \textit{Concurrent\_Return} + \\ & b_{15} \textit{Prior\_Return} + b_{16} \textit{Log(Assets)} + b_{17} \textit{TotalAccruals} + e \end{aligned} \qquad (2)$$

where *Outside_Advisor* is an indicator variable equal to 1 if firm disclosures indicate that the irregularity investigation involves a hired outside advisor and 0 otherwise. In additional regressions, we replace the dependent variable of *Outside_Advisor* with *Accounting_Advisor* or *Legal_Advisor* as these are two of the most commonly hired advisory groups.

Model (2) includes *AC_Led*, as well as each of the AC characteristics and additional variables included in model (1a). We do not make directional predictions on how *AC_Led* or the various AC characteristics will impact the likelihood of hiring outside advisors. We do, however, expect a positive coefficient on *Seaboard*. Moreover, we anticipate that outside advisors will be hired following more severe restatements and therefore expect negative coefficients on *Restate_Magnitude_UpDown* and *Concurrent_Return*. Model (2) also includes two proxies for the firm's past exposure to litigation and irregularities, as we expect these firms to better understand the benefits of hiring outside advisors. *ClassAction* is set equal to 1 if the firm had a class action lawsuit filed against it during a window beginning in 1996 and ending ninety days after the restatement announcement. If no class action lawsuit was filed against the firm during this window, *ClassAction* is set equal to zero. *%IndustryIrreg* is the annual percentage of firms in the same industry as the restating firm that announced an irregularity in the prior year; we expect firms in an industry with a large percentage of past irregularities to be more willing to hire outside advisors to help.

5.2 Regression results

In H2a and H2b, we predict that the decision to hire outside advisors to conduct independent investigations is related to whether the AC leads the investigation, as well as characteristics of the discovering AC. Our results are consistent with these hypotheses. Table 6, column 1, shows the results of model (2) predicting *Outside_Advisor*. Columns 2 and 3 of Table

6 present the results of model (2) when using *Accounting_Advisor* and *Legal_Advisor*, respectively, as the dependent variable. We find a consistently positive and significant ($p < 0.01$) coefficient on *AC_Led* in each of the three columns, suggesting that ACs are more likely to hire outside advisors to aid in the investigation compared to other leader groups.

We also discover that the expertise of the AC has a significant effect on the hiring of outside advisors. As seen in column 1, accounting expertise (*AC_Acct*) is significantly positively related to the hiring of advisors (with a coefficient of 0.798 and a t-statistic of 2.34), while finance expertise (*AC_Fin*) is significantly negatively related to the hiring of advisors (with a coefficient of -0.803 and a t-statistic of 2.70). When we examine this relation further, we find that greater accounting expertise on the AC significantly increases the likelihood of hiring *legal* advisors (column 3) but is unrelated to the hiring of accounting advisors (column 2). On the other hand, greater legal expertise on the AC (*AC_Lawyer*) increases the likelihood of hiring accounting advisors (with a coefficient of 1.010 in column 2) but not legal advisors. These results suggest that specific types of advisors are targeted in order to complement the existing expertise of AC members. Further, we find that finance expertise on the AC reduces the likelihood of hiring both accounting and legal advisors. Although the latter result is somewhat unexpected, our collective results highlight the important implications of having directors with accounting, finance, and law expertise on the AC.

With respect to our additional variables, we find that accounting advisors are more likely to be hired in the post-*Seaboard* period, consistent with our expectations. Legal advisors are hired more often by larger firms (*Log(Assets)*), and those that have more severe downward accounting restatements (*Restate_Magnitude_UpDown*) or have witnessed a greater proportion of industry irregularities in the recent past (*%IndustryIrreg*).

Overall, we find strong support for the premise that ACs hire outside advisors to aid in their investigation, and they appear to rely on different types of outside advisors to fulfill separate needs. The next section examines whether the evidence gathered during these investigations is used by the board (for CEO turnover decisions) and the SEC (for sanction decisions).

6. INVESTIGATION OUTCOMES

6.1 Controlling for self-selection

Self-selection is a potential problem when modeling the relation between the choice of investigation leader and outcomes of the investigation. There may be unobservable factors that influence a firm's choice to appoint the AC to lead the investigation, and if these same factors influence CEO turnover or SEC enforcement likelihood, then the coefficients on *AC_Led* will be biased. We address this issue by using a full information maximum likelihood (FIML) bivariate probit model with sample selection correction to simultaneously estimate both the selection and outcome equations (Tucker 2010; Greene 2002). We use model (1a) as the selection equation because it explains a firm's choice to designate the AC as investigation leader. We employ two different outcome equations which predict CEO turnover and SEC sanction likelihood, respectively. The empirical models used for the outcome equations are discussed below.[25] Our prediction models are a joint test of whether (1) the evidence collected during an internal investigation is informative about the causes and financial statement impact of the irregularity, and (2) the board or SEC elects to use this evidence when making turnover or sanction decisions, respectively.

[25] An alternative approach would be to separately estimate a first stage probit model predicting *AC_Led* and correct for endogeneity in the second-stage outcome equations through the inclusion of the Inverse Mills ratio (IMR). However, our second stage models are discrete choices and therefore nonlinear. As discussed in Tucker (2010, p. 45 and Figure 1: Case F), the IMR term(s) does not correct for bias when the second-stage model is nonlinear. The appropriate choice is therefore a bivariate probit model with sample selection, estimated by FIML.

6.2 Investigation characteristics and the probability of CEO turnover

Upon completion of an internal investigation, boards must evaluate the evidence gathered and decide whether or not to take actions that result in the CEO turnover. To test H3, we use FIML to simultaneously estimate model (1a) and the following probit outcome equation:

$$\begin{aligned} CEO\_Turnover = {} & a_0 + b_1 AC\_Led + b_2 Outside\_Advisor + \\ & b_3 AC\_Led*Outside\_Advisor + b_4 AC\_AcctFin + b_5 Seaboard + \\ & b_6 Restate\_Magnitude\_UpDown + b_7 Concurrent\_Return + b_8 Prior\_Return \\ & + b_9 Log\ (Assets) + b_{10} TotalAccruals + e \end{aligned} \quad (3)$$

where *CEO_Turnover* is an indicator variable equal to 1 if the CEO as of six months prior to the restatement date was turned over within six months after the restatement date and 0 otherwise. Based on H3, we predict positive coefficients on both *AC_Led* and *Outside_Advisor*. Table 7 reports univariate CEO turnover rates for the full sample of irregularity firms, as well as for the sample split by AC-led investigations and the presence of outside advisors. The overall CEO turnover rate in our sample is 29.9% (124 of 415), and this rate is not statistically different when the AC leads the investigation (28.0%) versus when another group leads (31.5%) (p-value for difference = 0.23). In contrast, we find that the CEO turnover rate is higher when outside advisors are hired (33.9%) versus when they are not (27.1%). The 6.8% difference is both statistically (p = 0.03) and economically significant.

In Table 8, we report the results of the outcome equation predicting *CEO_Turnover*.[26] Consistent with the univariate results, we find no relation between *AC_Led* investigations and the CEO turnover decision. However, the coefficient of 0.297 on *Outside_Advisor* (column 1) is positive and significant at the $p < 0.05$ level. This suggests that evidence gathered by outside advisors is persuasive enough to increase the likelihood of *CEO_Turnover*. In column 2 we include an interaction term between *AC_Led* and *Outside_Advisor*. The coefficient is not

[26] The selection equation results are omitted for brevity but are consistent with those presented in Table 5.

significantly different than zero, which indicates that collaboration between the AC and outside advisors has no incremental impact on CEO turnover rates. In columns 3 and 4 of Table 8 we further explore the individual effect of accounting and legal advisors on *CEO_Turnover*. The coefficient on *Accounting_Advisor* in column 3 is positive and significant at the $p < 0.05$ level. The coefficient on *Legal_Advisor* in column 4 is not significantly different than zero. Therefore, the positive effect of outside advisors on CEO turnover is driven primarily by accounting advisory firms.

In line with the descriptive statistics in Table 3, we see that CEO turnover is significantly less likely ($p < 0.05$) in the post-Seaboard period. The negative coefficient on *Prior_Return* is also consistent with our expectations and with prior research (Efendi et al., 2013). We find a marginally significant negative relation between *Restate_Magnitude_UpDown* and CEO turnover, which suggests that income-decreasing restatements are more likely to lead to CEO turnover. Finally, we find a consistently negative and significant coefficient on *TotalAccruals.* We do not posit an explanation for this result, but acknowledge the finding is counter to conventional expectations.

6.3 Investigation characteristics and the likelihood of an SEC sanction

To test H4, we use FIML to simultaneously estimate model (1a) and the following probit outcome equation:

$$\begin{aligned} SEC\_Sanction = {} & a_0 + b_1 AC\_Led + b_2 Outside\_Advisor + b_3 AC\_Led*Outside\_Advisor \\ & + b_4 AC\_AcctFin + b_5 CEO\_Turnover + b_6 Seaboard + \\ & b_7 Restate\_Magnitude\_UpDown + b_8 Concurrent\_Return + b_9 Prior\_Return + \\ & b_{10} Log(Assets) + b_{11} TotalAccruals + e \end{aligned} \quad (4)$$

For each irregularity in our sample, we search the SEC's website to determine if an enforcement action was issued against the firm or any employee of the firm.[27] Details about both the restatement and enforcement action(s) are then carefully compared to ensure we capture only enforcement actions directly related to the restatement in question. We define *SEC_Sanction* as equal to 1 if the SEC names the firm or any employee at the firm as a respondent in an SEC Administrative Proceeding or Litigation Release, and 0 otherwise. Thirty-two percent of the irregularities in our sample lead to one or more SEC enforcement actions (see Table 4, Panel A).

In Table 9, we report the results of the outcome equation predicting *SEC_Sanction.* As hypothesized in H4b, we find that *AC-Led* investigations are associated with a lower likelihood of SEC sanction (coefficient in column 1 is -0.845 with a t-stat of 2.07). This is consistent with the SEC granting leniency to firms that engage independent ACs to perform the internal investigation, perhaps because these individuals gather unbiased evidence that proves useful to SEC staff. It is also possible that AC members are more skilled at negotiating with regulators on behalf of the firm. We also find some evidence that the SEC views outside accounting advisors differently than outside legal advisors. Whereas the presence of outside accounting advisors has no effect on SEC sanctions, the positive coefficient on *Legal_Advisor* in Table 9, column 4, shows that hiring outside lawyers *increases* SEC sanction likelihood; this is consistent with either (1) firms refusing to waive attorney-client privilege (and therefore not cooperating with the SEC), or (2) more visible internal investigations attracting regulatory attention to the case (Files, 2012). Finally, we do not find a significant coefficient on *AC_AcctFin*, which suggests

[27] For irregularities announced between 1997 and 2010, we search the SEC's website through June 2014 for information on enforcement actions. For irregularities announced between 2011 and 2013, we extend the search window through May 2015, therefore allowing at least two years for the SEC to issue a formal sanction against the firm. Files (2012) finds the average time to enforcement is 2.2 years, suggesting that the length of our search window is sufficient.

that the existing AC members' expertise may be of secondary importance to the primary roles of the actual investigation leader and hired outside advisors.

Anecdotal evidence suggests that firms may feel pressure to fire their CEO after an accounting irregularity to expedite negotiations with regulators and earn cooperation credit (Files et al., 2015). Therefore, we also incorporate *CEO_Turnover* as an explanatory variable in model (4) and find it to be positively associated with the likelihood of an SEC sanction.[28] This result is consistent with previous research documenting that cooperation increases the likelihood of an SEC sanction (Files, 2012; Files et al., 2015). It is also possible, however, that CEO turnover is related to an aspect of restatement severity not fully captured by our other measures. If so, more severe restatements would understandably increase SEC enforcement likelihood.

7. ROBUSTNESS TESTS

In this section, we report the results of several robustness tests. First, previous research has argued that some firms have difficulty obtaining a director with accounting expertise to serve on the AC (Engel, 2005; Erkens and Bonner, 2013); therefore, it is possible that firms with accounting experts on the AC are inherently different from those without accounting experts. We re-run our analyses using only the 235 irregularity firms with at least one accounting expert on the AC; in this robustness test, we measure the incremental effect of an *additional* accounting expert on the AC, given that there is already at least one expert present. Our results remain qualitatively similar. Second, we explore the possibility that the hiring of outside advisors is mandated by certain provisions in AC charters, rather than being a decision made by the AC or

[28] This variable is measured over a window beginning six months before and ending six months after the restatement announcement, so this decision has already been made before the completion of most SEC investigations. The formal filing of regulatory proceedings occurs an average of two years after the restatement announcement (Files, 2012).

board.[29] To address this concern, we obtain the audit charters for a random sample of 25 irregularity firms. We document multiple cases in which (1) the audit charter states that the AC has the authority to hire outside advisors, but no outside advisor was hired; and (2) the audit charter did not mention such authority, but an outside advisor was nevertheless hired. Based on our review of these charters, we conclude that audit charter provisions are not a driving factor of our outside advisor results.

Third, our sample selection procedures (as detailed in Table 1) eliminate 129 repeat restatement observations. Files et al. (2014) argue that when multiple restatements occur over a short time period, it may be difficult to ascertain whether CEO turnover is attributable to the first or second restatement. When we include these observations and re-examine our CEO turnover tests, our results are qualitatively similar to those presented in Table 8. Finally, we examine whether the abnormal market reaction to the restatement announcement over several windows of [-1, +1], [-1, +10], [-1, +30], and [+2, +20] differs according to the investigation leader and the presence of outside advisors. We find some evidence of a positive market reaction over the [-1, +10] window for *AC_Led* investigations and a positive market reaction over the [+2, 20] window when an accounting advisor is hired. Over all windows, the market reaction to firms receiving a future *SEC_Sanction* is significantly negative, indicating that investors accurately assess these firms' sanction likelihood.

8. CONCLUSION

Our study is one of the first to examine how the involvement of internal and external leaders of accounting irregularity investigations affects key outcomes of restatements, such as CEO turnover and SEC enforcement actions. First, we find that specific audit committee

[29] In 2001 the SEC and major stock exchanges required firms to have audit committee charters (Carcello et al., 2002).

characteristics increase the likelihood that the audit committee will be chosen to lead the investigation, which demonstrates that boards perceive specific director expertise as being valuable. We also find that audit committee-led investigations are more likely to hire independent outside advisors. Both of these results show that boards heed the advice of the SEC's Cooperation Initiative, which encourages firms to appoint independent directors as investigation leaders and bring in outside firms.

We then examine how the involvement of these parties affects two distinct outcomes: the CEO turnover decision (which is made by the board) and the SEC sanction decision (which is made by the SEC). Our evidence suggests that outside advisors are actively involved in the decision to fire CEOs, a result which suggests that outside firms may be more skilled (compared to audit committees or the board as a whole) at collecting evidence to justify CEO turnover to the board. Last, we find that firms with audit committee-led investigations are *less* likely to receive an SEC sanction, which suggests that audit committees produce investigation results that the SEC uses and rewards. Surprisingly, we also find that the involvement of outside legal advisors is associated with a higher likelihood of an SEC sanction, which may indicate that many firms refuse to waive attorney-client privilege, which the SEC does not view as cooperative. Our overall evidence is consistent with the discovering audit committee effectively managing the investigatory process following accounting fraud.

We acknowledge an important caveat to our results. We rely on corporate disclosures to identify investigation leaders and the presence or absence of outside advisors. To the extent that corporate disclosures are biased or purposefully vague about the firm's internal investigation, we may not be able to identify who leads the investigation with absolute certainty. Moreover, our analyses are limited by the amount of information self-disclosed by the firm. Some interesting

questions are therefore left unanswered, such as the membership of ad hoc special committees or whether the disciplinary actions taken after an accounting irregularity investigation are commensurate with the evidence outlined in the internal investigation report.

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APPENDIX A
Examples of Procedures in Accounting Irregularity Investigations

	Excerpt
1	aaiPharma, Inc. stated in a June 24, 2004 10Q that, "The Special Committee, with the assistance of counsel and accounting experts, conducted an extensive investigation that consisted of a review of over 1,000,000 pages of documents and the interview of over 35 aaiPharma employees, officers, directors and other parties." [Source: aaiPharma 10Q dated June 24, 2004 at http://www.sec.gov/Archives/edgar/data/1013243/000095014404006479/g89687q4e10vq.htm]
2	j2 Global on December 15, 2006, "j2 Global Communications, Inc. (NASDAQGS: JCOM) today announced that the special committee of its board of directors has concluded its investigation into the option grant process followed by the Company in the period since its IPO in mid-1999. The special committee's investigation, which lasted approximately four months, was conducted with the assistance of independent legal counsel and independent forensic accountants. Their investigation included extensive examination of emails and other written documents and interviews with current and former employees and directors." [Source: j2 Global 8K dated December 15, 2006 at http://www.sec.gov/Archives/edgar/data/1084048/000107261306002536/ex99-1_14784.htm
3	Emcore stated in an 8K on November 15, 2006 that, "The Special Committee, together with independent counsel and outside accounting experts, reviewed option grants from the time of EMCORE's initial public offering in 1997 through 2006. The Special Committee's advisors also reviewed more than 250,000 e-mail messages, Board and Compensation Committee minutes, and other documents, files and data. Additionally, these advisors interviewed present and former officers and employees of the Company who were involved in the option grants." [Source: Emcore 8K dated November 15, 2006 at http://www.sec.gov/Archives/edgar/data/808326/000080832606000169/ex99-1.htm]

APPENDIX B
Examples of Leaders of Accounting Irregularity Investigations

	Excerpt	Leader
1	Hansen Medical stated in its October 19, 2009 8K: "The disclosures in this Form 8-K are the result of an investigation by our audit committee, with the assistance of independent outside counsel, that commenced following our receipt in August 2009 of an anonymous 'whistleblower' report alleging a single irregularity…" [Source: Hansen 8K dated October 19, 2009 at http://www.sec.gov/Archives/edgar/data/1276591/000119312509209332/d8k.htm]	audit committee
2	WellCare Health Plans (WCG) stated on October 26, 2007 that the "board of directors has formed a special committee in response to the ongoing investigation of the company…" [Source: WellCare 8K dated October 31, 2007 at http://www.sec.gov/Archives/edgar/data/1279363/000127936307000113/ex99-1.htm]	special committee
3	Allion Health (ALLI) disclosed in an 8K on March 9, 2006 that, "The Company's Board of Directors is currently conducting its review of these matters." [Source: Allion Health 8K dated March 9, 2006 at http://www.sec.gov/Archives/edgar/data/847935/000119312506049786/dex991.htm]	other: board of directors
4	Sirva (SIR) stated in its 8K on May 16, 2006, "Management discussed this error with the audit committee of SIRVA's board of directors and SIRVA's independent registered public accounting firm, both of which agreed with the need to correct this error." [Source: Sirva 8K dated May 16, 2006 at http://www.sec.gov/Archives/edgar/data/1181232/000110465906035270/a06-12005_18k.htm]	other: management
5	Scottish Re Group (SKRRF) stated on September 12, 2007, "In conducting the review necessary to respond to one of the comments in the SEC's letter, the Company, with the concurrence of its independent registered public accounting firm Ernst & Young LLP, determined on September 26, 2007 to restate basic earnings per ordinary share and diluted earnings per ordinary share for the three months and six months ended June 30, 2007." [Source: Scottish Re Group 8K dated September 28, 2007 at http://www.sec.gov/Archives/edgar/data/1064122/000089808007000292/form8k.txt]	other: the company
6	Chicago Bridge & Iron Company (CBI) stated in a June 1, 2006 10Q that, "[W]e recently concluded that certain errors in our financial statements for the second quarter of 2005 related to accounting for project segmentation/intercompany eliminations, project cost estimates not updated, and derivatives required correction." [Source: Chicago Bridge 10Q dated June 1, 2006 at http://www.sec.gov/Archives/edgar/data/1027884/000095012906005959/h36526e10vq.htm]	other: unknown

APPENDIX C
Examples of the Hiring of Outside Advisors

	Excerpt
1	Autobytel (ABTL) stated in a May 31, 2005 10Q that, "The Audit Committee of our Board of Directors, with the assistance of independent counsel and independent forensic accountants engaged by such independent counsel, undertook a seven-month internal review of the facts giving rise to the restatements described herein and our accounting policies and procedures related thereto." [Source: Autobytel 10Q dated May 31, 2005 at http://www.sec.gov/Archives/edgar/data/1023364/000119312505117451/d10q.htm]
2	Hansen Medical revealed on October 19, 2009, "The disclosures in this Form 8-K are the result of an investigation by our audit committee, with the assistance of independent outside counsel…" [Source: Hansen 8K dated October 19, 2009 at http://www.sec.gov/Archives/edgar/data/1276591/000119312509209332/d8k.htm]
3	The Street.com (TST) stated in an 8K on January 26, 2010 that, "…the Audit Committee of the Board of Directors of the Company (the "Audit Committee") engaged outside counsel, Skadden, Arps, Slate, Meagher & Flom LLP, and accounting experts, AlixPartners LLP, and conducted an independent review of accounting matters." [Source: The Street.com 8K dated January 26, 2010 at http://www.sec.gov/Archives/edgar/data/1080056/000095011710000158/r17650_ex99-1.htm]
4	Fine Host (FINE) stated in an 8K on December 19, 1997 that, "On December 16, 1997, the Company retained Buccino & Associates, Inc., a crisis management firm. On that same date, counsel to the Outside Directors retained Price Waterhouse LLP to conduct a forensic review of the Company's accounting practices." [Source: Fine Host 8K dated December 19, 1997 at http://www.sec.gov/Archives/edgar/data/1011584/0000899140-97-000797.txt]

APPENDIX D
Variable Definitions

Variable Name	Variable Definition
For the following variables, all firm SEC disclosures are reviewed from six months prior to until six months after the restatement announcement, unless noted otherwise:	
AC_Led	An indicator variable equal to 1 if firm disclosures indicate the audit committee leads the accounting irregularity investigation and 0 otherwise.
Special_Led	An indicator variable equal to 1 if firm disclosures indicate that a special committee leads the accounting irregularity investigation and 0 otherwise.
Outside_Advisor	An indicator variable equal to 1 if firm disclosures indicate the accounting irregularity investigation involves a hired outside advisor (e.g., accounting advisors, forensic accountants, outside counsel, or crisis management firms) and 0 otherwise. In our regression analyses, we also analyze the hiring of accounting advisors (*Accounting_Advisor*) and legal advisors (*Legal_Advisor*) separately.
CEO_Turnover	An indicator variable equal to 1 if the CEO as of six months prior to the restatement date was turned over within six months after the restatement date and 0 otherwise.
SEC_Sanction	An indicator variable equal to 1 if the SEC names the firm or an individual at the firm as a respondent in an enforcement action related to the restatement and 0 otherwise; this information is collected from the SEC's website. For irregularities announced between 1997 and 2010, we search the SEC's website through June 2014 for information on enforcement actions. For irregularities announced between 2011 and 2013, we extend the search window through May 2015, therefore allowing at least two years for the SEC to issue a formal sanction against the firm or employees.
The following characteristics of the audit committee are obtained from the most recent SEC proxy statement (DEF 14A) prior to the restatement date:	
AC_AcctFin	The percentage of audit committee members that have either accounting or finance expertise, as defined below.
AC_Acct	The percentage of audit committee members with accounting expertise. Accounting expertise is defined as: (a) being a certified public accountant or the equivalent (CPA); (b) having employment experience as a chief accounting officer, chief financial officer, vice president of finance, controller, or treasurer, or (c) having employment experience at a Big 5 accounting firm. We consider the Big 5 audit firms to be Arthur Andersen, Deloitte & Touche or predecessor, Ernst & Young or predecessor, KPMG Peat Marwick, and PricewaterhouseCoopers or predecessor. To determine the accounting expertise of each audit committee member, we search firm disclosures for the following key terms, which are not case-sensitive:

	"certified public" "chartered account", "CPA", "C.P.A.", "chief acc", "chief financ", "vice president" & "finance", "vice-president" & "finance", "vice president finance", "vice president of finance", "vice president-finance" , "controller", "treasurer", "Arthur Andersen", "Ernst", "KPMG", "Deloitte", "Pricewater", and "Peat Mar".
AC_Fin	The percentage of audit committee members with finance expertise. Finance expertise is defined as having a degree or work experience in finance, as determined by the term "financ" being included in the audit committee member's biography.
AC_Size	The number of directors on the audit committee.
AC_NMeet	The number of audit committee meetings during the year.
AC_MasterDoctor	The percentage of audit committee members that have a master's degree, a master's in business administration (MBA) degree, or a doctorate.
AC_CEO_Partner	The percentage of audit committee members that have been employed as a CEO or Partner, as indicated by their biography.
AC_Lawyer	The percentage of audit committee members that are lawyers.

The following variables are obtained from Compustat and CRSP unless otherwise specified. All quantitative variables are winsorized at the 1st and 99th percentiles:

Seaboard	An indicator variable equal to 1 for restatements occurring on or after the SEC's Seaboard Report Cooperation Initiative, which was announced on October 23, 2001, and 0 otherwise.
%IndustryIrreg	The percentage of irregularities for each industry in the fiscal year prior to the restatement. The percentage is calculated based on all restatements reported in the GAO database and Audit Analytics with Compustat industry information.
ClassAction	An indicator variable equal to 1 if the firm is listed in the Stanford Law School Securities Action Clearinghouse Database as having a lawsuit filed at any point beginning in 1996 to ninety days after the restatement announcement and 0 otherwise. See http://securities.stanford.edu/index.html
Big5Auditor	An indicator variable equal to 1 if the firm's auditor (au) listed on Compustat is a Big 5 auditor and 0 otherwise.
Restate_Magnitude_UpDown	The cumulative earnings impact of the restatement, scaled by lagged total assets. Negative (positive) values indicate that the restatement reduced (increased) previously recorded net income. The restatement amount is collected from the following sources in order of priority: the SEC filing(s) disclosing the restatement, the Compustat variable "rea" (retained earnings adjustment), and the Audit Analytics variables "cumulati", then "net_mag", then "amount." If no values are available, restatement amount is set to

	zero.
Concurrent_Return	The raw buy and hold return minus the CRSP equally-weighted portfolio return calculated from the trading day prior to the announcement until the trading day after the restatement announcement [-1,+1], with prices obtained from CRSP.
Prior_Return	The buy and hold return from the 250th trading day prior to the announcement until the 8th trading day prior to the restatement announcement [-250,-8], with prices obtained from CRSP.
Log(Assets)	The natural logarithm of total assets (at).
TotalAccruals	Total accruals, calculated as income before extraordinary items less net cash from operating activities less net cash from investing activities, all scaled by lagged total assets, ((ib-oancf-ivncf)/lagged at).
IMR from AC_Led	IMR is the inverse Mills ratio calculated from the prediction equation: $AC\_Led = a + b_1(AC\_AcctFin) + b_2(AC\_Size) + b_3(AC\_NMeet) + b_4(AC\_MasterDoctor) + b_5(AC\_CEO\_Partner) + b_6(AC\_Lawyer) + b_7(Seaboard) + b_8(Big5Auditor) + b_9(Restate\_Magnitude) + b_{10}(Concurrent\_Return) + b_{11}(Prior\_Return) + b_{12}(Log(Assets)) + b_{13}(TotalAccruals) + e$, where AC_Size, AC_NMeet, AC_MasterDoctor, AC_CEO_Partner, AC_Lawyer, and Big5Auditor are used in the prediction equation but excluded from outcome equations for CEO_Turnover and SEC_Sanction. From the AC_Led prediction equation, a fitted value (Z) is calculated. For audit committee-led investigations, the IMR is calculated as normd(Z)/normprob(Z), and for the remaining investigations, the IMR is calculated as -normd(Z)/(1-normprob(Z)), as formulated in Tucker (2010).

TABLE 1
Sample Selection

Sample Selection Procedure		**N**
Restatement observations with either CIK or GVKEY identifiers from:		
(a) Government Accountability Office (GAO) database, January 1997 - June 29, 2006	2,687	
(b) Audit Analytics (AA) database, June 30, 2006 - August 2013	7,006	9,693
Less: restatement observations missing Compustat information		(4,103)
Less: restatement observations not considered accounting irregularities[a]		(4,608)
Less: repeat restatements by the same firm		(129)
Less: restatement observations for which firm IPO prospectus was not Available, or the restatement occurred prior to the fiscal year of IPO[b]		(395)
Less: restatement observations with missing audit committee and meeting information		(28)
Less: restatement observations with missing restatement disclosures		(10)
Less: restatement observations with missing CEO biography or CEO turnover information		(5)
Final Sample of Accounting Irregularities		**415**

[a] We use the classification scheme developed in Hennes et al. (2008) to determine accounting irregularities. Specifically, each restatement is classified as an accounting irregularity if any one of the following conditions is met: (1) the firm uses variants of the words "irregularity" or "fraud" in describing the misstatement in a press release; (2) the firm announces an independent internal investigation into the misconduct; or (3) the misstatement involves a Securities and Exchange Commission (SEC) or Department of Justice (DOJ) investigation into the misconduct. We apply the Hennes et al. (2008) methodology to identify irregularities from both the GAO database and the Audit Analytics database.
[b]The founding dates of 9,539 firms with an initial public offering in the United States between 1975-2013 are obtained from Jay Ritter's website: http://bear.cba.ufl.edu/ritter/ipodata.htm.

TABLE 2
Distribution of Irregularities across Year and Industry

Panel A: Distribution of Irregularities By Year

Year	N	Year	N
1997	16	2006	77
1998	18	2007	35
1999	21	2008	16
2000	28	2009	14
2001	15	2010	9
2002	34	2011	11
2003	30	2012	10
2004	33	2013	1
2005	47		
		Total	415

Panel B: Distribution of Irregularities By Industry

Industry	N	Industry	N
Agriculture	1	Automobiles and Trucks	7
Food Products	7	Ordnance and Accessories	2
Recreational Products	2	Petroleum and Natural Gas	4
Entertainment	5	Utilities	7
Printing and Publishing	1	Telecommunications	11
Consumer Goods	4	Personal Services	3
Apparel	5	Business Services	102
Healthcare	9	Computers	32
Medical Equipment	9	Electronic Equipment	39
Pharmaceutical Products	27	Measuring and Control Equipment	9
Chemicals	1	Business Supplies	2
Rubber and Plastic Products	2	Shipping Containers	1
Textiles	1	Transportation	13
Construction Materials	3	Wholesale	14
Construction	5	Retail	23
Steel Works	6	Restaurants, Hotel, Motel	6
Machinery	10	Banking	8
Electrical Equipment	4	Insurance	16
Miscellaneous	3	Trading	11

Note: Industry groupings are based on Fama and French (1997).

TABLE 3
Accounting Irregularity Investigation Details

Panel A: Cost and Length of Investigations

Full Sample	N	Mean	Median	Min	Max
Length of Investigation (days)	236	127	98	2	831
Cost of Investigation (millions)	154	6.95	2.94	0.11	124
Cost/Lagged Assets	154	0.04	0.01	0.00	1.40
Cost/Lagged Sales	154	0.10	0.01	0.00	5.05

	AC_Led			Other-Led			Outside Advisors			No Outside Advisors		
Sample Splits	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median
Length of Investigation (days)	129	124.2	98	107	131.3	97	130	138.4	103.5	106	114.0	89
Cost of Investigation (millions)	88	$6.03	$2.90	66	$8.17	$2.94	96	$7.12	$3.60	58	$6.66	$1.80

Panel B: Investigation Participants and Outcomes

	Full Sample (n = 415)		*Pre-Seaboard (n = 94)*		*Post-Seaboard (n = 321)*		Pre vs. Post Difference
	Frequency	Percent	Frequency	Percent	Frequency	Percent	(p-value)
Audit Committee (AC) Led	193	46.51%	22	23.40%	171	53.27%	0.01
Special Committee Led	47	11.33%	7	7.45%	40	12.46%	0.01
Other:							
Board of Directors	6	1.45%	1	1.06%	5	1.56%	0.01
Management	25	6.02%	9	9.57%	16	4.98%	0.01
Company	100	24.10%	40	42.55%	60	18.69%	0.01
Unknown	44	10.60%	15	15.96%	29	9.03%	0.01
Other category total	175	42.17%	65	69.15%	110	34.27%	0.01

(continued)

Panel B (continued)

	Full Sample (n = 415)		*Pre-Seaboard (n = 94)*		*Post-Seaboard (n = 321)*		Pre vs. Post Difference
	Frequency	Percent	Frequency	Percent	Frequency	Percent	(p-value)
Outside Advisors (with at least one)	171	41.20%	28	29.79%	143	44.55%	0.01
Accounting Advisors	65	15.66%	4	4.26%	61	19.00%	0.01
Legal Advisors	146	35.18%	25	26.60%	121	37.69%	0.01
Consultants/Advisors - Nonspecific	13	3.13%	2	2.13%	11	3.43%	0.12
CEO_Turnover	124	29.87%	40	42.55%	84	26.17%	0.01
SEC_Sanction	133	32.05%	42	44.68%	91	28.35%	0.01

Panel C: Contingency Table of Audit Committee Led Investigations and the Hiring of Outside Advisors

		Outside Advisor			
Audit Committee Led		Yes	No	Total	%
Yes		109	84	193	46.51%
	Row %	(56%)	(44%)		
No		62	160	222	53.49%
	Row %	(28%)	(72%)		
Total		171	244	415	
Column %		41.20%	58.80%		

Panel A outlines the disclosed cost and length of the internal investigations undertaken by irregularity firms in our sample. Data is available for only a subset of the sample. Panel B provides a detailed breakdown of investigation participants in our full sample (columns 1 and 2), the Pre-Seaboard period (columns 3 and 4), and the Post-Seaboard period (columns 5 and 6). The p-values in column 7 of Panel B are from a t-test of the difference in means between the two periods. The row labeled "Outside Advisors" reports the frequency of irregularity firms that report hiring *at least one* outside advisor to assist in the investigation. Because firms can hire more than one outside advisor, the frequencies/percentages in the "Accounting advisors," "Legal advisors," and "Consultants/Advisors – Nonspecific" will be greater than the frequencies in the "Outside Advisors" row. Panel C is a 2x2 contingency table documenting the frequency of observations with Audit Committee led investigations and outside advisors.

TABLE 4
Descriptive Statistics and Correlations

Panel A: Descriptive Statistics for Full Sample

	N	Mean	Median	Std.Dev.	P25	P75
AC_Led	415	0.47	0.00	0.50	0.00	1.00
Special_Led	415	0.11	0.00	0.32	0.00	0.00
Outside_Advisor	415	0.41	0.00	0.49	0.00	1.00
Accounting_Advisor	415	0.16	0.00	0.36	0.00	0.00
Legal_Advisor	415	0.35	0.00	0.48	0.00	1.00
CEO_Turnover	415	0.30	0.00	0.46	0.00	1.00
SEC_Sanction	415	0.32	0.00	0.47	0.00	1.00
AC_AcctFin	415	0.36	0.33	0.29	0.00	0.50
AC_Acct	415	0.23	0.25	0.24	0.00	0.33
AC_Fin	415	0.30	0.33	0.28	0.00	0.50
AC_Size	415	3.17	3.00	0.76	3.00	3.00
AC_Nmeet	415	5.31	5.00	4.00	2.00	8.00
AC_MasterDoctor	415	0.21	0.00	0.31	0.00	0.33
AC_CEO_Partner	415	0.58	0.67	0.29	0.33	0.75
AC_Lawyer	415	0.08	0.00	0.16	0.00	0.00
Seaboard	415	0.77	1.00	0.42	1.00	1.00
Big5Auditor	415	0.83	1.00	0.37	1.00	1.00
Restate_Magnitude_UpDown	415	-0.03	0.00	0.08	-0.04	0.00
Concurrent_Return[-1,+1]	415	-0.15	-0.18	0.65	-0.53	0.05
Prior_Return[-250,-8]	415	-0.15	-0.22	0.70	-0.61	0.13
Log(Assets)	415	5.82	5.93	1.94	4.62	6.95
TotalAccruals	415	0.03	0.00	0.56	-0.10	0.13

TABLE 4 - continued

Panel B. Pearson Correlations

	AC_Led	*Special_Led*	*Outside Advisor*	*CEO_Turnover*	*SEC_Sanction*	*Restate_Magnitude _UpDown*
AC_AcctFin	0.146*	-0.079	0.046	-0.003	-0.085	-0.030
AC_Acct	0.174*	0.009	0.137*	-0.007	-0.039	-0.058
AC_Fin	0.130*	-0.087	-0.009	-0.024	-0.113	-0.021
AC_Size	0.074	-0.052	-0.030	-0.038	-0.045	0.040
AC_Nmeet	0.162*	0.127*	0.147*	-0.100	-0.076	-0.038
AC_MasterDoctor	0.209*	-0.029	0.051	-0.049	-0.118	0.028
AC_CEO_Partner	0.102	0.029	0.014	0.015	0.010	-0.022
AC_Lawyer	-0.047	0.023	-0.053	0.020	-0.041	0.072
Seaboard	0.251*	0.066	0.126	-0.150*	-0.147*	-0.080
Big5Auditor	0.056	0.043	-0.083	0.098	0.040	0.021

* indicates correlation is significant at the 1% level. Note: Variable definitions are found in Appendix D.

TABLE 5
Determinants of the Accounting Irregularity Investigation Leader

	Probit Model Where the Dependent Variable is:					
	AC_Led			*Special_Led*		
Variable	Pred.	(1)	(2)	Pred.	(3)	(4)
Intercept		-0.982***	-0.974***		-1.282**	-1.338***
		(2.83)	*(2.81)*		*(2.54)*	*(2.64)*
AC Characteristics:						
AC_AcctFin	(+)	0.544***		(-)	-0.877***	
		(2.39)			*(2.66)*	
AC_Acct	(+)		0.532*	(-)		0.273
			(1.69)			*(0.64)*
AC_Fin	(+)		0.305	(-)		-1.035**
			(1.12)			*(2.57)*
AC_Size	(+)	0.082	0.079	?	-0.417***	-0.394**
		(0.82)	*(0.78)*		*(2.57)*	*(2.45)*
AC_Nmeet	(+)	0.017	0.016	?	0.064***	0.056**
		(0.90)	*(0.86)*		*(2.61)*	*(2.28)*
AC_MasterDoctor	(+)	0.621***	0.608***	?	-0.126	-0.118
		(2.96)	*(2.89)*		*(0.44)*	*(0.41)*
AC_CEO_Partner	(+)	0.434*	0.455**	?	0.040	0.027
		(1.92)	*(2.00)*		*(0.13)*	*(0.09)*
AC_Lawyer	(+)	-0.622	-0.583	?	0.263	0.357
		(1.50)	*(1.39)*		*(0.47)*	*(0.63)*
Additional Variables:						
Big5Auditor	?	0.920	0.911	?	0.680	0.671
		(1.31)	*(1.30)*		*(0.90)*	*(0.90)*
Seaboard	(+)	0.702***	0.669***	(+)	0.184	0.170
		(3.65)	*(3.46)*		*(0.67)*	*(0.63)*
Restate_Magnitude_UpDown	(-)	-0.502	-0.468	(-)	-3.469***	-3.428***
		(0.65)	*(0.61)*		*(3.95)*	*(3.93)*
Concurrent_Return	(-)	-0.231	-0.244	(-)	-0.206	-0.213
		(1.36)	*(1.42)*		*(0.74)*	*(0.77)*
Prior_Return	?	0.209	0.217	?	0.058	0.053
		(1.36)	*(1.41)*		*(0.23)*	*(0.22)*
Log(Assets)	?	-0.101***	-0.100***	?	0.147***	0.143***
		(2.53)	*(2.52)*		*(2.54)*	*(2.47)*
TotalAccruals	?	0.179	0.183	?	0.030	0.026
		(1.44)	*(1.46)*		*(0.19)*	*(0.16)*
N		415	415		415	415
Pseudo R^2		10.75%	11.04%		13.17%	13.21%

*, **, ***, significant at 10%, 5%, and 1%, respectively, with t-statistics in parentheses. A one-tailed significance test is used in cases where a prediction is made on the coefficient; otherwise a two-tailed significance test is used. Variable definitions are found in Appendix D. All quantitative variables are winsorized at the 1st and 99th percentiles.

TABLE 6
Determinants of Hiring an Outside Advisor

Variable	Pred.	Probit Model Where the Dependent Variable is: (1) *Outside_Advisor*	(2) *Accounting_Advisor*	(3) *Legal_Advisor*
Intercept		-0.975***	-1.898***	-1.017***
		(2.59)	*(3.82)*	*(2.64)*
AC_Led	?	0.779***	0.344**	0.599***
		(5.39)	*(2.06)*	*(4.14)*
AC Characteristics:				
AC_Acct	?	0.798**	0.336	0.812**
		(2.34)	*(0.87)*	*(2.38)*
AC_Fin	?	-0.803***	-0.687*	-0.813***
		(2.70)	*(1.91)*	*(2.72)*
AC_Size	?	-0.313***	-0.120	-0.357***
		(2.85)	*(0.91)*	*(3.14)*
AC_Nmeet	?	0.030	0.022	0.033*
		(1.49)	*(1.03)*	*(1.66)*
AC_MasterDoctor	?	-0.080	-0.115	0.005
		(0.36)	*(0.43)*	*(0.02)*
AC_CEO_Partner	?	-0.227	-0.508*	-0.069
		(0.96)	*(1.77)*	*(0.29)*
AC_Lawyer	?	-0.148	1.010**	0.078
		(0.34)	*(2.12)*	*(0.18)*
Additional Variables:				
Big5Auditor	?	*Dropped from regression due to multicollinearity*		
Seaboard	+	0.195	0.761***	0.155
		(0.97)	*(2.69)*	*(0.76)*
%IndustryIrreg	+	2.095***	0.858	2.057***
		(2.63)	*(0.89)*	*(2.58)*
ClassAction	+	0.163	0.191	0.164
		(1.06)	*(1.05)*	*(1.05)*
Restate_Magnitude_UpDown	(-)	-2.306***	-1.163	-1.860**

		(2.90)	*(1.31)*	*(2.38)*
Concurrent_Return	(-)	-0.161	-0.152	-0.217
		(0.84)	*(0.65)*	*(1.12)*
Prior_Return	?	0.210	0.141	0.211
		(1.24)	*(0.68)*	*(1.23)*
Log(Assets)	(+)	0.144***	0.065	0.143***
		(3.27)	*(1.24)*	*(3.22)*
TotalAccruals	?	0.139	0.136	0.103
		(1.09)	*(0.82)*	*(0.79)*
N		415	415	415
Pseudo R^2		15.07%	9.89%	12.57%

*, **, ***, significant at 10%, 5%, and 1%, respectively, with t-statistics in parentheses. A one-tailed significance test is used in cases where a prediction is made on the coefficient; otherwise a two-tailed significance test is used. Variable definitions are found in Appendix D. All quantitative variables are winsorized at the 1st and 99th percentiles.

TABLE 7
Descriptive Statistics of CEO Turnover

CEO Turnover Rates	Full Sample	Sample Split By: AC_Led	Other	Difference	Sample Split By: Outside Advisors	No Outside Advisors	Difference
N Turnover Observations	124	54	70		58	66	
N Observations in Sample	415	193	222		171	244	
N Turnover as %	29.88%	27.98%	31.53%	3.55%	33.92%	27.05%	6.87%[##]
			p-value:	0.23		p-value:	0.03

TABLE 8
Outcome Equation Results: The Relation between Investigation Participants and CEO Turnover

FIML Bivariate Probit - simultaneous estimation of the following models [*selection model results excluded for brevity*]:

Selection Equation: $AC\_Led = a + b_{1\text{-}8}(AC\ Characteristics) + b_{9\text{-}15}(Additional\ Variables) + e$

Outcome Equation: $CEO\_Turnover = a + a_1 AC\_Led + a_2 Outside\_Advisor + b_1(AC\_AcctFin) + b_{2\text{-}7}(Additional\ Variables) + e$

	Outcome Equation of FIML Bivariate Probit where Dependent Variable = *CEO_Turnover*				
Variable	Pred.	(1)	(2)	(3)	(4)
Intercept		-0.640	-0.618	-0.637	-0.609
		(1.37)	*(1.36)*	*(1.53)*	*(1.40)*
AC_Led	(+)	0.308	0.250	0.440	0.257
		(0.24)	*(0.19)*	*(0.40)*	*(0.23)*
Outside_Advisor	(+)	0.297**	0.110		
		(2.07)	*(0.53)*		
*AC_Led*Outside_Advisor*	(+)		0.368		
			(1.30)		
Accounting_Advisor	(+)			0.374**	
				(2.06)	
Legal_Advisor	(+)				0.229
					(1.58)
AC_AcctFin	?	-0.020	-0.064	-0.010	-0.002
		(0.05)	*(0.18)*	*(0.03)*	*(0.01)*
Additional Variables:					
Seaboard	(-)	-0.679*	-0.698**	-0.732**	-0.650*
		(1.81)	*(1.97)*	*(2.29)*	*(1.86)*
Restate_Magnitude_UpDown	(-)	-1.392	-1.523	-1.542*	-1.505*
		(1.54)	*(1.59)*	*(1.73)*	*(1.74)*
Concurrent_Return	(-)	0.039	0.026	0.041	0.032
		(0.17)	*(0.12)*	*(0.19)*	*(0.15)*
Prior_Return	(-)	-0.408**	-0.406**	-0.402**	-0.400**
		(2.05)	*(2.08)*	*(2.09)*	*(2.01)*
Log(Assets)	(+)	0.044	0.047	0.051	0.044

		(0.80)	*(0.84)*	*(0.99)*	*(0.85)*
TotalAccruals	?	-0.402***	-0.408***	-0.405***	-0.392***
		(2.74)	*(2.85)*	*(2.90)*	*(2.70)*
N		415	415	415	415
Wald Test of Rho = 0:					
Chi^2		0.0792	0.1283	0.1541	0.0636
Prob > Chi^2		0.778	0.720	0.695	0.801
Test of Joint Significance of Coefficients:			p-value		
AC_Led + *AC_Led * Outside_Advisor* = 0			p = 0.3852		
Outside_Advisor + *AC_Led * Outside_Advisor* = 0			p = 0.0534		

In Panel A: #, ##, ###, significantly different at p-value <.10, <.05, <.01, respectively, based on a two-tailed binomial test of proportions.

In Panel B: *, **, ***, significant at 10%, 5%, and 1%, respectively, with t-statistics in parentheses. A one-tailed significance test is used in cases where a prediction is made on the coefficient; otherwise a two-tailed significance test is used. Variable definitions are found in Appendix D. All quantitative variables are winsorized at the 1st and 99th percentiles.

TABLE 9
Outcome Equation Results: The Relation between Investigation Participants and SEC Enforcement Likelihood

FIML Bivariate Probit - simultaneous estimation of the following models [*selection model results excluded for brevity*]:

Selection Equation: $AC\_Led = a + b_{1\text{-}8}(AC\ Characteristics) + b_{9\text{-}15}(Additional\ Variables) + e$

Outcome Equation: $SEC\_Sanction = a + a_1 AC\_Led + a_2 Outside\_Advisor + b_1(AC\_AcctFin) + b_{2\text{-}7}(Additional\ Variables) + e$

	Outcome Equation of FIML Bivariate Probit where Dependent Variable = *SEC_Sanction*				
Variable	Pred.	(1)	(2)	(3)	(4)
Intercept		-0.958***	-0.895**	-0.865**	-0.915**
		(2.60)	*(2.23)*	*(2.36)*	*(2.47)*
AC_Led	(-)	-0.845**	-0.999**	-0.870**	-0.873**
		(2.07)	*(2.10)*	*(2.08)*	*(2.12)*
Outside_Advisor	?	0.270**	0.145		
		(1.98)	*(0.78)*		
*AC_Led*Outside_Advisor*	?		0.241		
			(1.00)		
Accounting_Advisor	?			0.066	
				(0.44)	
Legal_Advisor	?				0.237*
					(1.81)
AC_AcctFin	(-)	-0.274	-0.269	-0.225	-0.249
		(0.98)	*(0.91)*	*(0.80)*	*(0.88)*
Additional Variables:					
CEO Turnover	?	0.612***	0.596***	0.601***	0.607***
		(3.96)	*(3.66)*	*(3.71)*	*(3.86)*
Seaboard	(-)	-0.177	-0.148	-0.114	-0.142
		(0.69)	*(0.52)*	*(0.42)*	*(0.55)*
Restate_Magnitude_UpDown	(-)	-2.460***	-2.536***	-2.619***	-2.467***
		(3.22)	*(3.26)*	*(3.43)*	*(3.22)*
Concurrent_Return	(-)	-0.262	-0.280	-0.275	-0.261
		(1.43)	*(1.53)*	*(1.53)*	*(1.44)*
Prior_Return	(-)	0.116	0.122	0.141	0.123

		(0.68)	*(0.71)*	*(0.84)*	*(0.73)*
Log(Assets)	(+)	0.123**	0.119**	0.119**	0.118**
		(2.55)	*(2.30)*	*(2.38)*	*(2.42)*
TotalAccruals	?	0.091	0.091	0.109	0.100
		(0.77)	*(0.77)*	*(0.96)*	*(0.87)*
N		415	415	415	415
Wald Test of Rho = 0:					
Chi^2		3.6014	2.7415	3.4232	3.5053
Prob > Chi^2		0.058	0.098	0.064	0.061
Test of Joint Significance of Coefficients:			p-value		
AC_Led + *AC_Led* * *Outside_Advisor* = 0			p = 0.0985		
Outside_Advisor + *AC_Led* * *Outside_Advisor* = 0			p =0.1005		

In Panel A: #, ##, ###, significantly different at p-value <.10, <.05, <.01, respectively, based on a two-tailed binomial test of proportions.

In Panel B: *, **, ***, significant at 10%, 5%, and 1%, respectively, with t-statistics in parentheses. A one-tailed significance test is used in cases where a prediction is made on the coefficient; otherwise a two-tailed significance test is used. Variable definitions are found in Appendix D. All quantitative variables are winsorized at the 1st and 99th percentiles.

FIGURE 1. Participants in Accounting Irregularity Investigations

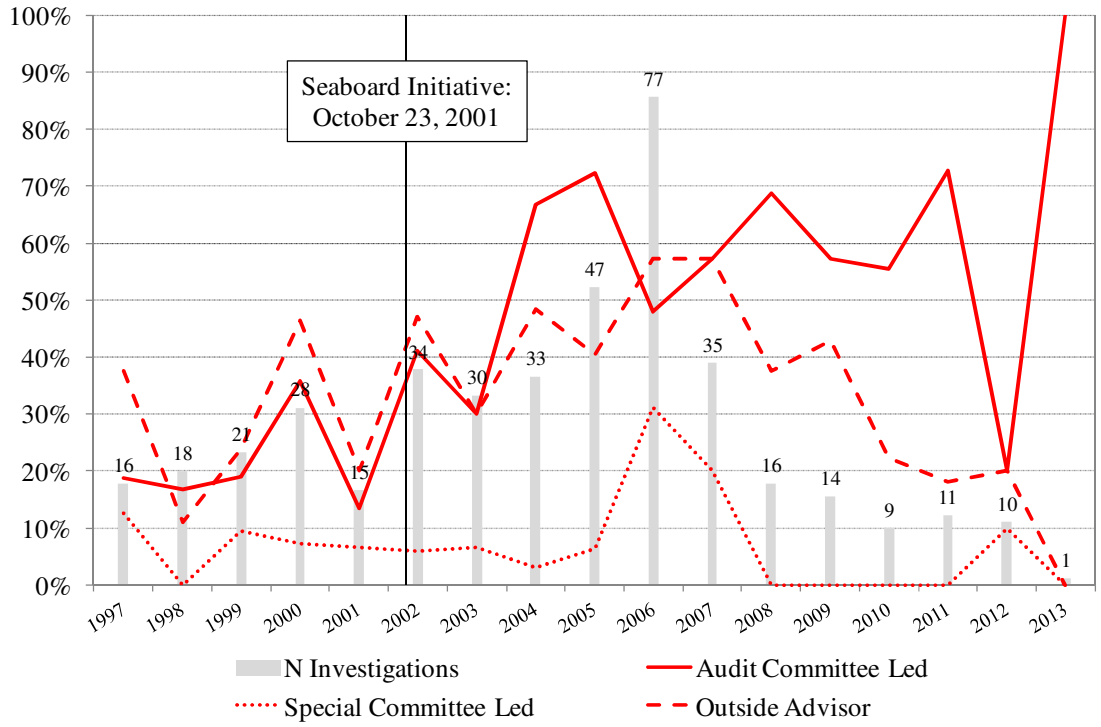

FIGURE 2. Outcomes of Accounting Irregularity Investigations