Noncompliance, Financial Reporting Quality and Director Turnover

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Declaration of Authorship

I, Xiu-Ye Zhang declare that this thesis titled, "Noncompliance, Financial Reporting Quality and Director Turnover" and the work presented in it are my own. I confirm that:

1. This thesis has not been submitted for the award of a higher degree elsewhere.
2. This work was done wholly in the candidature for a research degree at Lancaster University.
3. Chapter 3 was presented at EAA 2015 conference, BAFA Doctoral Conference 2015, and 19th FRBC Conference with an award of *Sue Hrasky Scholarship.*
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work.
5. Where the work of other authors is refereed to, it is properly referenced.
6. I have acknowledged all main sources of help.

Xiu-Ye ZHANG

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Abstract

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In this thesis, I examine the effects of noncompliance with securities laws on financial reporting quality and director turnover. The thesis consists of three main chapters.

Chapter 2 introduces the enforcement actions brought by the Securities and Exchange Commission (SEC), based on which I collect data on noncompliance cases. It also describes the data collection process and reports summary statistics for noncompliance cases. It contributes to our understanding of the SEC's enforcement actions. The dataset is used in examining the effects of noncompliance with regulations on financial reporting quality and director turnover in Chapters 3 and 4, respectively.

Chapter 3 investigates the association between noncompliance with securities laws and financial reporting quality. Compliance control and financial reporting quality are two overlapping aspects of control within the integrated internal control framework. I explore the association between compliance control and financial reporting quality by testing whether the rate of financial reporting problems is higher for firms that fail to comply with securities laws. I find that firms not complying with securities laws have significantly higher rates of financial reporting problems than control firms that do not violate securities laws. Furthermore, the results show that the effect is much stronger for accounting frauds than for accounting restatements, and the evidence is more pronounced in the post-noncompliance (with securities laws) windows than in the pre-noncompliance windows. This chapter presents the first empirical examination of the link between the compliance aspect of internal control and financial accounting problems.

Chapter 4 investigates director turnover surrounding noncompliance events. While directors are expected to play a disciplining role, the evidence is still limited on this. I examine directors' reactions to firm misconduct around the time when firms start to violate securities laws. I find, in general, that firms that failed to comply with securities laws (noncompliant firms) have significantly higher director turnover rates around the start of noncompliant than control firms. Noncompliant firms are also more likely to have unexpectedly departing directors around the start of noncompliance. When outside directors are examined separately, significantly higher director turnover is observed only for the pre-noncompliance period and not for the post-noncompliance period. These results suggest that directors are more likely to leave a firm if they perceive wrongdoing, while outside directors tend to leave before they could possibly be involved in the firm's wrongdoing.

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I am more than grateful for what I have today.

Xiu-Ye

Reading, UK

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To Flora

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Chapter 1 Introduction

1.1 Motivation

Companies are increasingly accountable to mandated laws, regulations and standards on a number of dimensions. Noncompliance with applicable regulations has become a material negative event for a company. Prior research explores the consequences of different types of noncompliance, such as accounting violations (see, for example Karpoff et al., 2014), false advertising (Peltzman, 1981), product recalls (Jarrell and Peltzman, 1985), air safety disasters (Mitchell and Maloney, 1989), and environmental violations (Jones and Rubin, 2001;Karpoff et al., 2005;Al-Tuwaijri et al., 2004). However, these studies are based mainly on the disclosure of the negative events. There is little empirical evidence provided to help us understand the internal mechanisms of the noncompliant firms at the time of committing fraud. My thesis, containing two major topics, separately examines the association between noncompliance and financial reporting quality under an integrated internal control framework, and the impact of noncompliance on director turnover before the noncompliance behaviour becomes public. I explore these two issues by employing a hand-collected comprehensive non-accounting noncompliance dataset for which noncompliance information is gathered from the U.S. Securities and Exchange Commission (SEC)'s enforcement actions filed between 2003 and 2012.

Gathering information from the SEC's enforcement actions, which apply to noncompliance with securities laws, provides a good setting in which to examine noncompliance effects, for several reasons. Chapter 2 of this thesis explains why I collect data from the SEC's non-accounting enforcement actions. It also describes the process of collecting the data and reports summary statistics for the noncompliance

events and firms. The final sample comprises 126 noncompliance events for 123 firms, 96 of which firms have complete financial statement and market data available. The most common areas of noncompliance in my sample include insider trading, foreign bribery, kickback payments, misleading press releases, misleading information on business, fraudulent sales transactions, unregistered securities, stock manipulation, related-party transactions, and stock option backdating.

Chapter 3 discusses the first research question, through which I investigate whether not complying with securities laws has implications for firms' financial reporting problems. Compliance control and financial reporting quality are two overlapping aspects of control within the integrated internal control framework. I conjecture that they are connected through internal interaction and general factors which affect the internal control system as a whole. I explore the association between compliance control and financial reporting quality by testing whether the rate of financial reporting problems is higher for firms that fail to comply with securities laws. Noncompliant firms are identified from the hand-collected dataset described in Chapter 2. Control firms are identified through a propensity score matching method.

I use the presence of accounting restatements, provided by Audit Analytics, and accounting fraud, provided by Karpoff et al. (2008a, 2008b) as measures of poor financial reporting quality. I collect data on restatements from Audit Analytics. I find that firms not complying with securities laws have significantly higher rates of financial reporting problems than control firms that do not violate securities laws. Furthermore, the results show that the effect is much stronger for accounting fraud than restatements, and the evidence is more pronounced in the windows after noncompliance starts. I check whether some underlying firm characteristics affect the results, by employing the

MHbounds approach, and find that the inferences are not affected by unobservable factors.

Chapter 3 presents the first empirical examination of the link between the compliance aspect of internal control and financial accounting problems. This study makes three main contributions to the literature. First, compliance captures a different aspect of internal control quality than is studied in prior research. This extends our understanding of internal control as an integrated system, while accounting research typically explores internal control systems in relation to the financial accounting aspect alone. Second, my study improves our understanding of noncompliance effects. Prior research mainly examines noncompliance effects on market reactions. None of these studies examines the effects of noncompliance on financial reporting quality, nor do they perceive noncompliance as a proxy for ineffective internal control, despite compliance being one objective of internal control. Finally, my findings have implications for business and public policy. They provide evidence consistent with the notion that internal control over financial reporting only partially identifies financial reporting problems. They also correspond to the newly updated *Internal Control - Integrated Framework* (COSO, 2013), which emphasizes the implementation of the compliance aspect of internal control.

Chapter 4 discusses the second research question, through which I investigate director turnover surrounding noncompliance events. There are high expectations of directors to play a disciplining role when they are confronted with serious principal-agent issues. However, it is usual for a firm to remain a 'black box' when it is doing wrong. A stream of research has investigated the association between director and firm misconduct, with a focus on the effects after these negative events have been announced or disclosed. However, largely absent from these inquiries is the analysis of directors'

responses to fraudulent behaviour at the time the misconduct commences. I examine directors' reactions to the misconduct of firms surrounding the commencement of noncompliance problems. Specifically, I examine whether noncompliant firms have higher director turnover rates than control firms. The noncompliant firms come from the hand-collected dataset identified in Chapter 2. Control firms are identified through propensity score matching. I then hand-collect corporate governance data for both noncompliant and control firms.

I predict that, other things equal, directors have strong incentives to leave noncompliant firms around the beginning of the violation period, and that the departure is likely even without intervention from external forces. I identify two event dates to examine my prediction. The first one is the original noncompliance start date. The second is a shifted event date, an arbitrary number of days after the start of the violation period but before the violation becomes public. Given that focusing on this date allows violation to get underway for a period of time and possibly excludes the effects of a public announcement, the results will help to indicate whether a director might detect and respond to fraudulent behaviour through private information channels.

I find that, in general, noncompliant firms have a significantly higher director turnover rate around the start of noncompliant than control firms. Noncompliant firms are also more likely to have unexpectedly departing directors around the time of the start of noncompliance. However, when outside directors are examined separately, significantly higher director turnover is observed only for the pre-noncompliance period and not for the post-noncompliance period. These results suggest that directors are more likely to leave a firm when they perceive wrongdoing, while outside directors tend to leave before they could possibly be involved in the firm's wrongdoing.

This study makes several contributions to the literature. First, to my knowledge, this is the first study to focus on director turnover surrounding the commencement of noncompliance rather than the announcement or revelation of a negative event. It extends the research that investigates negative events and director behaviour. Second, it contributes to our understanding of the internal governance mechanism between management and boards of directors, especially enhancing our observation of directors when a firm fails to comply with applicable regulations, laws or rules. Third, I exploit a unique data setting, i.e. the SEC's non-accounting enforcement actions, to explore directors' reaction to firms' negative events. I then assemble a hand-collected corporate governance dataset for these noncompliant firms and their compliant propensity-score-matched control firms. By applying comprehensive non-accounting data, I am less concerned about the capacity for generalizing the conclusion. Finally, my findings also have some policy implications. Dimmock and Gerken (2012) argue that there are shortcomings in the current governance system, wherein the majority of decisions regarding the fiduciary duty doctrine have developed in the director context but not on the exact nature and scope of officers' fiduciary duties. Consistent with this argument, my findings suggest that directors tend not to fulfil their expected disciplining role when they are confronted with management misconduct. To prevent firms from misconduct, it might be more efficient to hold misbehaving managers accountable rather than emphasize directors' disciplining role.

1.2 Thesis Structure

The thesis structure follows the convention that allows chapters to be presented in a format suitable for submission and publication in peer-reviewed academic journals. Therefore, this thesis is structured around two essays containing original research in Chapters 3 and 4. These two chapters are self-contained, each having a separate

literature review, answering unique and original questions, and employing distinct analysis and datasets, although there are similarities in data and methodology. Wherever there is repetitive discussion regarding common data and similar methodology, I refer to the earlier-appearing discussion, but for the purpose of keeping the integrity of each essay, I repeat the necessary discussion and reported tables. The equations, footnotes, tables, and figures are independently numbered from the beginning of each chapter. Page numbers, titles, and subtitles have a sequential order throughout the thesis.

The thesis continues as follows. Chapter 2 presents the generation of the noncompliance dataset and reports the summary statistics of the noncompliance sample. Chapter 3 examines the link between the compliance aspect of internal control and financial accounting problems. Chapter 4 investigates whether there is a significantly higher director turnover rate around the commencement of noncompliance events. Chapter 5 concludes.

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Chapter 2 Noncompliance with Securities Laws/Regulations

2.1 Introduction of Noncompliance with Securities Laws/Regulations

Frequent corporate misconducts have dominated the headlines over the past two decades. There are severe consequences if a firm fails to comply with applicable laws, rules, and regulations. Prior studies find that, once involved in lawsuits, noncompliant firms face significant stock price declines(see, for examples, Peltzman, 1981;Bizjak and Coles, 1995;Bhagat et al., 1998;Bhattacharya et al., 2007;Gande and Lewis, 2009;Ozkan, 2011;Leng et al., 2011); losses in legal and regulatory penalties(see, for examples, Bhagat and Romano, 2002;Karpoff et al., 2005); higher costs of capital (see, for examples, Feroz et al., 1991;Dechow et al., 1996;Karpoff et al., 2008), and negative abnormal operating performance (see, for example, Leng et al., 2011), etc.

Most of these studies focus only on one specific type of noncompliance. Especially, accounting violation prevails in research focuses. Karpoff et al. (2014) document that there are at least 150 papers investigating accounting frauds, and this number is based solely on four popular databases. There is research on some other specific types of noncompliance as well, such as false advertising (Peltzman, 1981), product recalls (Jarrell and Peltzman, 1985), air safety disasters (Mitchell and Maloney, 1989), and environmental violations (Jones and Rubin, 2001;Karpoff et al., 2005;Al-Tuwaijri et al., 2004). These studies focus mainly on event effects upon the revelation of the problems.

In contrast to the relatively large literature that studies a specific type of noncompliance, surprisingly, there is little or no direct source of studies on a relatively comprehensive noncompliance setting. Such scant research might stem from the absence of publicly available data that can help for identifying comprehensive noncompliance. This task is difficult because applicable laws and regulations are

complicated and vary across industries and firms. First, generally, the regulation on noncompliance disclosure is weak. Fasterling (2012) finds that the regime of compliance disclosure[1] serves less to discipline companies by making company practice transparency and more to trigger a process of norm development in which law, company and stakeholders interact. It indicates that the regulatory power on compliance disclosure is very weak; therefore, it is not possible to expect firms to fully disclose noncompliance behaviour.

Second, the regulatory framework faced by a firm also depends on which industry the firm operates in and what products it is producing. For instance, Kim and Skinner (2012) show that litigation rates of security class actions in four industries (biotechnology, computers, electronics, and retail) are consistently higher than those in other industries. Furthermore, not surprisingly, different rules for product quality are applied for different product recalls, such as laptops and automobiles.

Third, for the purpose of avoiding different consequences from just one type of noncompliance behaviour, a variety of rules are usually in place. Taking environmental regulation as an example, Karpoff et al. (2005) report six types of violations against eight related Acts among 478 events that involve environmental harm. They are the 1970 Clean Air Act and its 1977 and 1990 amendments, the 1977 Clean Water Act, the Water Quality Act of 1987, the Safe Drinking Water Act of 1974, the Resource Conservation and Recovery Act of 1976, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and the Toxic Substances and Control Act of 1976.

[1] Herein, compliance disclosure is a relatively recent regulatory technique whereby companies are obliged to disclose the extent to which they comply with codes, "best practice standards" or other extra-legal text containing norms or prospective norms. The largest field of mandatory disclosure lies in securities and company law, but disclosure is also amply used in other regulatory contexts such as foodstuffs, environmental protection, anti-bribery, or workplace safety.

Relative to other types of violations, gathering information from the U.S. Securities and Exchange Commission (SEC)'s enforcement actions, which is for firms violating securities laws/regulations, provides a good setting to investigate research questions related to noncompliance for several reasons. First, noncompliance with securities laws is an influential component of a firm's noncompliance behaviour. Common conduct that may lead to the SEC's investigations includes: (1) misrepresentation or omission of important information about securities; (2) manipulating the market prices of securities; (3) stealing customers' funds or securities; (4) violating broker-dealers' responsibility to treat customers fairly; (5) insider trading (i.e., violating a trust relationship by trading while in possession of material, non-public information about a security); and (6) selling unregistered securities.[2] Each type of the common misconduct involves related parties (such as investors and consumers) who do business with the violating firm, which means there is a directly-related party whose benefits will be damaged by this violating behaviour. Relative to other types of violations which do not directly affect the parties with whom the firm does business (such as violation of environmental laws), the related-parties-involved noncompliance usually triggers larger decreases in firm value (Karpoff and Lott, 1993;Murphy et al., 2009;Karpoff, 2012).[3]

Second, the SEC is a law enforcement agency and it has the same regulatory power over all registrants regardless of industry or size. Each year the SEC brings hundreds of civil enforcement actions against individuals and companies for violations

[2] The above information comes from the SEC's website: http://www.sec.gov/about/whatwedo.shtml.

[3] By reviewing different types of noncompliance behaviour, Karpoff (2012) concludes that the loss of market value far exceeds direct costs such as fines, penalties, and law-suit settlements for some types of misconduct which impose costs on their counterparties such as investors, employees, customers, suppliers, etc. However, for some other types of misconduct, such as environmental violations, which do not directly affect the parties with whom the firm does business, there are small or negligible losses in addition to the cost imposed by regulators and courts.

of the securities laws or regulations. The Division of Enforcement of the SEC assists the Commission in executing its law enforcement function by recommending the commencement of investigations of securities laws violations, by recommending that the Commission bring civil actions in federal court or as administrative proceedings before an administrative law judge, and by prosecuting these cases on behalf of the Commission. The Division obtains evidence of possible violations of the securities laws from many sources, including market surveillance activities, investor tips and complaints, other Divisions and Offices of the SEC, the self-regulatory organizations and other securities industry sources, and media reports.

In contrast, other types of noncompliance do not have a universal regulator because the regulatory framework to which firms are subject depends on which industry they operate in and what products they produce. For instance, noncompliance with environmental regulations occurs mainly in the utilities and manufacturing sectors while noncompliance with product quality standards (measured by product recalls) varies across products.

Third, the SEC's website provides comprehensive information on firms' noncompliance with securities regulations and it is publicly available. The SEC's enforcement action releases can be obtained by using its online annual archives. These archives provide litigation releases concerning civil lawsuits brought by the SEC in federal court, and notices and orders concerning the institution and/or settlement of administrative proceedings from 1995 onwards.

2.2 Data Collection of Non-accounting Noncompliance with Securities Laws

To provide a relatively comprehensive data setting to investigate research questions related to noncompliance, I construct a comprehensive sample of noncompliance with securities laws through searching the SEC's enforcement action

releases. Since 1982, the SEC has issued Accounting and Auditing Enforcement Releases (AAERs) during or at the conclusion of an investigation against a company, an auditor, or an officer for alleged accounting and/or auditing misconduct. AAERs account for over half of the SEC's enforcement action releases as shown in my further data collection process. However, I exclude AAERs from my noncompliance sample for the following reasons.

First, my research question based on noncompliance sample in Chapter 3 investigates the association between non-accounting noncompliance and financial reporting problems. Given this research question, my noncompliance sample needs to be based on non-accounting noncompliance events while AAERs are vastly used as proxies for accounting problems (Dechow et al., 2011). [4] Therefore, I exclude AAERs from my noncompliance sample.

Second, dataset for AAERs has been well established. Dechow et al. (2011) construct a dataset which currently consists of 3,052 SEC AAERs (1,214 firm accounting noncompliance events) issued between May 17, 1982 and September 1, 2010.[5] Their dataset provides varying degrees of detail on the nature of the misconduct, the individuals and entities involved and their effects on the financial statements. Therefore, it is less likely that incorporating AAERs in my noncompliance data will contribute incremental understanding to the accounting noncompliance database that has been well developed.

Finally, as shown in Table 1, AAERs counts for over half of the SEC's enforcement action releases, it makes the task of data collection infeasible for a PhD

[4] A detailed description of the dataset of AAERs is available in Dechow et al. (2011).
[5] The dataset constructed in Dechow et al. (2011) catalogs all the AAERs from AAER 1 through AAER 2261 spanning May 17, 1982 through June 10, 2005. They then develop the dataset to incorporate more AAERS through September 1, 2010. More detailed information on this dataset is available on the website: http://faculty.haas.berkeley.edu/patricia_dechow/aaer.html .

study. Besides the data collection for noncompliance events, my research question in Chapter 4 also involves hand collection on corporate governance data for noncompliant firms and their matched pairs. Therefore, to make my PhD study feasible, I also need to exclude AAERs from my noncompliance sample.

In the case of noncompliance, there are two types of actions that the SEC can take: Federal Court Actions (civil actions) and Administrative Proceedings. The former are litigation releases concerning civil lawsuits brought by the SEC in a federal court while the later are orders and related materials released by the SEC when it brings non-judicial actions before an administrative law judge. Whether the SEC decides to bring a civil action or administrative action may depend upon the type of sanction or relief that is being sought.[6] It is possible that when the misconduct warrants it, the Commission can bring both proceedings. The SEC maintains an online publicly searchable database on litigation releases (hereinafter 'LR') and administrative proceedings (hereinafter 'AP') in the form of annual archives from 1995 onwards. I use this database to identify firms that violated securities laws. There are also another two other types of enforcement actions: opinions issued by Administrative Law Judges in contested administrative proceedings (ALJ Decisions) and opinions issued by the Commission on appeal of Initial Decisions or disciplinary decisions issued by self-regulatory organizations such as NYSE or NASD (Commission Opinions). Since these two types of actions are not original enforcement actions towards firms' misconduct, my data collection does not take them into concern.

My sample includes enforcement actions brought by the SEC from 2003 to 2012. I collect noncompliance data from January 1, 2003 onwards because, for one of my

[6] For example, the Commission may bar someone from the brokerage industry in an administrative proceeding, but an order barring someone from acting as a corporate officer or director must be obtained in federal court(this example comes from the SEC's website: http://www.sec.gov/about/whatwedo.shtml#.UyrILqh_uE4).

research questions in this thesis, I believe the data on a key variable in Chapter 3, i.e. Internal Control Deficiency, is not available before 2003 since Section 302 of Sarbanes-Oxley Act was enforced only for the period on and after August 29, 2002.[7] The data collection process consists of the following five steps.

First, I generate annual enforcement action index files for LR and AP after excluding releases that are classified as AAERs, that are issued against individuals rather than against firms, that do not include the firm's name in the release title or do not help for event identification.[8] Although I exclude releases against individuals, I retain those releases involving both individuals and firms in my index files for further identification process. Releases that do not help to identify noncompliance typically involve fair fund distributions and intentional omission.[9] Applying these filters produces a sample of 1,354 LRs relating to 1,666 unique firms, and 2,400 APs relating to 2,591 unique firms. Pooling LRs and APs yields a sample of 4,129 unique firms.

I match each firm name in the index file with EDGAR to retrieve the CIK identifier. From the initial sample of 4,129 firms, I am able to identify 2,471 matches. The number of matched firms is reduced by 1,658 because all securities offerings are potential targets for SEC's enforcement actions but not all companies that offer stock for sale must file electronically with EDGAR. For example, certain small companies may be granted exemptions from regular SEC reporting (SEC, 2013); therefore it is not possible to gather their information from EDGAR.[10]

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[7] However, my results do not include this Internal Control Deficiency information disclosed under Sarbanes-Oxley Act because there is no sufficient data for analysis.

[8] This means that the releases are not helpful for identifying firms' noncompliance behaviours, such as releases for fair fund distributions.

[9] The "Fair Fund" provision is enforced under Section 308(a) of the SOX. It authorizes the SEC to take civil penalties collected in enforcement cases and add them to disgorgement funds for the benefit of victims of securities law violations. The SEC or the hearing officer may, at any time, order any party to submit a plan for the administration and distribution of funds in a Fair Fund or disgorgement fund. Usually, the SEC's Division of Enforcement submits a proposed plan no later than 60 days after the respondent has turned over the funds or other assets pursuant to the SEC's order. These releases are issued as APs.

[10] Information is achieved from the SEC' website: https://www.sec.gov/answers/regis33.htm and

I match the resulting sample of noncompliant firms with COMPUSTAT to determine whether financial data (total assets) are available. This requirement results in the loss of 1,703 firms.[11] Generally, COMPUSTAT's North American population has financial data for companies filing public source and having a trading issue but for private firms, COMPUSTAT adds them into the database only when they meet certain criteria. For example, one criteria is that companies trade on both a US and Canadian exchange. The criteria for OTC to be added in the North American population are that the equity must be pricing at least $0.01 and trading with volume must occur fairly consistently; in addition, the company must file sources regularly.

I then match the remaining 768 firms with the enforcement action index files and identify all relevant release documents. My final sample consists of 900 enforcement releases. I download these manually and check each release to extract the key variables for my analysis. Inspection of the enforcement action releases reveals that many cases involve failure to file periodic financial statements (known as delinquent filings). I treat delinquent firms as having financial reporting problems rather than non-accounting noncompliance, and therefore I remove these cases from my sample of securities laws noncompliance. The resulting sample contains 142 LRs and 390 APs.[12]

Finally, I read all 532 releases and extract information on securities laws violations. Note that multiple releases may pertain to one noncompliance event at a single firm, such as order instituting proceedings, initial decisions, and final decisions. Meanwhile some releases are not relevant for identifying noncompliance behaviour such as those relating to fair fund, granting waivers, and individuals. Information

https://www.sec.gov/edgar/searchedgar/cik.htm#.U39rPdJdWE4 .

[11] According to a contact with WRDS, not every firm that files with the SEC can be found in COMPUSTAT.

[12] At this stage, it is not necessary to identify the number of unique firms involved with those releases because many of these do not contain the information I need for identifying noncompliance events and would therefore be removed from my scrutiny of information extraction.

exacted for each noncompliance event includes: the firm name, release numbers pertaining to each firm, one observation per noncompliance event,[13] the violation beginning/ending date, the law(s) violated, the violated sections of law(s), a general description of the reason that the release was issued, whether CEO or top management names are involved in the misconduct, the filing date that the SEC released the document where I extract main information for this noncompliance event, and the date of the first enforcement action release for it.[14]

Table 1 describes the process of identifying relevant releases. Appendix A provides two simplest examples for the SEC's enforcement action releases. One of them is an administrative proceeding and the other one is a litigation release. Both of them provide the information that I need to extract for noncompliance event except for the first date of this enforcement action. However, as we can see from the example for litigation release, it refers to other releases and Complaints as well. In many cases, it is not possible to achieve the information I need for a complete noncompliance event from one release; then I need to read through all the releases and Complaints to gather information for my research purpose.

2.3 Data Description of Noncompliance with Securities Laws

The final noncompliance sample comprises 126 noncompliance events for 123 firms, of which 96 firms have complete financial statement and market data available. A noncompliance event may violate multiple sections of laws. The most common areas of noncompliance in my sample include insider trading, foreign bribery, kickback payments, misleading press releases, misleading information on business, fraudulent

[13] Firm noncompliance event might be covered by a set of related releases, I, therefore, integrate information from different releases towards one noncompliance event as one observation.
[14] As footnote 13 discussed, there might be a set of related releases regarding one noncompliance event, here I search for the date of the first publically available release.

sales transactions, unregistered security, stock manipulation, related party transactions, and stock option backdating.

Table 2 reports summary statistics for the noncompliance events and firms. Panel A describes the distribution of the 126 noncompliance events across calendar years based on the violation-beginning years and violation-ending years. Relatively few noncompliance events were initiated prior to 1995 and after 2009 in my sample. However, this does not necessarily mean noncompliance rarely happened in these years. Since my sample collection covers the releases filed from 2003 through 2012, it is likely that noncompliance events occurring before 2003 were filed in years prior to 2003, thus not being covered in my sample. Likewise noncompliance events that were initiated in more recent years may have not yet been investigated by the SEC, and are thus not included in my sample. The period from 1999 through 2003 includes the initiation of more than half (59.5%) of the noncompliance events.

Panel B in Table 2 reports the industry distribution of the 123 noncompliant firms. The industry classification scheme follows Frankel et al. (2002) and Dechow et al. (2011). Noncompliant firms cluster in certain industries. For example, 57.73% of the noncompliant firms come from three industries: Durable Manufacturers (21.14%), Banks & Insurance (20.33%), and Computers (16.26%). Since Banks & Insurance have 20.13% proportion of COMPUSTAT population, this industry is not overrepresented in the noncompliance sample. However, both Durable Manufacturers and Computers compose only approximately 11% of the population on COMPUSTAT whereas the noncompliance rate is relatively higher. Meanwhile, Chemicals also has a higher noncompliance rate relative to its representation in the COMPUSTAT population. These results are roughly consistent with the higher litigation risk industries from

(Francis et al. (1994b);Francis et al. (1994a)) where they treat the biotechnology, computers, electronics, and retail industries as industries with higher litigation risk.

Table 3 reports summarized details for the 126 (123) noncompliance events (firms). Panel A shows that approximately 60% of the noncompliance events have a violation period of less than 1,000 days while about 25% of the events have a duration between 1,000 days and 2,000 days. The mean (median) of the noncompliance event duration is 1,052 (653) days. Four acts form the basis for the SEC's investigations: the Securities Act of 1933, the Securities Exchange Act of 1934, the Investment Company Act of 1940, and the Investment Advisers Act of 1940. Noncompliance events can involve multiple acts and multiple subsections under one act. Table 3, Panel B reports the distribution of violation events by securities acts. Most of the violation events involve the Securities Act of 1933 (45.2%) and Securities Exchange Act of 1934 (85.7%). As shown in Panel C of Table 3, the mean (median) noncompliance event involves 2.44 (1.59) subsections of securities laws, and 42 events involve violations of a single subsection while the highest number of subsection violations is 8 (three cases). Panel D shows that 62.61% of the noncompliance events involve CEO and/or president, and 18.26% also involve other top management. The cases that involve CFO and general counsel/compliance officer count for 16.52% and 13.04%, respectively.

2.4 Summary

Overall, constructed from the SEC's enforcement action releases, my sample represents a comprehensive noncompliance setting and incorporates multiple types of violations of securities laws. Based on this dataset, I investigate the association between noncompliance and financial reporting quality, and the association between noncompliance and director turnover in Chapter 3 and Chapter 4, respectively.

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Table 1
Sample Selection of Enforcement Action Releases

Panel A: Sample selection of Enforcement Action Releases		
Number of Releases		
Total releases (2003-2012)		***10,923***
Total_LR(2003-2012)		*4,675*
Total_AP(2003-2012)		*6,248*
less: releases towards individual and categorized as AAER		5,904
less: other releases		1,212
Indexed releases		***3,754***
Panel B: Sample selection of firms against by Enforcement Actions		
Number of Firms		
Number of firms referred by indexed releases		4,129
Number of firms found in EDGAR		2,417
Number of firms with Compustat financial data		**768**
Panel C: Sample selection of relevant Enforcement Action Releases		
Number of Releases		
Indexed releases		***3,754***
Releases traced back from Compustat matched firms		1,551
less: duplicated releases		651
Unique releases traced back from Compustat matched firms		900
less: releases against firms delinquent in financial reports		368
Releases checked manually		**532**
Comprising: Total_LR	142	
Total_AP	390	
Panel D: Final sample of noncompliant firms		
Noncompliance events		**126**
Noncompliant firms		**123**

Note
This table reports the process of identifying relevant SEC's enforcement actions releases.
Total_Releases: the sum of SEC's enforcement releases in each year for the period from 2003 to 2012.
Releases_Indexed: the number of SEC's enforcement releases covered in our index file.
INDIV&AAER: the number of releases which are purely against individuals or which are categorized as AAER by the SEC.
Other Releases: the number of releases which are not relevant for identifying firms' non-compliance behaviours, such as releases for fair fund distributions, and which don't specify all the firms' names in the release titles.

Table 2
Summary Statistics for Frequency of Noncompliance Events/Firms by Year and Industry

Panel A: Year Frequency of Noncompliance Events

Vio_Beg	Freq	Vio_End	Freq
1986	1		
1994	2		
1995	1		
1996	5	1996	1
1997	5		
1998	4		
1999	13	1999	5
2000	15	2000	2
2001	22	2001	9
2002	15	2002	24
2003	10	2003	23
2004	7	2004	14
2005	4	2005	10
2006	8	2006	11
2007	5	2007	8
2008	3	2008	4
2009	1	2009	6
2010	2	2010	4
2011	2	2011	3
2012	1	2012	2
Total	126		126

Panel B: Industry Frequency of Noncompliant firms

Industry	Freq	Percent	Compustat
Mining & Construction	3	2.44	11.04
Refining & Extractive	4	3.25	7.18
Food & Tobacoo	4	3.25	1.93
Chemicals	7	5.69	1.84
Pharmaceuticals	7	5.69	9.46
Durable Manufacturers	26	21.14	11.24
Computers	20	16.26	11.18
Transportation	4	3.25	5.06
Utilities	4	3.25	4.26
Retail	7	5.69	6.49
Banks & Insurance	25	20.33	20.13
Service	12	9.76	7.25
Total	123	100.00	97.06

Note

This table reports summary statistics for frequency of securities laws noncompliance events/firms by year and industry.

Following Dechow et al (2011), Industries are based on the following SIC codes: Agriculture: 0100–0999; Mining & Construction: 1000–1299, 1400–1999; Food & Tobacco: 2000–2141;Textiles and Apparel: 2200–2399; Lumber, Furniture, & Printing: 2400–2796;Chemicals: 2800–2824, 2840–2899; Refining & Extractive: 1300–1399,2900–2999; Durable Manufacturers: 3000–3569, 3580–3669, 3680–3828, 3852-3999;Computers:3570–3579, 3670–3679, 7370–7379; Transportation: 4000–4899; Utilities: 4900–4999; Retail: 5000–5999; Services: 7000–7369, 7380–9999; Banks& Insurance: 6000–6999; Pharmaceuticals: 2830–2836, 3829–3851.

The calculation of Compustat industry proportion is based on the firms which have valid financial statement data in year 2012. I do a small correction for Dechow et al (2011), where they include 3829-3851 in both Durable Manufacturers and Pharmaceuticals.

Table 3
Summary Statistics for Noncompliance Events

Panel A: Frequency of Violation Days

Vio_Days	Frequency	Percentage
1-999	75	59.52
1000-1999	31	24.6
2000-2999	13	10.32
3000-3999	4	3.17
4000-4999	1	0.79
5000-5999	1	0.79
>6000	1	0.79
mean	1052.45	
median	653.00	
Total	126	100

Panel B: Frequency of Violated Acts

Vio_Acts	Vio_ dummy			Total
	0	1	.*	
Vio_33	67	57	2	126
Vio_34	16	108	2	126
Vio_ ICA40	119	5	2	126
Vio_ IAA40	120	4	2	126

Panel C: Frequency of Violated Subsections of Acts

Num_Vio_Subsections	Frequency	Percentage
1	42	33.87
2	36	29.03
3	22	17.74
4	12	9.68
5	4	3.23
6	5	4.03
8	3	2.42
. *	2	1.59
Total	126	100

Note
This table reports summarized details for the 126 (123) noncompliance events (firms).
Vio_ dummy indicates if a specific Act was violated or not.
Vio_Acts indicates what Act was violated.
Vio_33 stands for the violated law was Securities Act of 1933.
Vio_34 stands for the violated law was Securities Exchange Act of 1934.
Vio_ICA40 stands for the violated law was Investment Company Act of 1940.
Vio_IAA40 stands for the violated law was Investment Advisers Act of 1940.
Num_Vio_Subsections is the number of subsections of Acts that a non-compliance event violated.
* For one of the two missing cases, the SEC issued a formal order of private investigation therefore this information is not publically available. For the other case which involves insider trading, the violated acts information is missed without known reason.

Appendix 1 Examples for the SEC's Enforcement Action Releases

Appendix 1a.[15]An Example of an Administrative Proceeding

UNITED STATES OF AMERICA
Before the
SECURITIES AND EXCHANGE COMMISSION

SECURITIES EXCHANGE ACT OF 1934
Release No. 65247 / September 1, 2011

ADMINISTRATIVE PROCEEDING
File No. 3-14524

In the Matter of **SEQUENOM, INC.** **Respondent.**	**ORDER INSTITUTING CEASE-AND-DESIST PROCEEDINGS PURSUANT TO SECTION 21C OF THE SECURITIES EXCHANGE ACT OF 1934, MAKING FINDINGS, AND IMPOSING A CEASE-AND-DESIST ORDER**

I.

The Securities and Exchange Commission ("Commission") deems it appropriate that cease-and-desist proceedings be, and hereby are, instituted pursuant to Section 21C of the Securities Exchange Act of 1934 ("Exchange Act"), against Sequenom, Inc. ("Sequenom" or "Respondent").

II.

In anticipation of the institution of these proceedings, Respondent has submitted an Offer of Settlement (the "Offer") which the Commission has determined to accept. Solely for the purpose of these proceedings and any other proceedings brought by or on behalf of the Commission, or to which the Commission is a party, and without admitting or denying the findings herein, except as to the Commission's jurisdiction over it and the subject matter of these proceedings, which are admitted, Respondent consents to the entry of this Order Instituting Cease-and-Desist Proceedings Pursuant to Section 21C of the Securities Exchange Act of 1934, Making Findings, and Imposing a Cease-and-Desist Order ("Order"), as set forth below.

[15] This is a simple example of an administrative proceeding where noncompliance event information can be extracted from this single release alone. Original document is coming from the followed website: *http://www.sec.gov/litigation/admin/2011/34-65247.pdf.*

III.

On the basis of this Order and Respondent's Offer, the Commission finds[1] that:

Summary

These proceedings arise out of Sequenom's disclosure of materially misleading scientific data regarding a prenatal screening test for Down syndrome (the "Down Syndrome Test" or "Test"). Between June 2008 and January 2009, Sequenom made a series of announcements and filings with the Commission regarding the Down Syndrome Test, indicating that the Test was close to 100% accurate and that it would be ready for commercial use by June 2009. The company's stock price rose significantly based on its announcements regarding the Test and statements made by representatives of the company, including Elizabeth A. Dragon ("Dragon"), Sequenom's senior vice president of research and development. Contrary to the company's and Dragon's public statements, the Test was far less accurate than disclosed, making it much less marketable. On April 29, 2009, Sequenom announced that the public could no longer rely on its past announcements regarding the Down Syndrome Test and that the Test would not be launched by June 2009. In response to the April 29 announcement, the company's stock price dropped 76%.

Respondent

1. Sequenom is a Delaware corporation based in San Diego. Sequenom is a diagnostic testing and genetics analysis company whose common stock is registered with the Commission pursuant to Section 12(b) of the Exchange Act. Its shares trade on The Nasdaq Global Market.

Other Relevant Entities and Persons

2. Elizabeth A. Dragon, PhD resided in Gilbert, Arizona. Dragon had a doctorate in cell biology/virology, and was Sequenom's senior vice president of research and development between May 2006 and September 2009, when she was terminated. On June 2, 2010, the Commission filed a lawsuit against Dragon charging her with violations of Section 10(b) of the Exchange Act and Rule 10b-5 thereunder. Dragon died on February 26, 2011.

Background

[1] The findings herein are made pursuant to Respondent's Offer of Settlement and are not binding on any other person or entity in this or any other proceeding.

3. Dragon, an officer of Sequenom, committed fraud by touting the accuracy of Sequenom's Down Syndrome Test when she knew the Test had significant flaws and did not perform well. Specifically, during three public events between June 2008 and January 2009, Dragon presented Test data to analysts and investors and made the following material misrepresentations:

a. She claimed that the Test was close to 100% accurate on a "blinded" basis. In fact, when the scientists working on the Test ran samples on a blinded basis its rate of accuracy was less than 80%. Consequently, Dragon provided the scientists with the known outcomes of samples so that they could manipulate the results in order to achieve a higher rate of accuracy.

b. In June 2008, she claimed that 200 samples had been analyzed using the Test when, in fact, only 51 samples had been tested. This inflated number was carried forward with each of her subsequent presentations.

c. Finally, she claimed that the Test had accurately detected Down syndrome in a blood sample taken during the first trimester of pregnancy. In fact, she knew that the scientists working on the Test repeatedly called this particular sample incorrectly.

4. Sequenom's stock price rose significantly over the course of several months based on the company's positive statements regarding the Test, as well as its announcement that it planned to commercially launch the Test in June 2009. For example, the company's stock was trading at approximately $7.66 prior to Dragon's first presentation of Test data in early June 2008. By the end of June 2008, the stock was trading at $15.96, and peaked at just under $28 in September 2008.

5. In April 2009, Sequenom launched an informal investigation that revealed the fraud. On April 29, 2009, the company announced that the data regarding the Down Syndrome Test had been "mishandled," that the public could no longer rely on the company's prior announcements regarding the Test, and that the Test would not be launched in June 2009. As a result of the announcement, Sequenom's stock price fell 76% from $14.91 to $3.62.

6. Following a more thorough investigation conducted by an independent committee of the Board of Directors, on September 28, 2009, Sequenom announced that Dragon and Sequenom's CEO had been terminated, and that the company's CFO and vice president of marketing had resigned as well.

Sequenom's Material Misstatements and Omissions

7. During each presentation that Dragon made, she used slides that included the relevant data, and the information on the slides was used to draft press releases regarding each of the three sets of Test data.

8. Once Sequenom had issued the press releases associated with Dragon's presentations of new Test data, it also filed the data with the Commission in Forms 8-K.

9. The Test data included in Dragon's presentation from January 2009, was used in the company's Form 10-K for the fiscal year ended December 31, 2008. Dragon reviewed the relevant section of the Form 10-K and did not object to the use of the inaccurate data.

10. The material misrepresentations Sequenom made in its filings are as follows:

a. *June 6, 2008 Form 8-K*. Stated that Sequenom had performed blinded studies on 200 samples, and that the Test was 100% accurate. In fact, the Test had been run in an unblinded manner on only 51 samples, and was less than 100% accurate.

b. *September 25, 2008 Form 8-K*. Stated that Sequenom had performed blinded studies, was 100% accurate, and had correctly called a Down syndrome sample taken in the first trimester of pregnancy. In fact, the scientists performed unblinded studies. On a blinded basis, the accuracy of the Test was less than 80%, and the scientists made an incorrect call on the first trimester Down syndrome sample. Additionally, the company's disclosure regarding the inflated number of samples tested in June 2008, was carried over to all future disclosures regarding the Test data.

c. *January 29, 2009 Form 8-K (as amended on February 6, 2009)*. Stated that Sequenom had performed blinded studies, and that the Test had correctly called all but one sample, which was a false positive. In fact, the Test had been run on an unblinded basis. On a blinded basis, the Test results included multiple false positive and false negative results.

d. *March 12, 2009 Form 10-K*. Repeated the misrepresentations from the January 2009 8-K, including the total number of samples tested, the accuracy of the Test, and a statement that the Test had been run on a blinded basis.

Violations

11. As a result of the conduct described above, Sequenom violated Section 10(b) of the Exchange Act and Rule 10b-5 thereunder, which prohibit fraudulent conduct in connection with the purchase or sale of securities. Specifically, between June 2008 and January 2009, Sequenom, through Dragon, an officer of the company, made several materially misleading statements and omissions to the public through public filings, press releases and oral statements.

12. Also as a result of the conduct described above, Sequenom violated Section 13(a) of the Exchange Act and Rules 12b-20, 13a-1, and 13a-11 thereunder, which require every issuer of a security registered pursuant to Section 12 of the Exchange Act to file with the Commission

information, documents, and annual reports as the Commission may require, and mandate that periodic reports contain such further material information as may be necessary to make the required statements not misleading.

13 Sequenom violated Section 13(a) of the Exchange Act and Rules 12b-20, 13a-1, and 13a-11 thereunder by filing three Form 8-Ks and an annual report on Form 10-K that contained materially false and misleading statements and omissions regarding the Test data.

Sequenom's Remedial Efforts

In determining to accept the Offer, the Commission considered remedial acts promptly undertaken by Respondent and cooperation afforded the Commission staff.

IV.

In view of the foregoing, the Commission deems it appropriate to impose the sanctions agreed to in Respondent Sequenom's Offer.

Accordingly, it is hereby ORDERED that:

A. Pursuant to Section 21C of the Exchange Act, Respondent Sequenom cease and desist from committing or causing any violations and any future violations of Sections 10(b) and 13(a) of the Exchange Act and Rules 10b-5, 12b-20, 13a-1, and 13a-11 thereunder.

B. Respondent acknowledges that the Commission is not imposing a civil penalty based upon its cooperation in a Commission investigation and related enforcement action. If at any time following the entry of the Order, the Division of Enforcement ("Division") obtains information indicating that Respondent knowingly provided materially false or misleading information or materials to the Commission or in a related proceeding, the Division may, at its sole discretion and without prior notice to the Respondent, petition the Commission to reopen this matter and seek an order directing that the Respondent pay a civil money penalty. Respondent may not, by way of defense to any resulting administrative proceeding: (1) contest the findings in the Order; or (2) assert any defense to liability or remedy, including, but not limited to, any statute of limitations defense.

By the Commission.

Elizabeth M. Murphy
Secretary

Appendix 1b.[16] An Example of a Litigation Release

Litigation Release No. 18190 / June 16, 2003

SEC v. Alliance Industries, Peter H. Norman and Donald A. Baillargeon, United States District Court for the Central District of California, Civil Action No. 99-6073 REC DLB. (July 27, 1999)

SEC Settles Claims Against Former Chairman and Chief Executive Officer of Alliance Industries In Manipulation and Fraud Action

On February 10, 2003, United States District Judge Robert E. Coyle entered a Final Judgment by consent against Peter H. Norman ("Norman"), the former Chairman and Chief Executive Officer of Alliance Industries ("Alliance"). The Complaint, which alleged violations of the securities registration and antifraud provisions of the federal securities laws, was filed on July 27, 1999, in the United States District Court for the Central District of California, against Alliance, a Bakersfield, California company, Norman and Donald A. Baillargeon ("Baillargeon"), Alliance's former Vice President of Public Relations and Marketing. (See Litigation Release No. 16223, July 28, 1999). The Commission obtained a default judgment against Alliance on August 24, 2000, for its failure to answer or otherwise respond to the Commission's Complaint, and obtained a Final Judgment by consent against Baillargeon on January 10, 2002.

The Complaint alleged that from January 1, 1996 through November 26, 1996, Norman and Baillargeon engaged in various fraudulent acts that resulted, among other things, in the manipulation of the price of the common stock of Alliance, a financially troubled company engaged in housing development and construction. According to the Complaint, Norman and Baillargeon made false and misleading representations concerning Alliance's cultivation and sale of fast-growing "paulownia" trees, its breeding and selling of live goats and carcasses, and its development of a nationwide chain of chiropractic franchise clinics, among other matters. The Complaint alleged that Norman and Baillargeon disseminated false and misleading projections of Alliance's future revenues and earnings knowing that Alliance was a foundering company that had no paulownia tree business, goat business or chiropractic business. In addition, the Complaint alleged that Norman engaged in transactions designed to make it appear that there was an active market for Alliance's common stock, and he personally sold more than 90,000 shares of his unregistered Alliance common stock directly to members of the public. The Complaint alleged that as a result of the defendants' fraudulent conduct, investors lost more than $1.4 million.

Norman, without admitting or denying the allegations in the Commission's Complaint, consented to the entry of a Final Judgment permanently enjoining him from violating the securities registration and antifraud provisions of the federal securities laws - Sections 5 and 17(a) of the Securities Act of 1933, Section 10(b) of the Securities Exchange Act of 1934, and Exchange Act Rule 10b-5. The Final Judgment also ordered Norman to pay disgorgement of $1,372,572.01, representing profits that he obtained from the fraudulent sale of his personally owned stock to investors, together with prejudgment interest thereon in the amount of $754,088.81, and a civil money penalty of $110,000. In addition, Norman consented to a permanent bar from acting as an officer or director of any reporting or non-reporting public company.

The default judgment against Alliance permanently enjoined Alliance from violating the securities registration and antifraud provisions of the federal securities laws - Sections 5 and 17(a) of the Securities Act, Section 10(b) of the Exchange Act, and Exchange Act Rule 10b-5. Baillargeon, without admitting or denying the allegations in the Commission's Complaint, consented to the entry of a Final Judgment permanently enjoining him from violating the antifraud provisions of the federal securities laws - Section 17(a) of the Securities Act, Section 10(b) of the Exchange Act, and Exchange Act Rule 10b-5, and ordering him to pay a civil money penalty of $10,000.

[16] This is one of the simplest examples of a litigation release where noncompliance event information can be extracted from this single release alone. Original document is coming from the followed website: *http://www.sec.gov/litigation/litreleases/lr18190.htm*.

Chapter 3 Non-accounting Noncompliance and Financial Reporting Quality

3.1 Introduction

A recent stream of research explores the association between internal control over financial reporting (ICFR) and financial reporting quality (Doyle et al., 2007a). However, other aspects of the internal control system, such as compliance control, [1] can also influence financial reporting quality; while it has not yet been explored. In this paper, I investigate whether a firm is more likely to have financial reporting problems if it does not comply with non-accounting regulation/laws/rules. This association is suggested by Karpoff et al. (2008b) who provides descriptive evidence that most accounting misrepresentation is associated with non-accounting noncompliance, such as insider trading, civil and criminal fraud, racketeering and tax evasion. To my knowledge, apart from this preliminary evidence, there is no other empirical research on the association between non-accounting noncompliance and financial reporting quality. My study seeks to address this gap in the literature by exploring how non-accounting noncompliance and financial reporting quality are related. My findings represent an important step towards a better understanding of financial reporting problems and the multidimensional nature of internal control.

Although the association between compliance control and financial reporting quality is not as intuitive as the association between ICFR and financial reporting quality, anecdotal evidence suggests that these two could be associated. Consider the

[1] According to the generally accepted integrated internal control framework by the Committee of Sponsoring Organizations (COSO), operation control is another aspect of internal control besides compliance control and ICFR (COSO, 1992; 2013).

case of AGCO.[2] AGCO Corporation, from 2000 through 2003, made big amounts of kickback payments in connection with their sales of equipment to Iraq. The marketing staff created a fictional account to characterize the kickbacks as "after sales service fees", but no bona fide services were performed. AGCO's accounting for these transactions failed properly to record the nature of the payments. In this case, the kickback payment transaction by the marketing department is an underlying transaction which has caused both noncompliance and accounting problem, regardless of whether the accountants intended to conceal the wrongdoings or were simply misled by the marketing department.

A recent practical improvement of the internal control framework (COSO, 2013) sheds light on the importance of compliance for the effectiveness of firms' internal control. COSO (2013)[3] expands the application of internal control beyond financial reporting to other internal control objectives including compliance. Previously, internal control was primarily viewed in a narrow way (i.e., in terms of ICFR), by regulators and by researchers who conduct empirical studies. This is possibly because regulations required disclosure of the effectiveness of ICFR (Foreign Corrupt Practices Act (FCPA), 1977; Federal Deposit Insurance Corporation Improvement Act, 1991; Sarbanes-Oxley Act (SOX), 2002), which made data on the quality of ICFR readily available. In contrast, data on other aspects of internal control are not widely available.

To investigate the implications of non-accounting compliance control for financial reporting quality, my analysis builds on prior research and on the internal

[2] Data source comes from the SEC's enforcement action: Litigation Release No. 21229, filed on September 30, 2009.

[3] COSO was organized in 1985 to support the National Commission on Fraudulent Financial Reporting which was created to suggest steps to reduce the incidence of financial reporting frauds. COSO developed a generally accepted framework for internal control '*Internal Control — Integrated Framework'* in 1992. Its recommendation on internal control over financial reporting has finally been accepted by the SEC's regulation. In 2013, COSO updated this framework. The newly updated framework retains the same core concepts but expands the application of internal control beyond financial reporting to other forms of reporting, operation and compliance objective.

control framework presented by COSO (1992).[4] An integrated internal control system aims to achieve three objectives: compliance with applicable laws and regulations, reliability of financial reporting, and effectiveness and efficiency of operations (COSO, 1992). I conjecture that compliance and financial reporting quality are connected within this integrated system. First, if a firm violates laws and regulations, it indicates poor internal control as firms rely on internal control to ensure compliance. Therefore, I expect that noncompliance with laws and regulations is related to accounting problems because both of them reflect poor internal control. Second, noncompliance and accounting problems can be resulted from the same underlying transactions. Alternatively, it could be argued that the primary responsibility of preparing financial reports rests with the chief financial officers (CFO); so CFOs independently influence firms' earnings management (Jiang et al., 2010) and their professional qualifications determine ICFR quality (Li et al., 2010). Therefore, it might be in doubt that whether the control beyond the scope of accounting control could possibly influence financial reporting quality.

I explore the association between compliance and financial reporting quality by testing whether the probability of financial accounting problems is higher for firms that fail to comply with securities laws than those without noncompliance issues. Here, the term of 'financial reporting problems' means that the firm violates either Generally Accepted Accounting Principles or the Securities and Exchange Commission's (SEC) accounting regulations.[5] Identifying a general measure of noncompliance is difficult because applicable laws and regulations are complicated and vary across industries and

[4] My study follows COSO's 1992 framework rather than 2013 framework because the new framework was published after my sample period.

[5] For example, the Staff Accounting Bulletins of the SEC reflect the Commission staff's views regarding accounting-related disclosure practices. They represent interpretations and policies followed by the Division of Corporation Finance and the Office of the Chief Accountant in administering the disclosure requirements of the federal securities laws.

firms. For example, an automobile manufacturer faces regulations from quality-standards setters, environmental regulators, security exchanges, and other possible regulators related to operating aspects of the business. Therefore, it is difficult to compare comprehensive compliance control in different firms across industries. Two feasible ways of examining the relation between compliance and financial reporting problems are either investigating a specific type of noncompliance for a broad sample or using a comprehensive compliance index for a small set of industries. In this paper, I implement the first strategy and focus on firms' non-accounting noncompliance with securities laws.

Noncompliance with securities laws provides a good setting to examine noncompliance effects for several reasons.[6] First, noncompliance with securities laws is an influential component of a firm's noncompliance behaviour. Most of the common misconduct that leads to SEC investigations involves related parties (such as investors and consumers) who do business with the violating firm.[7] Relative to other types of violations which do not directly affect the parties with whom the firm does business (such as violation of environmental laws), the related-parties-involved noncompliance usually triggers larger decreases in firm value (Karpoff and Lott, 1993;Murphy et al., 2009;Karpoff, 2012).[8] Second, the SEC has the same regulatory power over all registrants regardless of industry or size. In contrast, other types of noncompliance do

[6] Part of the discussion here is similar to that in Chapter 1 where I give the reason why I want to generate noncompliance dataset based on the SEC's Enforcement Actions.

[7] Common conduct that may lead to SEC investigations includes: (1) misrepresentation or omission of important information about securities; (2) manipulating the market prices of securities; (3) stealing customers' funds or securities; (4) violating broker-dealers' responsibility to treat customers fairly; (5) insider trading (i.e., violating a trust relationship by trading while in possession of material, non-public information about a security); and (6) selling unregistered securities. Information comes from the SEC's website.

[8] By reviewing different types of noncompliance behaviour, please refer to Karpoff (2012). He concludes that the loss of market value far exceeds direct costs such as fines, penalties, and law-suit settlements for some types of misconduct which impose costs on their counterparties such as investors, employees, customers, suppliers, etc. However, for some other types of misconduct, such as environmental violations, which do not directly affect the parties with whom the firm does business, there are small or negligible losses in addition to the cost imposed by regulators and courts.

not have a universal regulator because the regulatory framework to which firms are subject depends on which industry they operate in and what products they produce. For instance, noncompliance with environmental regulations occurs mainly in the utilities and manufacturing sectors while noncompliance with product quality standards (measured by product recalls) varies across products. Furthermore, the SEC's website provides comprehensive information on firms' noncompliance with security regulations and it is publicly available. A detailed discussion of the securities laws noncompliance data is provided in Section 3.3.1.

I collect data on non-accounting noncompliance with securities laws from the enforcement actions brought by the SEC between 2003 and 2012. For the purpose of identifying firms' non-accounting noncompliance events, I exclude enforcement actions classified as Accounting and Auditing Enforcement Releases (AAERs), those against individuals rather than firms, and those that do not permit firm identifications. I use two measures of financial reporting problems. The first indicator is the presence of an accounting restatement. I collect data on restatements from Audit Analytics. The second indicator relates to accounting frauds, data on which are provided by Karpoff et al. (2008a; 2008b) and extended to December 31, 2012 by them.

I find that firms not complying with securities laws have higher rates of financial reporting problems than control firms that do not violate securities laws. The effect is much stronger for accounting frauds than for restatements. This is consistent with my expectation since accounting frauds is a sharper and more powerful proxy for financial reporting quality than financial restatements. Furthermore, the evidence is more pronounced in the period after the securities-laws noncompliance started. Although I control for selection bias using propensity score matching based on observed variables, some underlying firm characteristics such as systematic risk in the control environment

are difficult to measure and likely affect both compliance and financial reporting quality; therefore, my results potentially suffer selection bias due to unobservables. Following the discussions and suggestions by Tucker (2010), Peel and Makepeace (2012) and Peel (2014), I employ the MHbounds approach to test how strong a hidden bias would need to be to affect my inferences. Results suggest that my inferences are not sensitive to an unobservable factor unless it increases the likelihood of selection into noncompliance by an unlikely degree.

My study makes several contributions to the literature. First, compliance captures a different aspect of internal control quality than studied in prior research, this extends our understanding of internal control as an integrated system.[9] Accounting research typically explores internal control system on the ICFR aspect alone. However, there is frontier research starting to explore other aspects of internal control. For example, Feng et al. (2013) and Goh and Kim (2013) examine the association between operational efficiency and ICFR. To the best of my knowledge, my study presents the first empirical examination of the link between the compliance aspect of internal control and accounting problems. My study has potential implications for understanding the complexity of the internal control system and the interaction among different aspects of an integrated internal control system.

Second, my research also improves our understanding of noncompliance effects. By analysing the effects of firms' noncompliance with different regulations, extant compliance research demonstrates the impact of a variety of noncompliance behaviours, such as false advertising (Peltzman, 1981), product recalls (Jarrell and Peltzman, 1985),

[9] Untabulated analyses reveal that only 4.8% of noncompliance firms reported internal control deficiencies under SOX (1 out of 21 noncompliance firms with available internal control deficiencies information after 2003) for the start of the noncompliance period. For a five-year period centred on the noncompliance beginning year, only 15.4% of the noncompliance firms reported internal control deficiencies under SOX (6 out of 39 noncompliance firms with available ICD information within that five-year window).

air safety disasters (Mitchell and Maloney, 1989), and environmental violations (Jones and Rubin, 2001;Karpoff et al., 2005;Al-Tuwaijri et al., 2004) on firm reputation, market value, economic performance, and wealth of intra-industry shareholders. There is also related research based on comprehensive settings of noncompliance behaviour (for example, Karpoff and Lott, 1993;Karpoff et al., 2005;Murphy et al., 2009). However, none of these studies examines the effects of noncompliance on financial reporting quality nor do they perceive noncompliance as a proxy for ineffective internal control despite compliance being one objective of internal control.

Third, my research also extends the understanding of financial reporting quality. I document an explicit link between securities laws noncompliance and accounting frauds and/or financial restatements, thereby providing evidence that noncompliance also impacts financial reporting quality.

Finally, my findings also have several implications for business and public policy. They provide evidence that, to generate good quality financial reports, effective compliance control is necessary. This corresponds to COSO's updated *integrated internal control framework* (COSO, 2013). COSO (2013) suggests that not only ICFR but also the other two aspects of the internal control system need to be well implemented so that firms can have effective internal control systems.[10] My results indicate disclosed internal control deficiency under SOX, which reflects ICFR, is not a sufficient indicator of the effectiveness of the internal control system in relation to financial reporting quality. Thus reporting on the effectiveness of compliance controls could provide investors with complementary information.

The remainder of my paper is organized as follows. Section 3.2 presents my motivation and develops hypotheses. Section 3.3 provides the sample selection. Section

[10] See Section 3.2.1 for the definition of integrated internal control system and its three objectives.

3.4 discusses my research design. Section 3.5 presents empirical results, and Section 3.6 concludes.

3.2 Motivation and Hypotheses Development

3.2.1 The Integrated Internal Control Framework and Prior Research

Internal control helps firms achieve important objectives, and sustain and improve performance. According to COSO's integrated framework (1992), internal control is broadly defined as:

> A process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: **effectiveness and efficiency of operations**; **reliability of financial reporting**; **compliance with applicable laws and regulations**(emphasis added).
>
> (COSO, 1992)

An effective internal control system provides reasonable assurance regarding the achievement of the above three objectives, while an internal control deficiency or combination of deficiencies can reduce the likelihood that an entity can achieve its objectives. Internal control is a complex system and the three objectives of the internal control system overlap to some degree. To support the achievement of these three objectives, each internal control component should be present and functioning.[11] If any of those components is not working well, all three objectives can be affected. For example, channel stuffing by a poorly managed sales force is detrimental to the company's achievement of all the three internal control objectives. First, this misconduct may render the company vulnerable to litigation by not adhering to laws and regulations to which the firm is subject. Second, financial reporting will not be reliable because respective accounts and disclosures will not reflect the nature of the improper activities. Third, it results in inefficiency and ineffectiveness of operation

[11] According to COSO (1992, 2013), internal control components include Control Environment, Risk Assessment, Control Activities, Information and Communications, and Monitoring.

because of reduced negotiating power with distributors. Meanwhile, when inventory is not properly tracked, operational decisions based on these faulty internal management reports will lead to poor inventory management (Feng et al., 2013;Goh and Kim, 2013).

Although the three aspects of the internal control system overlap, regulators and researchers who seek to understand internal control focus mainly on ICFR. The Foreign Corrupt Practices Act (FCPA) of 1977 was the first statutory regulation for internal control. It focuses on ICFR by requiring management of SEC registrants to maintain books and records that would protect corporate assets and facilitate GAAP-based financial reportings; and SEC registrants are required to disclose significant internal control deficiencies (ICD) when they change auditors under FCPA. Following a series of financial frauds at the beginning of the century, the US Congress enacted SOX which includes milestone-rules with regard to internal control disclosures about ICFR. Specifically, Section 302 and Section 404 of SOX provide compulsory requirements for internal control disclosures by management and auditors, respectively, although SOX 302 is typically viewed as voluntary disclosure (Ge and McVay, 2005;Doyle et al., 2007a;Leone, 2007).[12] To my knowledge, the Federal Deposit Insurance Corporation Improvement Act (FDCIA) of 1991 is the only regulation which requires institutions to disclose internal control effectiveness regarding both ICFR and compliance. It requests firms to file an annual report with regulators in which management attests to the effectiveness of ICFR and compliance with designated laws and regulations, as well as the auditor's attestation report on ICFR.[13] However, since the regulation appeals only

[12] With respect to SOX 404's application, accelerated filers and non-accelerated filers have different requirements. Accelerated filers were required to comply with the SOX 404 requirements for the first time for their fiscal years ending on or after November 15, 2004. However, as part of the financial reform legislation, non-accelerated filers received exemption from auditor's attestation on the strength of internal controls (SOX 404 (b)) in 2010 (U.S. Congress, 2010) after a heated debate related to the implementation cost. Accelerated filers generally include public firms with a public float of at least $75 million, among other criteria.

[13] FDICIA exempts institutions with assets less than $500 million from its internal control monitoring and reporting requirements.

to the banking industry and it does not require an independent party's attestation on internal controls over compliance, it has not been influential.

Partially due to the regulatory emphasis on ICFR and partially due to the intuitive association between ICFR and financial reporting quality, and the machine-readable nature of the data, the majority of extant research focuses on the association between ICFR and financial reporting quality. For example, Ashbaugh-Skaife et al. (2008) investigate the effect of ICDs and their remediation on accrual quality. Their cross-sectional and intertemporal change tests provide strong evidence that the quality of internal control affects the quality of accruals. Doyle et al. (2007a) find firm-level internal control material weaknesses result in lower quality of accruals than account-specific material weaknesses. Bedard et al. (2012) investigate whether specific types of internal control weaknesses differ in the likelihood of remediation and in the association of remediation with earnings quality. They find that the remediation of entity-level problems in reconciliation and information technology, along with account-specific problems in revenue and tax, are significantly associated with changes in abnormal accruals. Lu et al. (2011) investigate the association between the strength of internal control and accrual quality by incorporating the role of auditors in internal control monitoring, their results imply that auditors cannot fully compensate for poor internal control by increased substantive work.

Studies on ICFR provide much more understanding of internal control quality which has traditionally required researchers to overcome several difficulties, such as the inherent complexity of the internal control process and the lack of access to data (Kinney, 2000). However, all studies use disclosed ICDs under SOX as a proxy for the effectiveness of internal control, and then further explore its relation with financial reporting quality. According to SOX's requirements, the disclosed effectiveness of

internal control is assessed by 'a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis' (PCAOB, 2007). Even if ICFR weaknesses can be fully detected and truthfully reported, disclosed ICDs can only manifest the deficiencies in accounting controls while other possible factors are ignored. In addition, Ashbaugh-Skaife et al. (2007) suggest that ICDs disclosed under SOX do not fully reflect ICDs in the firm. Rice and Weber (2012) provide evidence on this conjecture. They posit that although restatement firms are likely to have had control weaknesses at the time of the misstatement, only 32.4 percent of restating firms report the existence of a material weakness in their SOX 404 reports during the misstatement period, and this proportion has declined over time. Since financial reporting problems are actually the outcome of the integrated internal control system, ICDs in accounting controls are insufficient to capture all the problems in the control system. I argue that noncompliance with non-accounting regulations, as a broader concept, could have indications for financial reporting problems such that ICDs disclosed under SOX are not sufficient indicators for financial reporting quality.

3.2.2 Hypothesis Development

Compliance controls help to ensure that the firm complies with laws and regulations, thus avoiding damage to its reputation and other negative consequences. Compliance will not be achieved if records and practice do not meet the external regulatory requirements such as production standards, accounting standards, tax requirements, and further legal requirements (Kinney, 1999).[14] In setting its compliance objectives, management exercises discretion (COSO, 2013). Empirical evidence suggests that noncompliance is a strategic choice that management makes after

[14] Not complying with internal policies is another type of noncompliance but it is outside of the scope of this study.

weighing the costs and benefits of noncompliance (Robinson et al., 2011). Meanwhile, personal characteristics, such as CEO tenure and age, are suggested to have entrenchment effects on corporate issues (Ozkan, 2011). Similarly, Ryan and Wiggins (2001) find managerial horizon and incentives influences management on risk taking. Therefore, all compliance-related risks and controls are derived from the applicable external laws and regulations and management's tolerance for risk or their ability to assess risk. Therefore, noncompliance with external regulatory requirements represents a broader measure of ICDs than do ICDs in ICFR. Generally, a failure to comply with external regulators' law/rules represents an ICD at the firm-level and firm-level ICDs have more severe consequences for financial reporting quality than an account-specific ICD (Ge and McVay, 2005;Doyle et al., 2007a).[15]

Prior research on noncompliance focuses largely on the event revelation effects from noncompliance. For example, research analyses the effects of noncompliance on a firm's reputation, market value, and the CEO's personal finances, reputations, and criminal risk etc. by analysing firm's noncompliance with environmental regulation (Al-Tuwaijri et al., 2004;Karpoff et al., 2005), false advertising (see, for example, Peltzman, 1981), product recalls (see, for example, Jarrell and Peltzman, 1985), and financial misrepresentation (Karpoff et al., 2008a;Desai et al., 2004), etc. A small literature also explores the determinants of different noncompliance behaviour (see, for example, Robinson et al., 2011;Schwartz and Soo, 1996), and relatively few studies examine reputational penalties, legal penalties, and firm financial performance

[15] One of the examples Doyle et al. (2007a) provide as firm-level ICD is 'the material weakness in the company's internal control systems relating to the company's **control over non-accounting documents** to the extent this information is communicated to the Chief Financial Officer'(emphasis added). Though the ICD in this example is disclosed from an ICFR aspect, it actually illustrates that the documents generated from non-accounting noncompliance behaviour could have an impact on financial reporting quality through internal communication.

associated with firms' misconduct using comprehensive measures of noncompliance behaviour (Karpoff and Lott, 1993;Murphy et al., 2009).

However, neither stream of research tries to understand the effects of noncompliance on financial reporting quality nor do they perceive noncompliance as a proxy for ineffective internal control despite compliance being a primary internal control objective. One possible reason for this omission is that people may believe accounting, control, risk management and asset preservation are the province of the CFO and information quality and control rationalization are top-of-mind issues for a CFO (Deloitte & Touche's Chief Financial Officer (CFO) Center, 2014). Consistent with this, Jiang et al. (2010) argue that the CFO does not merely act as the CEO's agent and find that CFO's influence on firms' earnings management activities may even be greater than that of CEO's. In addition, Li et al. (2010) show that CFO qualifications are an important determinant of internal control quality and better qualified CFOs improve internal control quality.

In contrast, I predict that financial reporting problems are unlikely to be purely the outcome of poor-quality ICFR, and that noncompliance should also impact financial reporting problems. Thus, I explore whether an explicit link exists between noncompliance and financial reporting problems by investigating the association between non-accounting noncompliance with securities laws and restatements/accounting frauds. Noncompliance with securities laws provides a good setting for examining the effects of noncompliance, so my findings could apply to other noncompliance settings as well.

First, control over compliance with securities laws and ICFR are two aspects within one integrated internal control system. The general factors that affect the effectiveness of the integrated internal control system, such as a systematically weak

control environment, resource constraints, weak 'tone at the top', or poor managerial ability, etc., are likely to affect compliance control and accounting control simultaneously. Ashbaugh-Skaife et al. (2007) and Choi et al. (2013) find that the availability of fewer resources to invest in internal control is associated with the weaknesses in a firm's internal controls, which suggests that compliance control and ICFR could both be negatively affected by resource constraints.

The following example from Sequenom, Inc. shows how noncompliance with securities laws (where financial reporting problems are not involved) and financial reporting problems are associated. [16]

> Sequenom, Inc., between June 2008 and January 2009, disclosed materially misleading scientific data regarding a prenatal screening test for Down syndrome through its senior Vice President of R&D. The company's stock price rose significantly based on its announcements regarding the Test and statements made by representatives of the company. Contrary to Sequenom's public statements, the Test was far less accurate than disclosed, making it much less marketable. The company's stock price dropped 76% relative to its price before these misleading statements when Sequenom finally announced that the Test would not be launched by the time it advocated. Based on this event, Sequenom's CEO and Vice President of R&D had been terminated, and its CFO and Vice President of marketing had resigned, while there were neither requirements for restatements nor allegations for accounting frauds. In 2013, however, Sequenom did restate its financial reports for the fiscal years of 2009, 2010 and 2011 due to 'material accounting classification error and a material weakness in internal control over financial reporting'.

In this case, noncompliance emerged in the R&D sector. Given the company's business, R&D had significant firm-level influence and should be carefully monitored. In this case, either management did not exercise proper oversight (which might be associated with poor managerial ability), or management did not establish an appropriate 'tone at the top', which typically results in a weak control environment. Both of the explanations

[16] Noncompliance information comes from the SEC's enforcement action: Administrative Proceedings No. 3-14524 (34-65247), filed on September 1, 2011. Restatement information comes from Sequenom's 8-k filing on March 7, 2013.

result in weak firm-level internal controls. As abovementioned, firm-level ICDs have more severe consequences for financial reporting quality than account-specific ICDs (Ge and McVay, 2005;Doyle et al., 2007a), and the remediation of firm-level problems helps to improve financial reporting quality (Bedard et al., 2012). Therefore, rooting in this weak environment, financial reporting problems are more likely to occur.

Second, compliance and ICFR are two overlapping aspects of an integrated internal control system, and thus the two interact. The accounting system records firm behaviours/activities. When noncompliance behaviours occur, incorrect internal information is incorporated into the firm's accounting system. Therefore, following noncompliance behaviours, the respective accounts and disclosures will not properly reflect the nature of these noncompliance behaviours. These accounting problems can result from unintentional errors and poor judgments as well as intentional actions to conceal wrongdoings. This conjecture about how internal communication affects the interaction between different aspects of an internal control system is consistent with recent research. For example, Feng et al. (2013) and Goh and Kim (2013)'s results illustrate internal communication within the internal control system by showing that how operation control (which is another aspect of internal control system) interacts with ICFR.

Based on these analyses, I predict that firms violating securities laws are more likely to experience financial restatements or accounting frauds.

3.3 Identifying Noncompliance with Securities Laws and Financial Reporting Problems

3.3.1. Noncompliance with Securities Laws[17]

I collect information on noncompliance with securities laws using SEC's enforcement actions. For the purpose of briefness, I do not specifically refer these firms as "firms not complying with securities laws" but rather refer to them as "noncompliant firms". Similarly, "noncompliance events" in this section refer to noncompliance with securities laws.

In the case of noncompliance with SEC's regulations, there are two types of actions that the SEC can take: Federal Court Actions (civil actions) and Administrative Proceedings. The former are litigation releases concerning civil lawsuits brought by the SEC in a federal court while the latter are orders and related materials released by the SEC when it brings non-judicial actions before an administrative law judge. The SEC's decision to bring a civil action or administrative action may depend upon the type of sanction or relief that is being sought.[18] When the misconduct warrants it, the SEC can bring both types of proceedings. The SEC maintains an online publicly searchable database on litigation releases (hereinafter 'LR') and administrative proceedings (hereinafter 'AP') in the form of annual archives from 1995 onwards. I use this database to identify firms that violated securities laws.[19] [20]

[17] The full discussion of noncompliance dataset is presented in Chapter 2. For the purpose of keeping integrity and applicability, I repeat or rephrase some of the discussion in this chapter.
[18] For example, the SEC may bar someone from the brokerage industry in an administrative proceeding, but an order barring someone from acting as a corporate officer or director must be obtained in federal court (see http://www.sec.gov/about/whatwedo.shtml#.UyrILqh_uE4).
[19] There are two additional types of enforcement actions: opinions issued by Administrative Law Judges in contested administrative proceedings (ALJ Decisions) and opinions issued by the Commission on appeal of Initial Decisions or disciplinary decisions issued by self-regulatory organizations such as NYSE or NASD (Commission Opinions). Since these two types of actions are not original enforcement actions related to firm misconduct, I do not include them in my sample.
[20] Please refer to Appendix 1 in Chapter 2 for two examples of administrative proceeding and litigation release, respectively.

My sample includes enforcement actions brought by the SEC from 2003 through 2012. I collect noncompliance data from January 1, 2003 onwards because I expect ICD data are available from 2003 onwards since Section 302 of Sarbanes-Oxley Act was required for any period on or after August 29, 2002.[21] The data collection process for securities laws noncompliance consists of five steps. For the purposes of identifying firms' non-accounting noncompliance events, I exclude enforcement actions classified as Accounting and Auditing Enforcement Releases (AAERs), those against individuals rather than firms, and those that do not permit firm identifications.

Table 1 describes the process of identifying relevant releases. Please refer the detailed description of data collection in Chapter 2. [22] The final sample comprises 126 noncompliance events for 123 firms, of which 96 firms have complete financial statement and market data available. Noncompliance events may violate multiple sections of laws. The most common areas of noncompliance in my sample include insider trading, foreign bribery, kickback payments, misleading press releases, misleading information on business, fraudulent sales transactions, unregistered security, stock manipulation, related party transactions, and stock option backdating.

Table 2 reports summary statistics for the noncompliance events and firms. Panel A describes the distribution of the 126 noncompliance events across calendar years based on the violation-beginning years and violation-ending years. Relatively few noncompliance events were initiated prior to 1995 and after 2009 in my sample. However, this does not necessarily mean noncompliance rarely happened in these years. Since my sample collection covers the releases filed from 2003 through 2012, it is likely that noncompliance events occurring before 2003 were filed in years prior to 2003, thus

[21] However, my results do not include this ICD information disclosed under SOX because there is no sufficient data for analysis.
[22] Table 1 to Table 3 in this chapter are the same as those reported in Chapter 2.

being omitted by my sample. Likewise noncompliance events that were initiated in more recent years may have not yet been investigated by the SEC, and are thus not included in my sample. The period from 1999 through 2003 includes the initiation of more than half (59.5%) of the noncompliance events.

Panel B in Table 2 reports the industry distribution of the 123 noncompliant firms. The industry classification scheme follows Frankel et al. (2002) and Dechow et al. (2011). Noncompliant firms cluster in certain industries. For example, 57.73% of the noncompliant firms come from three industries: Durable Manufacturers (21.14%), Banks & Insurance (20.33%), and Computers (16.26%). Since Banks & Insurance have 20.13% proportion of COMPUSTAT population, this industry is not overrepresented in the noncompliance sample. However, both Durable Manufacturers and Computers comprise only approximately 11% of the population on COMPUSTAT whereas the noncompliance rate is relatively higher. Meanwhile, Chemicals also has a higher noncompliance rate relative to its representation in the COMPUSTAT population. These results are roughly consistent with the higher litigation risk industries from Francis et al. (1994a; 1994b) where they treat the biotechnology, computers, electronics, and retail industries as industries with higher litigation risk.

Table 3 reports summarized details for the 126 (123) noncompliance events (firms). Panel A shows that approximately 60% of the noncompliance events have a violation period of less than 1,000 days while about 25% of the events have a duration between 1,000 days and 2,000 days. The mean (median) of the noncompliance event duration is 1,052 (653) days. Four acts form the basis for the SEC's investigations: the Securities Act of 1933, the Securities Exchange Act of 1934, the Investment Company Act of 1940, and the Investment Advisers Act of 1940. Noncompliance events can involve multiple acts and multiple subsections under one act. Table 3, Panel B reports

the distribution of violation events by securities acts. Most of the violation events involve the Securities Act of 1933 (45.2%) and Securities Exchange Act of 1934 (85.7%). As shown in Panel C of Table 3, the mean (median) noncompliance event involves 2.44 (1.59) subsections of securities laws, and 42 events involve violations of a single subsection while the highest number of subsection violations is 8 (three cases).

3.3.2 Identifying Financial Reporting Problems

I use two measures (indicators) of financial reporting problems. The first is an indicator for the presence of an accounting restatement. Data on accounting restatements are collected from Audit Analytics. The second indicator relates to accounting fraud. Here I rely on the dataset from Karpoff et al. (2008a; 2008b) which Karpoff et al. subsequently extended to December 31, 2012. [23]

The restatement sample covers all SEC registrants that have disclosed at least one financial statement restatement since 1 January 2001. Audit Analytics defines restatements as a 'revision of previously filed financial statements as a result of an error, GAAP failure or fraud'. Technical revisions such as the revision caused by mergers and changes in accounting principles are not considered restatements involving errors or irregularities in approach, theory or calculation, and hence are excluded by Audit Analytics from their restatement sample. I further impose the restriction that the restatements were not due to adoption of Interpretation No. 48 *Accounting for Uncertainty in Income Taxes – an interpretation of FASB statement No. 109* (FIN 48) or SEC *Staff Accounting Bulletin No. 108* (SAB 108). The final restatement sample includes 5,363 restatements filed from 1 January 2001 through 30 June 2013.[24]

[23] I am very grateful to Jonathan M. Karpoff, D. Scott Lee, and Gerald S. Martin for providing me access to their hand collected data.

[24] Since Audit Analytics constantly updates the restatement dataset, trying to get the largest scope of restatements, I downloaded the most recently updated restatement sample from Audit Analytics right before I estimated my main tests, which was 27, July 2013.

FIN 48 was issued in July 2006. Prior to the adoption of FIN 48, accounting for uncertainty in income taxes was governed by FAS 5's *Accounting for Contingencies* where uncertain tax contingencies were rarely reported as separate line items or even disclosed. FIN 48 required firms to disclose the balance of the tax contingency in their financial statement footnotes when it is "more-likely-than-not" that this tax position could be sustained if examined by a tax authority. I exclude restatements due to the adoption of FIN 48 because the previous principle contained no specific guidance on how to address uncertainty in accounting for income tax assets and liabilities. Therefore, restatements due to FIN 48 could be viewed as a change in accounting principles. In addition, there is no restatement period reported in Audit Analytics for FIN 48-related restatements, which makes my analysis infeasible.

SAB 108 was issued in September 2006. It provides guidance on how errors built up over time in the balance sheet should be considered from a materiality perspective and corrected. Prior to SAB 108 two techniques (known as the "rollover" and "iron curtain" approaches) were commonly used to accumulate and quantify misstatements. SAB 108 requires a registrant's financial statements to be adjusted when either approach results in quantifying a misstatement that is material, after considering all relevant quantitative and qualitative factors. Since both techniques were accepted by the SEC before SAB 108, and actually there is no "effective date" since they represent the SEC Staff's views of the proper interpretation of existing rules, I consider adjustments due to SAB 108 as being inconsistent with my definition of financial reporting problems.

Accounting fraud data are collected from all enforcement actions initiated by the SEC and the Department of Justice (DOJ) for violations of one or more of three provisions of the Securities and Exchange Act of 1934: (i) Section 13(b)(2)(a), which

requires firms to keep and maintain books and records that accurately reflect all transactions; (ii) Section 13(b)(2)(b), which requires firms to devise and maintain a system of internal accounting controls; and (iii) Section 13(b)(5), which prohibits knowingly circumventing or failing to implement a system of internal accounting controls, or knowingly falsifying any book, record, or account. These data represent unambiguous financial reporting violations because all the firms covered in it are firms that were caught violating books, records or internal accounting control provisions by the SEC or the DOJ. Being caught by the regulators is one of the most important criteria by which to identify an accounting fraud (see, for example, Dechow et al., 2011;Hennes et al., 2008). Fraud cases compliment restatements because not all frauds trigger restatements and vice versa (Karpoff et al., 2008b). The full sample contains 1,105 frauds filed from 1978 through 31 December 2012. Table 4 reports summary details of my restatement and accounting fraud samples.

3.4 Research Design

3.4.1 Overview Design

My sample of noncompliance with securities laws is based on observed noncompliance behaviour, which creates a risk of selection bias because firms' noncompliance is a strategic choice that management make after weighing the costs and benefits of noncompliance (Robinson et al., 2011). A challenge in the observational studies is that while treated outcomes are observed, we do not observe what these outcomes would have been in the untreated state (i.e. the absence of counterfactuals). This problem means that researchers are unable to compare the outcome difference between treated and untreated for a given firm to evaluate the effects of its treatment [(see more details in Peel and Makepeace (2012);and Tucker (2010))].

Matching is one possible solution to the selection problem. The aim is to create a random setting by identifying a group of control firms that are identical or as similar as possible to the group of treated firms with respect to all relevant covariates except for the treatment effect. Given an appropriate control group, differences in outcomes between the control group and treated group can be attributed to the treatment effect. However, as the number of matching dimensions increases or non-binary variables are included, covariate matching becomes either difficult or infeasible. Rosenbaum and Rubin (1983) suggest matching on one variable only, known as the balancing score b(X). This balancing score is a function of the relevant observed covariates X such that the conditional distribution of X given b(X) is independent of assignment into the treatment. Rosenbaum and Rubin (1983) show that matching on b(X) is sufficient to obtain equivalent matching on the individual explanatory variables that determine the outcome variable. One possible balancing score is the propensity score, defined as the probability of being treated given observed characteristics X. Matching methods based on this propensity score are known as Propensity Score Matching (PSM), which aggregates all covariates into one score using a likelihood function. PSM has become widely applied in accounting and finance research [See the review in Tucker (2010)]. To control for selection bias, I employ PSM. Specifically, I match each noncompliant firm to a control firm using PSM. I then perform Fisher's Exact Test to analyse the difference in occurrence of financial reporting problems between the noncompliant firms and control firms.

The application of PSM is valid under three conditions (Tucker, 2010). The first condition requires that after matching by propensity scores, the selection of treated and non-treated cases can be considered random, referred as "conditional independence" (Heckman et al., 1998) or the "unconfoundedness" condition (Zhao, 2004). The second

condition requires that both treatment and non-treatment selections are possible at the propensity scores used in matching. The condition fails at a given score if only treatment firms are observable at that score. This condition is referred to as the common support condition. I retain only valid matched pairs in my analysis, dropping noncompliance observations that do not satisfy the common support condition. The third condition is balancing, whereby the distributions of covariates are approximately similar for the treatment and control groups after PSM. By summarizing and interpreting previous research, Caliendo and Kopeinig (2008) suggest using several measures to assess the matching quality, including standardized bias, a two-sample t-test, joint significance, and Pseudo-R^2. I apply these tests to the before and after-matching samples. I also conduct a Wilcoxon Test to check if the means of differences in the two samples are significantly different.[25]

Since noncompliance events usually extend beyond one year in duration (see Panel A of Table 3), I analyse the occurrence of financial reporting problems by centring on the noncompliance beginning year. Since there is no literature or theory suggesting the length of window within which noncompliance and financial reporting problems are associated， I employ a range of windows to examine the occurrence of financial reporting problems. The maximum window is the 5-year period centred on the start year of the noncompliance period, i.e. [-2, 2]. Financial reporting problems also extend beyond one year in duration in many cases (see Table 4), so I check for the occurrence of a financial reporting problem for each year within the respective examined windows for each noncompliance event. I define the start year of the noncompliance period as

[25] The Two-sample t-test examines the differences in mean for each covariate in the treatment and control samples, while my intention is to test how different each pair (with respect to each covariate) is between my treatment and control group. Therefore, the Wilcoxon Test for the mean of differences for each covariate in the two samples is more appropriate.

year t and count the frequency of periods with financial reporting problems from $t-2$ through $t+2$. Figure 1 illustrates this process.

3.4.2 Propensity Score Matching to Identify Control Firms

My matching procedure begins by extracting a subpopulation of potential control firms from COMPUSTAT. For each noncompliant firm, I collect all the firms in the same 2-digit SIC industry, and require that potential control firms have necessary financial data available for years $t-2$ through $t+2$. After excluding duplicate firm-year observations, this possible control sample includes 15,472 firm-year observations. To reduce the influence of outliers on my tests, I winsorize each non-categorical variable at $\pm 1\%$ of the distribution for the combined samples of noncompliant firms and potential control firms.

I use a logistic regression as the basis for computing propensity scores.[26] The dependent variable equals the log of the odds of securities laws noncompliance. Conditional probabilities (propensity scores) of securities laws noncompliance are calculated as the fitted value from the logistic regression. I match each noncompliant firm to its closest neighbor within the same industry and same year. I exclude observations that do not satisfy the common support condition.[27]

In terms of the specification of the PSM model, the selection of variables is a trade-off between efficiency and bias. Brookhart et al. (2006) suggest that variables which are unrelated to the exposure (i.e., noncompliance in my context) but related to the outcome (i.e., financial reporting problems in my context) should always be included in a PSM model. Tucker (2010) also suggests that controlling for factors that

[26] When estimating the propensity score, various models, including logit, probit and linear probability models (LPM), can be employed. For the binary treatment case, where I estimate the probability, logit and probit models usually yield similar results (Caliendo and Kopeinig, 2008).

[27] This technique drops treatment observations whose propensity score is higher than the maximum or less than the minimum propensity score of the controls.

affect the treatment outcome even if they do not affect the treatment selection can yield more efficient estimators. However, Caliendo and Kopeinig (2008) explain that over-parameterising the selection model with irrelevant covariates can aggravate the common support problem; although not biasing estimates or leading to inconsistencies, the inclusion of insignificant variables can inflate the variance of estimated treatment effects. In addition, Augurzky and Schmidt (2001) show that how different specifications of including covariates relevant to the treatment decision or the outcome variable might cause problems in small samples in terms of higher variance. They provide evidence that matching on an inconsistent estimate of the propensity score (i.e., a partial model including only the covariates relevant to both treatment decision and outcome variable) produces better estimation. Since my noncompliance sample is small relative to the control population, it is important not to over-parameterise the model. Therefore I include only the variables predicted to affect both the securities laws noncompliance decision and financial reporting quality.

My logistic model includes several measures of firm performance and financial position highlighted by previous research as influencing the probability of firm misconduct, enforcement actions, financial reporting quality, and internal control problems (see, for examples, Dechow et al., 2011;Kedia and Rajgopal, 2011;Doyle et al., 2007b;Ashbaugh-Skaife et al., 2007;Thevenot, 2012;Files, 2012;Rice and Weber, 2012;Nagy, 2010). The model is as follows:

$$Log\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 ROA_i + \beta_2 SIZE_i + \beta_3 LEVERAGE_i + \beta_4 LOSS_i + \beta_5 BIGN_i + \beta_6 AGE_i + \beta_7 YEAR + \beta_8 INDUSTRY \quad (1)$$

where p_i is the latent probability that firm i fails to comply with securities laws (y_i=1). The vector of explanatory variables in equation (1) is calculated at year t. Definitions for the explanatory variables are as follows: ROA is operating income divided by total

asset (COMPUSTAT item OIBDP/AT); $SIZE$ is the natural log of market capitalization (outstanding common stock times year-end share price (COMPUSTAT items CSHO $*$ PRCC_F); $LEVERAGE$ is the sum of debt in current liability and long term debt divided by total assets (COMPUSTAT items $(\text{DLC} + \text{DLTT})/\text{AT}$); $LOSS$ is an indicator variable taking the value of 1 if Income Before Extraordinary Items (COMPUSTAT item IB) is less than zero, and 0 otherwise; $BIGN$ is an indicator variable taking the value of 1 if the firm engages Big Five auditor, and 0 otherwise (COMPUSTAT item AU); AGE is the natural log of a firm age (calculated as the number of years to date that the firm appears on COMPUSTAT). I also include year and industry indicators in the regression to control for differences in securities laws noncompliance over time and across industries.

3.5 Results

3.5.1 Logistic Regression Results for Propensity Scores

Table 5, Panel A reports parameter estimates and summary statistics for the logistic noncompliance model used to generate propensity scores for matching. The results are consistent with prior research. Coefficient estimates reveal that firms are more likely to violate securities laws if they are larger ($SIZE$), performing poorly (ROA), audited by small auditors ($BIGN$), and are young (AGE). The marginal effects (calculated as proportionate change in implied probability) reported alongside the coefficients quantify the economic effect for each covariate. The probability of noncompliance declines by 10% when ROA increases from its first quartile to third quartile and all remaining covariates are set to their median values. The probability of securities laws noncompliance increases by 108% when $SIZE$ (logarithm of market capitalization) increases from first quartile to third quartile and decreases by 58% for a comparable increase in AGE (logarithm of firm age). The likelihood of securities laws

noncompliance is almost 50% lower for firms with BIG 5 auditors. These effects are also statistically significant at the 1% level. Consistent with Panel B of Table 2, untabulated results also demonstrate that industry unevenly influences compliance with securities laws. The Pseudo R^2 of the logistic regression is 14% and the likelihood ratio chi-square of it is statistically significant at the 0.001 level. Results from tests of covariate balance are reported in Table 6. These are discussed in section 3.5.2.

Panel B of Table 5 reports the distribution of propensity scores for the securities laws noncompliance sample and the entire control group population prior to matching. Comparing the two distributions reveals that noncompliant firms and control firms significantly differ in the probability of noncompliance before matching.

3.5.2 Validity of Common Support and Balancing of Covariates

As discussed in the Section 3.4.1, PSM is valid where the conditional independence, common support, and covariate balancing conditions are satisfied (Tucker, 2010). Because conditional independence can only be examined using the boundary approach after the estimated treatment effect is achieved, I present results for this examination after the main results in Section 3.5.4. The common support condition is satisfied because I drop the noncompliance observations where similar propensity scores for control firms are unavailable. Imposing this condition leads to the loss of 2 observations from the noncompliance sample, resulting in 94 noncompliant firms and 94 control firms for my empirical analyses. This section presents the results of examining the covariate balancing conditions for the 188 matched firms (94 noncompliant firms and 94 control firms) in Table 6.

Columns (3) and (4) of Table 6 report the means of the covariates for the noncompliance and control groups, respectively. Column (5) presents the standardized bias for each covariate in the pre-matching and post-matching samples while column

(6) presents the percentage reduction in covariate bias. [28] The t-tests are the parametric tests of differences in the covariate means between the samples while the Wilcoxon test provides nonparametric comparisons. The t-tests reveal that, while ROA, $LEVERAGE$, $BIGN$, and AGE differed across the two samples prior to the matching, subsequent to matching, the means are not statistically different. I follow Peel and Makepeace (2012) in considering standardized bias less than $\pm 10\%$ after matching as acceptable, although the lower is the post-matching bias of each covariate, the better. All the covariates meet this criterion after the matching, with the exception of AGE, which has a standardized bias of -20.6%. However, because *AGE* is the natural log of firm age, what I really want to achieve through this matching is that firm age is indifferent between noncompliant and control firms. I, therefore, recheck the differences in firm age between the after-matched two groups. Columns (9) to (11) show that the mean of differences in ages of paired noncompliant and control firms is as small as -0.309, and it is statistically insignificant. This indicates that my matching quality is good regarding all the variables incorporated in the model.

The pseudo-R^2s before and after matching are 0.138 and 0.046, respectively, indicating that the covariates explain the participation probability well before matching. After matching, there should be no systematic differences in the distribution of covariates between the two samples and therefore the pseudo-R^2 should be low (Caliendo and Kopeinig, 2008). Furthermore, the likelihood ratio tests on the joint significance of all regressors in the logistic model are not rejected prior to matching but are rejected after the matching has been implemented. This also suggests that the quality of matching is good. The Wilcoxon tests provide similar evidence.

[28] For each covariate *x*, the standardized bias is defined as the difference between the sample means for the treatment and matched control samples as a percentage of the square root of the average of the sample variances of the two samples.

Collectively, the results in Table 6 demonstrate a substantial reduction in the differences between the pre-matched samples, providing confidence that my subsequent tests can be used to model the occurrence of accounting problems for firms with similar observed characteristics.

3.5.3 Univariate Comparisons

I use three sets of samples to conduct my main analyses. First, I examine the occurrence of financial reporting problems around noncompliance events by merging the restatements dataset with the PSM matched dataset. Second, I merge the accounting frauds dataset with the PSM matched dataset. Third, I examine the combined restatement and accounting fraud dataset, retaining restatement observations with overlapping events.

Table 7 reports the results from Fisher's Exact Test for the three datasets, i.e. restatement, accounting fraud and the non-overlapped combination of restatement and accounting fraud. [29] Panel A of Table 7 reveals that restatement rates are higher in the noncompliance group relative to the control group in six of the eight windows: window [-2, 2] (rates are 20.21% and 15.96%, respectively), window [-2, 1] (rates are 20.21% and 9.57%, respectively), window [-1, 1] (rates are 19.15% and 5.32%, respectively), window [0] (rates are 9.57% and 1.06%, respectively), window [1, 2] (rates are 13.83% and 7.45%, respectively) and window [1] (rates are 11.7% and 1.06%, respectively). Except for the first five-year window, the results are all statistically significant at the 10% level or less. However, the two pre-noncompliance windows, window [-2, -1] and window [-1], reveal the opposite results, where restatement rates are higher in control

[29] This test is more appropriate than a Chi-square test because the latter requires each cell to have an expected frequency of five or more observations but, in my data sample, I observe several cells with frequency of less than five.

group relative to noncompliance group {8.51% versus 6.38% for window [-2,-1], and 4.26% versus 2.13% for window [-1]} but the differences are not statistically significant.

Reported in Panels B and C of Table 7, I find stronger results in accounting frauds data and combined restatement-accounting fraud data for these six non pre-noncompliance windows. Accounting frauds rates are 37.23 and 4.26 for noncompliant firms and control firms, respectively for window [-2, 2]; 35.11 and 4.26 for noncompliant firms and compliance firms, respectively for window [-2, 1]; 31.91 and 3.19, respectively for window [-1, 1]; 23.4 and 2.13, respectively for window [0]; and 9.57 and 0, respectively for window [1, 2]. These results are all significant at the 1% level. The year [1] rates are 6.38 and 0, respectively for noncompliant firms and control firms, and the difference is statistically significant at the 5% level. The rates of combination of accounting frauds and restatements are also significantly different at the 1% level for 5 windows: 43.62 and 18.09, respectively for window [-2, 2]; 42.55 and 12.77, respectively for window [-2, 1]; 40.43 and 8.51, respectively for window [-1, 1]; 30.85 and 3.19, respectively for year [0]; and 15.96 and 1.06, respectively for year [1]. Window [1, 2] observes the rates as 20.21 and 7.45, respectively for noncompliant firms and control firms, and it is statistically significant at the 5% level. However, when looking at the two windows which merely cover one/two years before noncompliance beginning year without including subsequent years, i.e. year [-1] and window [-2,-1], I do not observe any significant difference between the noncompliant and control firms across these two Panels.

It is not a surprise to see that the association is stronger for firms with accounting frauds or combination of accounting frauds and restatements than restatement firms. Restatement samples contain both errors (i.e., unintentional misapplication of GAAP) and irregularities (i.e. intentional misreporting) as defined by SAS No.53 (AICPA 1988).

The causes and consequences of errors and irregularities in restatement samples are different (Hennes et al., 2008), and the risk factors differ as well. Specifically, restatements due to errors are more likely to reflect account-specific control risk while restatements due to irregularities are more likely to reflect general control environment issues (SAS No.82, AICPA 1997). Therefore, relative to errors, irregularities are more likely to be associated with noncompliance because general control risk factors are more likely to affect ICFR and compliance simultaneously. As oppose to restatements (which combine errors and irregularities), the accounting fraud samples contain firms that have been investigated or charged by the SEC with violating accounting regulations. Theses financial reporting problems are usually treated as irregularities (see, for example, Hennes et al., 2008). The descriptive summary in Table 4 (in Section 3.3.2) also reveals that the duration for accounting frauds is longer than that for restatements. Therefore, accounting frauds can be considered a more severe type of accounting problem,[30]and are likely to be the consequence of more severe firm-level internal control weaknesses. Thus, it is reasonable that the association between noncompliance and financial reporting problems is stronger for accounting frauds than for restatements.

Overall, I find that noncompliant firms have a significantly higher rate of financial reporting problems than do control firms. While some of this effect is due to firms with restatements, the relation is much stronger for accounting fraud firms and is more pronounced for the post-noncompliance windows.

3.5.4 MHBounds Test

While PSM deals with the selection bias due to observable factors, it does not alleviate the selection bias due to unobservable factors (Tucker, 2010), and the

[30] I do not distinguish irregularities and errors within my restatement sample because, first, we cannot observe manager's intention. In addition, distinguishing between these two is not the focus of my study and I have a relatively clean data set for accounting frauds.

inferences from PSM are based on the conditional independence assumption. If there are unobserved variables that simultaneously affect selection into groups of the noncompliance and financial reporting problems, a hidden bias could exist. That is, if we have a positive unobserved selection, in which those firms most likely to violate securities laws also have a higher probability of having financial reporting problems, then the estimated treatment effects overestimate the true noncompliance effects. Thus, as discussed in Section 3.4.1, I conduct a bounding approach to test how strongly an unobserved variable must influence the assignment process to undermine the implications of the matching analysis. Here, following suggestions in Peel (2014), I implement the MHbounds test in Stata using Becker and Caliendo's (2007) algorithm.

Having controlled for observed bias via matching, the MHbounds technique allows me to gauge the impact that potential hidden bias has on the matched treatment effect with reference to a parameter Γ.[31] When $\Gamma = 1$, it is assumed that the treatment effect is bias free. If, for example, $\Gamma = 2$, firms which appear to be similar (in terms of matching covariates) may differ in their odds of receiving the treatment by as much as a factor of 2. Higher values of Γ show deviations from "randomised distribution". To assess the extent to which this deviation affects the inference from significant treatment effects requires statistics that have desirable properties in this respect. For binary outcomes, Aakvik (2001) suggests using the Mantel and Haenszel (1959) test statistic (Q_{MH}), which compares the successful number of individuals in the treatment group with the same expected number, assuming that the treatment effect is zero. The test-statistic Q_{MH} can be bounded by two known distributions, Q_{MH}^{+} and Q_{MH}^{-}(Rosenbaum, 2002). Q_{MH}^{+} is the test statistic given that the treatment effect is overestimated and Q_{MH}^{-} is the test statistic given that the treatment effect is underestimated. When $\Gamma = 1$, the

[31] See Appendix 1 for detailed discussion.

two bounds are equal, and there is no hidden bias. When Γ increases, the bounds move apart reflecting uncertainty about the test statistics in the presence of unobserved selection bias.[32]

I calculate the test statistic Q_{MH} for the outcomes in every window with a significant noncompliance effect in my main tests. As an example, I present the MHbounds statistics for the three-year window [-1, 1] using the restatement data in detail in Panel A of Table 8, with the key parameters highlighted in bold. Because I estimate positive treatments effects, my focus is on the upper bound (Q_{MH}^{+}) and its significance level (p_{mh}^{+}) in columns 2 and 4, respectively. The table reveals that for this three-year window, under the assumption of no hidden bias (Γ=1), there is a significant noncompliance effect ($p_{mh}^{+} = 0.004$). At a 5% significance level, a hidden bias/confounding variable would need to raise the odds to 1.7 times ($\Gamma = 1.7$) the odds of exposure to noncompliance (based on the covariates incorporated in the PSM model) to affect the estimation of noncompliance effects. At a 10% significance level, a confounding variable would need to raise the odds to double the odds of exposure to noncompliance ($\Gamma = 2$) to affect my inferences from this restatement data.

Since my prime interest is the critical MHbounds parameters (Γ) at which the estimated noncompliance effect becomes questionable, I omit the detailed Γ values and just report the critical values of Γ (i.e., the values at which the noncompliance effects are no longer statistically significant) at the 5% and 10% significant levels for the other windows where I observe significantly high rate of financial reporting problems in

[32] It should be noted that the bounding approach does not test the conditional independence assumption itself because this would amount to testing that there are no (unobserved) variables that influence selection into treatment sample. Instead, the bounding approach provides evidence about the degree to which any significant results hinge on the untestable assumption of conditional independence (Becker and Caliendo, 2007).

Panel B of Table 8. As revealed in the second column (p=5%), across all the windows, the smallest value of Γ is 1.5 which appears in the year [1] window for the accounting fraud sample. That means, after having controlled for observed bias using PSM, an unobserved confounding variable would have to increase the likelihood of selection into the noncompliance sample by 50% to make my reported inferences invalid. For all other windows, an unobserved confounding variable would need to increase the likelihood of selection into the noncompliance sample by an even higher degree to affect the results. Although this test cannot directly justify the conditional independence assumption, it gives some insights into the sensitivity of my results and suggests that, for all windows, the significant noncompliance effects in the main tests are reliable.

3.5.5 Additional Test

In my main tests, I analyse the occurrence of financial reporting problems in noncompliant firms versus their matched control firms, and observe significant difference in most of the post-noncompliance windows and the windows centred on the first year of noncompliance. The results are much stronger for the accounting fraud sample than for the restatements sample. Since my accounting frauds data, like data on noncompliance with securities laws, are collected from SEC's enforcement actions, it is possible that my results relating to accounting frauds are driven by the fact that noncompliance with securities laws are actually capturing accounting frauds. This occurs for two reasons. First, the US SEC's main focus is on financial reporting issues. The SEC's Year-by-Year SEC Enforcement Statistics (SEC, 2013) classify enforcement actions into 10 categories: Broker-Dealer, Delinquent Filings, FCPA, Financial Fraud/Issuer Disclosure, Insider Trading, Investment Adviser/Investment Co., Market Manipulation, Securities Offering, and Other (see Appendix 2 for details). Most of the enforcement actions relate to financial reporting problems, such as delinquent

filings, financial fraud, and FCPA (which is identified as a separate type of misconduct starting in 2011). The actions classified as 'broker-dealer', 'insider trading', and 'investment adviser/investment Co.' tend to involve individuals rather than firms. For the remaining types of enforcement actions (e.g., market manipulation and securities offering), it is likely that accounting problems occur as well. Therefore, it is extremely difficult to identify a set of compliance problems that are not with any accounting issues.

Second, the difference between accounting fraud and noncompliance with securities laws datasets is that the former is collected under three specific provisions regarding the SEC's accounting regulations while the latter is collected from a comprehensive archive but excluding enforcement actions which are categorized by the SEC itself as AAERs. Though the SEC has its own method to designate an enforcement action as an AAER (as discussed in Section 3.3.2), identifying a non-accounting noncompliance event under the SEC's regulatory framework is not a straightforward task. My review of the SEC's enforcement actions reveals that it is sometimes difficult to identify the nature of the noncompliance behaviour.[33] Therefore, although I attempt to rigorously exclude accounting problems from my noncompliance dataset, my main method of excluding AAERs from noncompliance sample does not necessarily result in a sample that is free of accounting frauds.

To address this concern, I repeat my analyses after excluding observations (from my noncompliance with securities laws sample) which only involve any one of the three provisions by which I identify accounting frauds. [34] In total, out of the 94 noncompliant

[33] For example, some of the FCPA cases are sub-classified as AAERs while some are not, even though they may all be improper payments to foreign governments. Magyar Telekom Plc. and Aon Corporation are two examples of bribery plans, only one of which is categorized as an AAER.See details from Litigation Release No. 22213 / December 29, 2011 at http://www.sec.gov/news/press/2011/2011-279.htm and from Litigation Release No. 22203 / December 20, 2011, AAER No. 3348 / December 20, 2011 at http://www.sec.gov/litigation/litreleases/2011/lr22203.htm) .

[34] The three provisions are: (i) Section 13(b)(2)(a), (ii) Section 13(b)(2)(b), and (iii) Section 13(b)(5). See detailed discussion on these three provisions in Section 3.3.2.

firms, there are 10 cases that only involve accounting regulations (and not other regulations). Specifically, my review of these 10 cases reveals that they are all FCPA-foreign corruption cases. This is not surprising because the FCPA prevents corporate bribery of foreign officials mainly according to these three principal provisions (Seitzinger, 2010). Consistent with this, Karpoff et al. (2015) find that for their 143 bribery-related actions (from 1978 through May 2013), 110 and 102 involve provisions 13(b)(2)(A) and 13(b)(2)(B), respectively. [35]

However, my in-depth investigation on these 10 cases reveals that their nature is actually more consistent with the non-accounting noncompliance criteria because they were initiated from sales procedures, operation aspects, or marketing departments rather than the financial accounting system. Given this, the financial accounting system simply recorded these real transactions and may not have had the ability to detect the nature of this wrongdoing or any intention to conceal the wrongdoings. It especially manifests a systematically weak internal control system when the bribery is inspired by the top management. Therefore, these 10 cases won't affect my inferences about the association between non-accounting noncompliance and financial reporting problems.

Nevertheless, I replicate my main tests excluding these 10 noncompliance events which could arguably be classified as accounting frauds. Table 9 reveals that the results for the accounting fraud sample from Table 7 remain significant but with slight changes to the rates of financial reporting problems. These are 32.14 and 3.57, respectively for window [-2, 2]; 29.76 and 3.57, respectively for window [-2, 1]; 27.38 and 2.38, respectively for window [-1, 1]; 17.86 and 2.38, respectively for window [0]; 10.71 and 0, respectively for window [1, 2]; and 7.14 and 0 respectively for window [1]. In addition, one pre-noncompliance window (i.e., window [-2, -1]) also observes

[35] These are the two of the three provisions according to which accounting frauds are identified.

different accounting frauds rates 5.95 for noncompliance sample, and 1.19 for control sample, which is at the 10% significant level.

3.6 Conclusions

Prior studies of the effects of internal controls focus mainly on the ICFR. My study extends the research to another important aspect of internal control, namely, compliance. I examine the association between noncompliance with securities laws and financial reporting problems to draw inferences about whether non-accounting noncompliance with external regulations has implications for financial reporting quality. This question has not been studied previously because presumably, regulators emphasize the importance of ICFR aspect for financial reporting quality, and prior research suggests that the responsibility for financial reporting quality mainly lies with the CFO and/or accounting controls.

I argue that noncompliance with (non-accounting) external regulations can provide information about financial reporting quality. Using noncompliance with securities laws, I hypothesize that general factors that affect the effectiveness of the integrated internal control system are likely to simultaneously affect compliance control and accounting control. In addition, compliance and ICFR are two overlapping aspects of one integrated internal control system, so compliance could influence financial reporting quality through internal communication. Therefore, I predict and find the rates of financial reporting problems will be higher in noncompliant firms than in compliance firms. This association is much stronger for accounting frauds than for restatements. Furthermore, the effect is more pronounced in the post-noncompliance windows. These findings are important because they further our understanding of integrated internal control systems, noncompliance effects, and financial reporting quality.

My study has limitations, some of which suggest future research. First, there is a casual element in the association between noncompliance and financial reporting quality theoretically and in the empirical indication from my results, but my data and research design do not allow me to specify this causal effect. It leaves spaces for future exploration. Second, as the integrated internal control framework suggests, it is possible that all the three aspects of internal control (i.e. compliance control, ICFR and operation control) would have influence on financial reporting quality. However, given the data constraints, I do not control for the other two dimensions in my empirical analysis. Third, I examine only the setting of securities laws violations as noncompliance. Further research can verify whether the associations I document persist for other types of noncompliance behaviour. Third, a factor that could affect my results is the possibility that monitoring intensity increases once noncompliance is detected. My research method and data availability do not allow me to rule out the role of monitoring intensity because my research is based on observed behaviour and the measures are external indictors which depend on external parties' criteria. This type of research might introduce a potential bias by selection criteria used by the external parties, though it has the greatest advantage of identifying the problems with quality (Dechow et al., 2010).[36] It could be a very interesting topic to look at in future research.

[36] 'Quality' means it is less likely that my sample of noncompliance includes the firm that actually complied with laws.

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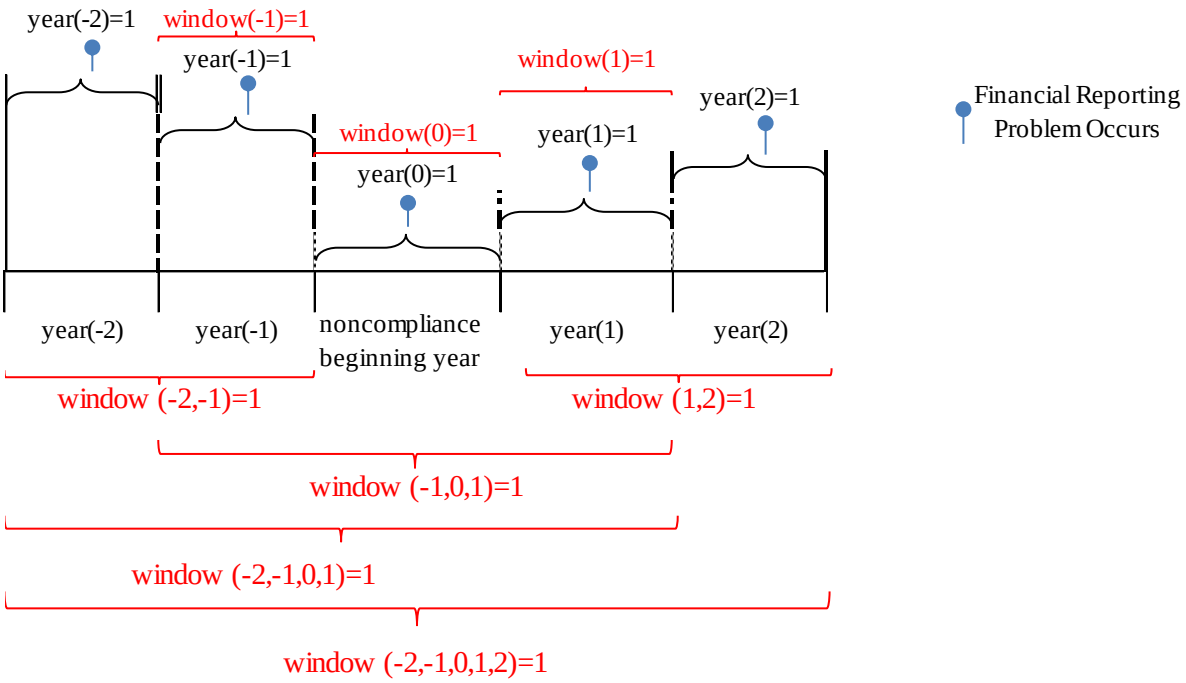

Figure 1. Identifying Financial Problem Years and Windows

Notes: Figure 1 shows the way I identify financial reporting problems in each year and each window. The start year of the noncompliance period is defined as year (0). One year before (after) that is year (-1) (year (-1)) and two year before (after) the start year is year (-2) (year (2)). If a financial reporting problem occurred in year (0), then year (0) is counted as one, which stands for a year with a financial reporting problem initiated. Similarly, if a financial reporting problem occurred in year (1), then year (1) is counted as one, and so on. In the respective windows, the number of years with financial reporting problems is counted. The window is identified as a window with financial reporting problems wherever the counted number is not less than one.

Table 1
Sample Selection of Enforcement Action Releases

Panel A: Sample selection of Enforcement Action Releases		
Number of Releases		
Total releases (2003-2012)		***10,923***
Total_LR(2003-2012)		*4,675*
Total_AP(2003-2012)		*6,248*
less: releases towards individual and categorized as AAER		5,904
less: other releases		1,212
Indexed releases		***3,754***
Panel B: Sample selection of firms against by Enforcement Actions		
Number of Firms		
Number of firms referred by indexed releases		4,129
Number of firms found in EDGAR		2,417
Number of firms with Compustat financial data		**768**
Panel C: Sample selection of relevant Enforcement Action Releases		
Number of Releases		
Indexed releases		***3,754***
Releases traced back from Compustat matched firms		1,551
less: duplicated releases		651
Unique releases traced back from Compustat matched firms		900
less: releases against firms delinquent in financial reports		368
Releases checked manually		**532**
Comprising: Total_LR	142	
Total_AP	390	
Panel D: Final sample of noncompliant firms		
Noncompliance events		**126**
Noncompliant firms		**123**

Note
This table reports the process of identifying relevant SEC's enforcement actions releases.
Total_Releases: the sum of SEC's enforcement releases in each year for the period from 2003 to 2012.
Releases_Indexed: the number of SEC's enforcement releases covered in our index file.
INDIV&AAER: the number of releases which are purely against individuals or which are categorized as AAER by the SEC.
Other Releases: the number of releases which are not relevant for identifying firms' non-compliance behaviours, such as releases for fair fund distributions, and which don't specify all the firms' names in the release titles.

Table 2
Summary Statistics for Frequency of Noncompliance Events/Firms by Year and Industry

Panel A: Year Frequency of Noncompliance Events				**Panel B**: Industry Frequency of Noncompliant firms			
Vio_Beg	Freq	Vio_End	Freq	Industry	Freq	Percent	Compustat
1986	1			Mining & Construction	3	2.44	11.04
1994	2			Refining & Extractive	4	3.25	7.18
1995	1			Food & Tobacoo	4	3.25	1.93
1996	5	1996	1	Chemicals	7	5.69	1.84
1997	5			Pharmaceuticals	7	5.69	9.46
1998	4			Durable Manufacturers	26	21.14	11.24
1999	13	1999	5	Computers	20	16.26	11.18
2000	15	2000	2	Transportation	4	3.25	5.06
2001	22	2001	9	Utilities	4	3.25	4.26
2002	15	2002	24	Retail	7	5.69	6.49
2003	10	2003	23	Banks & Insurance	25	20.33	20.13
2004	7	2004	14	Service	12	9.76	7.25
2005	4	2005	10				
2006	8	2006	11				
2007	5	2007	8				
2008	3	2008	4				
2009	1	2009	6				
2010	2	2010	4				
2011	2	2011	3				
2012	1	2012	2				
Total	126		126	Total	123	100.00	97.06

Note

This table reports summary statistics for frequency of securities laws noncompliance events/firms by year and industry.Following Dechow et al (2011), Industries are based on the following SIC codes: Agriculture: 0100–0999; Mining & Construction: 1000–1299, 1400–1999; Food & Tobacco: 2000–2141;Textiles and Apparel: 2200–2399; Lumber, Furniture, & Printing: 2400–2796;Chemicals: 2800–2824, 2840–2899; Refining & Extractive: 1300–1399,2900–2999; Durable Manufacturers: 3000–3569, 3580–3669, 3680–3828, 3852-3999;Computers:3570–3579, 3670–3679, 7370–7379; Transportation: 4000–4899; Utilities: 4900–4999; Retail: 5000–5999; Services: 7000–7369, 7380–9999; Banks& Insurance: 6000–6999; Pharmaceuticals: 2830–2836, 3829–3851.
The calculation of Compustat industry proportion is based on the firms which have valid financial statement data in year 2012. I do a small correction for Dechow et al (2011), where they include 3829-3851 in both Durable Manufacturers and Pharmaceuticals.

Table 3
Summary Statistics for Noncompliance Events

Panel A: Frequency of Violation Days

Vio_Days	Frequency	Percentage
1-999	75	59.52
1000-1999	31	24.6
2000-2999	13	10.32
3000-3999	4	3.17
4000-4999	1	0.79
5000-5999	1	0.79
>6000	1	0.79
mean	1052.45	
median	653.00	
Total	126	100

Panel B: Frequency of Violated Acts

Vio_Acts	Vio_ dummy			Total
	0	1	.*	
Vio_33	67	57	2	126
Vio_34	16	108	2	126
Vio_ ICA40	119	5	2	126
Vio_ IAA40	120	4	2	126

Panel C: Frequency of Violated Subsections of Acts

Num_Vio_Subsections	Frequency	Percentage
1	42	33.87
2	36	29.03
3	22	17.74
4	12	9.68
5	4	3.23
6	5	4.03
8	3	2.42
. *	2	1.59
Total	126	100

Note
This table reports summarized details for the 126 (123) noncompliance events (firms).
Vio_ dummy indicates if a specific Act was violated or not.
Vio_Acts indicates what Act was violated.
Vio_33 stands for the violated law was Securities Act of 1933.
Vio_34 stands for the violated law was Securities Exchange Act of 1934.
Vio_ICA40 stands for the violated law was Investment Company Act of 1940.
Vio_IAA40 stands for the violated law was Investment Advisers Act of 1940.
Num_Vio_Subsections is the number of subsections of Acts that a non-compliance event violated.
* For one of the two missing cases, the SEC issued a formal order of private investigation therefore this information is not publically available. For the other case which involves insider trading, the violated acts information is missed without known reason.

Table 4
Summary Details of Restatement and Fraud Samples

	RESTATEMENT		FRAUD	
Panel A: Sample Composition and Summary Details				
No. of Observations	5,363		1,105	
First filing year	2000		1976	
Firms involved	3,369		947	
Duration(days)				
mean	756		1,080	
median	562		819	
minimum	42		60	
maximum	8,035		9,038	
Panel B: Beginning Years' Distribution				
Year	RESTATEMENT		FRAUD	
	Frequency	Percentage	Frequency	Percentage
1968			3	0.27%
1970			2	0.18%
1971			3	0.27%
1972			4	0.36%
1973			1	0.09%
1974			1	0.09%
1975			2	0.18%
1976			9	0.81%
1977			7	0.63%
1978			4	0.36%
1979			5	0.45%
1980			18	1.63%
1981			21	1.90%
1982			23	2.08%
1983			26	2.35%
1984			22	1.99%
1985	1	0.02%	29	2.62%
1986			25	2.26%
1987			23	2.08%
1988			33	2.99%
1989			40	3.62%
1990	3	0.06%	36	3.26%
1991	1	0.02%	40	3.62%
1992	3	0.06%	42	3.80%
1993	3	0.06%	44	3.98%
1994	6	0.11%	37	3.35%
1995	20	0.37%	28	2.53%
1996	24	0.45%	42	3.80%
1997	45	0.84%	56	5.07%
1998	88	1.64%	64	5.79%
1999	139	2.59%	85	7.69%
2000	299	5.58%	102	9.23%

2001	485	9.04%	65	5.88%
2002	537	10.01%	46	4.16%
2003	538	10.03%	35	3.17%
2004	547	10.20%	25	2.26%
2005	509	9.49%	21	1.90%
2006	447	8.33%	14	1.27%
2007	388	7.23%	9	0.81%
2008	325	6.06%	8	0.72%
2009	360	6.71%	5	0.45%
2010	289	5.39%		
2011	200	3.73%		
2012	105	1.96%		
2013	1	0.02%		
Total	5363	100%	1105	100%

Note
This table reports summary details of restatement and accounting fraud samples.

Table 5
Logistic Regression for Propensity Score

Panel A: Regression Results

Noncompliance	Coef.	Marginal effects	Pr > ChiSq
ROA	-0.494	-0.097	0.001
SIZE	0.245	1.078	0.001
LEVERAGE	-0.089	-0.024	0.670
LOSS	0.050	0.044	0.854
BIGN	-0.731	0.474	0.009
AGE	-0.913	-0.578	0.001
_CONS	-3.404		0.018
YEAR	Included		
INDUSTRY	Included		
N	15,568		
Likelihood ratio	160.647		
(p-value)	(0.001)		
Pseudo R^2	0.138		

Panel B: Distribution of Fitted Conditional Probabilities (P-scores)

Sample	N	Mean	1st pct.	25th pct.	median	75th pct.	99th pct.
Control Group	15,472	0.0059	0.0004	0.0016	0.0029	0.0058	0.0528
Noncompliance	96	0.0472	0.0005	0.0037	0.0133	0.0405	0.5376

Note
This table reports logistic regression results for propensity scores.
The dependent variable is the logarithm of the odds of noncompliance. Noncompliance equals 1 if a firm is against by the SEC's enforcement actions; equals 0 if a firm is from COMPUSTAT potential control group.
All variables are measured at the fiscal year (COMPUSTAT identification) where the noncompliance beginning date lies.
Panel A contains regression results. Panel B provides distributional information of the fitted conditional probabilities (i.e. propensity scores) for two samples: the whole population for control group before matched and the noncompliance sample.
Marginal effects are calculated as proportionate change in implied probability for each variable changed from its quartile 1 value to quartile 3 value and setting the covariates' contributions to their median values.

Variable Definitions:
ROA = operating income divided by total asset;
$SIZE$ = the natural log of outstanding common stock times share price;
$LEVERAGE$ = the sum of debt in current liability and long term debt divided by total assets;
$LOSS$ = indicator variable taking the value of 1 if Income Before Extraordinary Items is less than zero, and 0 otherwise;
$BIGN$ = indicator variable taking the value of 1 if the auditor comes from Big Five, and 0 otherwise;
AGE = the natural log of firm's age;
$YEAR$ = the dummy variable for noncompliance beginning year;
$INDUSTRY$ = the dummy variable for two digits SIC code.

Table 6
Covariate Balancing Tests for Logistic Model

Variable	Unmatched/ Matched	Mean		%bias	%reduct bias	t-test		Wilcoxon test		
		Noncompliance	Control			t	p>|t|	mean of difference	t	p>|t|
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ROA	Unmatched	-0.634	-0.129	-41.6		-6.74	<.001			
	Matched	-0.574	-0.554	-1.6	96.2	-0.09	0.931	-0.019	-0.143	0.887
SIZE	Unmatched	5.268	4.999	9.1		1.05	0.294			
	Matched	5.373	5.452	-2.7	70.6	-0.17	0.866	-0.079	-0.208	0.836
LEVERAGE	Unmatched	0.386	0.252	25.5		3.03	0.002			
	Matched	0.378	0.335	8.1	68.1	0.48	0.629	0.043	0.618	0.538
LOSS	Unmatched	0.479	0.454	5		0.5	0.62			
	Matched	0.468	0.436	6.4	-26.4	0.44	0.662	0.032	0.537	0.593
BIGN	Unmatched	0.615	0.727	-24.1		-2.47	0.014			
	Matched	0.628	0.585	9.1	62.2	0.59	0.553	0.043	0.705	0.482
AGE	Unmatched	2.100	2.538	-48		-5.97	<.001			
	Matched	2.130	2.318	-20.6	57.2	-1.37	0.174	-0.188	-2.114	0.037
ExpAge	Unmatched	13.802	16.44	-19.4		-2.02	0.043			
	Matched	14.053	14.362	-2.3	88.3	-0.15	0.88	-0.309	-0.226	0.822
Pseudo R2	Unmatched	0.138		**MeanBias**	Unmatched		28.2			
	Matched	0.046			Matched		8.3			
LR chi2	Unmatched	163.57		**MedBias**	Unmatched		24.1			
	Matched	12.1			Matched		6.4			
p>chi2	Unmatched	0								
	Matched	0.208								

Note
This table reports the results for examining covariate balancing conditions for the matched 188 firms. PSM is based on one-one nearest neighbour match with common and without replacement. 94 noncompliant firms are matched. Variable definitions are the same as Table 3, except for ExpAge.
ExpAge is the exponential form of the variable AGE, i.e. the true age of firms.
%bias is standardized bias.
%reduct bias is the percentage reduction in covariate bias.
MeanBias is the mean of standardized bias.
MedBias is the median of standardized bias.

Table 7

Financial Reporting Problems Occurrence of Noncompliance and Control Samples

Datasets and Windows	Noncompliance (%)	Control (%)	Fisher's Exact Test	
			Table Probability(P)	Two-sided Pr <=P
Panel A: Restatements				
Windows centred on noncompliance beginning year				
(-2, 2)	20.21	15.96	0.113	0.570
(-2, 1)	20.21	9.57	0.020	0.064
(-1, 1)	19.15	5.32	0.003	0.007
(0)	9.57	1.06	0.008	0.018
Windows post noncompliance				
(1, 2)	13.83	7.45	0.070	0.236
(1)	11.7	1.06	0.002	0.005
Windows pre noncompliance				
(-2, -1)	6.38	8.51	0.188	0.782
(-1)	2.13	4.26	0.236	0.682
Panel B: Accounting Frauds				
Windows centred on noncompliance beginning year				
(-2, 2)	37.23	4.26	<0.001	<0.001
(-2, 1)	35.11	4.26	<0.001	<0.001
(-1, 1)	31.91	3.19	<0.001	<0.001
(0)	23.4	2.13	<0.001	<0.001
Windows post noncompliance				
(1, 2)	9.57	0	0.002	0.003
(1)	6.38	0	0.014	0.029
Windows pre noncompliance				
(-2, -1)	6.38	2.13	0.107	0.278
(-1)	3.19	1.06	0.250	0.621
Panel C: Restatements-Accounting Frauds				
Windows centred on noncompliance beginning year				
(-2, 2)	43.62	18.09	<0.001	<0.001
(-2, 1)	42.55	12.77	<0.001	<0.001
(-1, 1)	40.43	8.51	<0.001	<0.001
(0)	30.85	3.19	<0.001	<0.001
Windows post noncompliance				
(1, 2)	20.21	7.45	0.007	0.019
(1)	15.96	1.06	<0.001	<0.001
Windows pre noncompliance				
(-2, -1)	11.7	9.57	0.167	0.814
(-1)	5.32	5.32	0.253	1.000

Note

This table reports the occurrence of financial reporting problems around noncompliance events for three datasets: restatement, accounting fraud and combination of restatement and accounting fraud.

Restatements data is collected from Audit Analytics's restatement dataset.

Accounting Frauds data is hand-collected from the violation of SEC's accounting regulation, and provided by Karpoff et al. (2008a, 2008b)

Restatements-Accounting Frauds is referring the non-overlapped combination of restatements dataset and accounting frauds dataset. Restatement observation is kept when restatement and accounting frauds overlapped.

(-2, 2) is a five-year window centred on noncompliance beginning year with a coverage of preceding two years to subsequent two years.

(-2, 1) is a four-year window centred on noncompliance beginning year with a coverage of preceding two years to subsequent one year.
(-1, 1) is a three-year window centred on noncompliance beginning year with a coverage of preceding one year to subsequent one year.
(0) is a one-year window covering noncompliance beginning year.
(1, 2) is a two-year window starting with one year after noncompliance beginning year to subsequent one year.
(1) is a one-year window covering one year after the noncompliance beginning year.
(-2, -1) is a two-year window covering two years preceding to noncompliance beginning year.
(-1) is a one-year window covering one year preceding to noncompliance beginning year.

Table 8 Mantel-Haenszel (1959) Bounds for Noncompliance Effect Estimation

Panel A: MHbounds for Restatements' 3years window (-1,0,1)

Γ	Q_{MH}^{+}	Q_{MH}^{-}	p_{mh}^{+}	p_{mh}^{-}
1***	2.664	2.664	0.004	0.004
1.1***	2.459	2.887	0.007	0.002
1.2**	2.268	3.088	0.012	0.001
1.3**	2.096	3.277	0.018	0.001
1.4**	1.938	3.455	0.026	0.000
1.5**	1.793	3.623	0.036	0.000
1.6**	1.659	3.784	0.049	0.000
1.7*	**1.534**	3.937	**0.063**	0.000
1.8*	1.417	4.084	0.078	0.000
1.9*	1.307	4.225	0.096	0.000
2	**1.203**	4.360	**0.115**	0.000

Panel B: Summary of MHbounds Test for Windows with Significant Effect

Datasets &Windows	Critical Γ cut-off (p=5%)	Critical Γ cut-off (p=10%)
Restatement (-1,0,1)	1.7	2
Restatement (0)	1.6	2.1
Restatement (1)	2	2.7
Accounting Frauds (-2,-1,0,1,2)	5	6
Accounting Frauds (-2,-1,0,1)	4.5	5.4
Accounting Frauds (-1,0,1)	4.7	5.7
Accounting Frauds (0)	3.7	4.7
Accounting Frauds (1,2)	2.5	3.5
Accounting Frauds (1)	1.5	2.2

Note

This table reports MHbounds statistics for the estimation effects on the three-year window (-1, 0, 1) of restatement data as an example, and the summary of critical values of Γ for the windows where significant noncompliance effects are observed.

Γ : odds of differential assignment due to unobserved factors

Q_{MH}^{+} : Mantel-Haenszel statistic (assumption: over-estimation of treatment effect)

Q_{MH}^{-} : Mantel-Haenszel statistic (assumption: under-estimation of treatment effect)

p_{mh}^{+} : significance level (assumption: over-estimation of treatment effect)

p_{mh}^{-} : significance level (assumption: under-estimation of treatment effect)

*** indicates 1% significant level; ** indicates 5% significant level; * indicates 10% significant level

Table 9
Accounting Frauds Occurrence of Noncompliance and Control Samples by Excluding Ten Accounting Frauds-suspected Cases

Windows	Noncompliance (%)	Control (%)	Fisher's Exact Test	
			Table Probability(P)	Two-sidedPr <=P
Windows centred on noncompliance beginning year				
(-2, 2)	32.14	3.57	<0.001	<0.001
(-2, 1)	29.76	3.57	<0.001	<0.001
(-1, 1)	27.38	2.38	<0.001	<0.001
(0)	17.86	2.38	<0.001	<0.001
Windows post noncompliance				
(1, 2)	10.71	0	0.002	0.003
(1)	7.14	0	0.014	0.029
Windows pre noncompliance				
(-2, -1)	5.95	1.19	0.091	0.210
(-1)	3.57	0	0.123	0.246

Note
This table reports accounting frauds occurrence of noncompliance and control samples by excluding ten accounting frauds-suspected noncompliance events.
Accounting Frauds data is hand-collected from the violation of SEC's accounting regulation, and provided by Karpoff et al. (2008a, 2008b)
(-2, 2) is a five-year window centred on noncompliance beginning year with a coverage of preceding two years to subsequent two years.
(-2, 1) is a four-year window centred on noncompliance beginning year with a coverage of preceding two years to subsequent one year.
(-1, 1) is a three-year window centred on noncompliance beginning year with a coverage of preceding one year to subsequent one year.
(0) is a one-year window covering noncompliance beginning year
(1, 2) is a two-year window starting with one year after noncompliance beginning year to subsequent one year.
(1) is a one-year window covering one year after the noncompliance beginning year.
(-2, -1) is a two-year window covering two years proceeding to noncompliance beginning year.
(-1) is a one-year window covering one year proceeding to noncompliance beginning year.

Appendix 1[53] MHbounds Test

The treatment probability for individual i with observed characteristics X_i can be written as $P(X_i) = P(D_i = 1 \mid x_i) = F(\beta X_i + \gamma u_i)$, where u_i is the unobserved variable and γ is the effect of u_i on the treatment decision. Clearly, if there is no hidden bias, γ will be zero and the treatment probability will solely be determined by X_i. However, if hidden bias exists, two individuals with the same observed covariates X have differing chances of receiving treatment. Assume we have a matched pair of individuals i and j and further assume that F is the logistic distribution. Then the odds ratio is given by:

$$\frac{\frac{p_i}{1-p_i}}{\frac{p_j}{1-p_j}} = \frac{\exp(\beta X_i + \gamma \mu_i)}{\exp(\beta X_j + \gamma \mu_j)} \tag{1}$$

If both individuals have identical observed covariates - as implied by the matching procedure - the X-vector cancels out, implying that:

$$\frac{\exp(\beta X_i + \gamma \mu_i)}{\exp(\beta X_j + \gamma \mu_j)} = \exp\{\gamma(\mu_i - \mu_j)\} \tag{2}$$

Now, individuals i and j only differ in their odds of receiving treatment by a factor that involves the parameter γ and the difference in their unobserved covariates u. The odds ratio equals one if either $(\mu_i = \mu_j)$ or $(\gamma = 0)$, which implies there is no hidden bias or unobserved selection bias.

Assume that the unobserved covariate is a dummy variable with $\mu_i \in (0,1)$, the bounds on the log-odds ratio that either of the two matched individuals will receive treatment is shown as follows:

$$\frac{1}{e^{\gamma}} \leq \frac{\frac{p_i}{1-p_i}}{\frac{p_j}{1-p_j}} = \frac{p_i \times (1-p_j)}{p_j \times (1-p_i)} \leq e^{\gamma} \tag{3}$$

If we donate $\Gamma = e^{\gamma}$, then both matched individuals have the same probability of treatment only if $\Gamma = 1$. Else, if for example, $\Gamma = 2$, individuals who appear to be similar (in terms of X) may differ in their odds of receiving the treatment by as much as a factor of 2. In this sense, Γ is a measure of the degree of departure from the estimation that is free of hidden bias, which requires statistics that have desirable properties in this respect. For binary outcomes, Aakvik (2001) suggests using the Mantel and Haenszel (1959) test statistic, which compares the successful number of individuals in the treatment group against the same expected number, given the treatment effect is zero. The basic idea then is to increase the influence of Γ and see if inference from the test statistic is changed.

Mantel–Haenszel test statistic can be written like this:

[53] This section mainly relies on Becker and Caliendo (2007), Caliendo et al. (2005) and Peel and Makepeace (2012).

$$Q_{MH} = \frac{|Y_1 - \sum_{s=1}^{S} E(Y_{1s})| - 0.5}{\sqrt{\sum_{s=1}^{S} Var(Y_{1s})}} = \frac{|Y_1 - \sum_{s=1}^{S} (\frac{N_{1s} Y_s}{N_s})| - 0.5}{\sqrt{\sum_{s=1}^{S} \frac{N_{1s} N_{0s} Y_s (N_s - Y_s)}{{N_s}^2 (N_s - 1)}}} \quad (4)$$

N_{1s} and $N_{0s}$are the numbers of treated and nontreated individuals in stratum S, where $N_s = N_{0s} + N_{1s}$. Y_{1s} and $Y_{0s}$are the numbers of successful individuals in treated and nontreated groups in stratum S, and $Y_s = Y_{0s} + Y_{1s}$. The 0.5 is subtracted as a continuity correction.

For fixed $e^{\gamma} > 1$ and $\mu_i \in (0,1)$, Rosenbaum (2002) shows that the test-statistic Q_{MH} can be bounded by two known distributions. As noted already, if $e^{\gamma} = 1$ the bounds are equal to the 'base' scenario of no hidden bias. With increasing e^{γ}, the bounds move apart reflecting uncertainty about the test-statistics in the presence of unobserved selection bias. Two scenarios are especially useful. Let Q_{MH}^{+} be the test-statistic given that we have overestimated the treatment effect and Q_{MH}^{-} the case where we have underestimated the treatment effect. The two bounds are then given by:

$$Q_{MH}^{+} = \frac{|Y_1 - \sum_{s=1}^{S} \widetilde{E_s^{+}}| - 0.5}{\sqrt{\sum_{s=1}^{S} Var(\widetilde{E_s^{+}})}} \quad (5)$$

$$Q_{MH}^{-} = \frac{|Y_1 - \sum_{s=1}^{S} \widetilde{E_s^{-}}| - 0.5}{\sqrt{\sum_{s=1}^{S} Var(\widetilde{E_s^{-}})}} \quad (6)$$

Where $\widetilde{E_s}$ and $Var(\widetilde{E_s})$ are the large sample approximations to the expectation and variance of the number of successful individuals in treated group when μ is binary and for given γ.

Appendix 2 Year-by-Year SEC's Enforcement Actions

Enforcement Actions by Fiscal Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Broker-Dealer	82	137	140	94	75	89	67	109	70	112
Delinquent Fillings	n/a	n/a	n/a	n/a	91	52	113	92	106	121
FCPA*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	20
Financial Frauds/ Issuer Disclosure**	163	199	179	185	138	219	154	143	126	89
Insider Trading	59	50	42	50	46	47	61	37	53	57
Investment Adviser/ Investment Co.	52	72	90	97	87	79	87	76	112	146
Market Manipulation	42	32	39	46	27	36	53	39	34	35
Securities Offering	119	109	99	60	61	68	115	141	144	124
Other	81	80	50	98	49	65	21	27	32	31
Total Enforcement Actions	598	679	639	630	574	655	671	664	677	735

Notes:

Data source: The SEC (2013) 'Year-by-Year SEC Enforcement Statistics'.
*Prior to Fiscal Year 2011, FCPA was not a distinct category and FCPA actions were classified as Issuer Reporting and Disclosure.
**Prior to Fiscal Year 2011, this category was reported as Issuer Reporting and Disclosure and included FCPA actions. In 2011, FCPA actions are tracked separately from financial fraud/issuer disclosure actions.

Chapter 4 Director Turnover Surrounding Securities Laws Violations

4.1 Introduction

Directors are expected to play a disciplining role in monitoring firm misconduct. The Ryan and Wiggins (2001) suggests, in their *Principles of Corporate Governance Code*, that directors 'maintain an attitude of constructive skepticism; they ask incisive, probing questions and require accurate, honest answers; they act with integrity and diligence; and they demonstrate a commitment to the corporation, its business plans and long-term shareholder value'. The U.K. Corporate Governance Code states that directors are 'responsible for the governance of their companies […] The responsibilities include […] supervising the management of the business […].' (Fahlenbrach et al., 2015;Grossman and Hart, 1983).

However, the likelihood that a director can play such a disciplining role is questionable. Although sitting on the board brings many benefits to directors, such as reputation, business connections, compensation and additional board appointments (Fama and Jensen, 1983;Lorsch and MacIver, 1990;Perry, 2000;Yermack, 2004), sitting on the board of a firm that is involved in misconduct can impose costs on a director in several ways. For instance, they may face an increased workload; suffer the potential loss of their board seat if they disagree with the management; experience significant reputational loss once the problems are revealed; and even be named as a defendant if the company is involved in a lawsuit. Therefore, an important question to ask is whether directors are likely to leave a firm to protect their reputation and minimize costs if the management commences misconduct.

Extant research documents that directors of firms filing for bankruptcy (Gilson, 1990), or involved in earnings restatements (Srinivasan, 2005), class action lawsuits (Langevoort, 2007), financial frauds (Fich and Shivdasani, 2007), internal control deficiencies (Johnstone et al., 2011), and stock-option backdating (Bereskin and Smith, 2014), experience increased risk of turnover and a reduction in the likelihood of securing future board seats. Their evidence is based on the public announcement or revelation of, rather than the commencement of, the negative events. Given the time point upon which they focus, it is difficult to get any indication of whether or not directors are present to play the disciplining role, and how internal governance mechanisms work when management start to engage in misconduct, for several reasons.

First, once a negative event is announced, it is most likely that a firm will be exposed to external governance systems, and it will be impossible to either manifest directors' concern over the underlying problem of the firm or observe their reaction to it, since their decisions will now be under pressure from external sources such as regulatory, market or media pressure. Second, other unidentified effects might confound the observed effects if research is based on the revelation date. As depicted in Karpoff et al. (2008), there are several important points in time along the timeline of a regulatory event (in their discussion, a Securities and Exchange Commission (SEC) Enforcement Action – see Figure 1), such as the trigger date, the informal investigation date and the formal investigation date. It is possible that a director might react to any of the three information events rather than just the announcement event;[1] therefore, the observed effects around the announcement date might be confounded by other unidentified events.

[1] Some negative events may not involve regulatory interference, such as some of the financial restatements and the disclosure of internal control weaknesses, but relevant research on these events also focuses mainly on the announcement date.

In contrast to the extant research on the association between director turnover and negative events, which focuses mainly on the ex-post effects of negative events on director turnover, this study focuses on the time horizon of the start of firm misconduct, and aims to explore directors' reactions to being confronted with it. Given the importance of the principal-agent relationship in modern corporations, this investigation helps us to understand whether or not a board of directors has the chance to play the expected disciplining role while management is doing wrong in the first place; and it contributes to our understanding of how internal corporate governance mechanisms work when management needs to be monitored intensively.

A small but growing body of literature has tried to unscramble internal governance mechanisms around firms' negative events and analyse the predictability of director departure for negative events (see, for example, Agrawal and Chen, 2011;Bar-Hava et al., 2013). A piece of research closely related to mine is that of Fahlenbrach et al. (2015) who propose that outside directors have incentives to quit ahead of troubles, when they anticipate that the firm on whose board they sit is going to disclose adverse news. However, my research contributes to the understanding of internal governance mechanism whereas their contribution lies mainly in the area of external governance mechanisms. They aim to examine whether directors anticipate trouble and leave firms before they are affected. However, they examine the occurrence of negative events following director departure, and the identification of negative events is based on the announcement dates or publicly filed dates rather than the commencement of the troubles for the firms. Thus, the incentive or pressure for a director to leave most likely comes from external forces such as regulators, media press or market force, rather than concerns over the underlying problem or misconduct of the firm. Therefore, their conclusions are more useful for interpreting the director labour market, while the

inferences that can be drawn about directors' attitudes towards misconduct per se, and the monitoring mechanism of internal governance, are limited. By focusing on the time point of the commencement of management misconduct, my paper is original in that it looks at whether there is an abnormal director turnover rate around the start of the misconduct period, to help us understand the presence of directors and whether they play the expected disciplining role when they are confronted with a serious principal-agent issue.

I exploit a unique setting in which the SEC implemented enforcement actions for firms that had not complied with security laws or regulations, to explore directors' reaction to the misconduct of firms, surrounding the commencement of the problems. The time point of the commencement of noncompliance in my sample is identified by enforcement actions brought by the SEC. Corresponding to the timeline in Figure 1, the violation start date is the focus of my study. Focusing on this date has the advantages of possibly avoiding the ex-post intervention of external forces and other confounding events during the regulatory process, and public disclosure since most regulatory investigations and media attention will not occur until the misconduct has been underway for a while.

I predict that, other things equal, directors have strong incentives to leave noncompliant firms around the beginning of the violation period, and that the departure is likely even without intervention from external forces. Those incentives include concerns about the increased workload necessary to prevent the firm from committing fraud, the possibility of being entangled in the misconduct and the consequent involvement in lawsuits, the potential damage to their reputation once the misconduct is revealed, and the potential subsequent loss of the directorship should they oppose the management.

However, there are doubts about whether directors can detect and respond to fraudulent behaviour at the point when this behaviour first begins. In particular, given the time point of focus in my study, there is less chance for potential information from external forces to help a director anticipate negative events. If they can perceive the upcoming problems, there must be private information channels that enable them to see the warning signs of the misconduct. To relax this 'private information' restriction, I identify two event dates to examine my prediction. The first one is the original noncompliance start date. The second is a shifted event date, an arbitrary number of days after the start of the violation period but before the violation becomes public. Given that focusing on this date allows violation to get underway for a period of time and possibly excludes the effects of a public announcement, the results will help to indicate whether a director might detect and respond to fraudulent behaviour through private information channels.

I find that, in general, firms not complying with securities laws (noncompliant firms) have a significantly higher director turnover rate around the start of noncompliance than control firms. Noncompliant firms are also more likely to have unexpectedly departing directors around the time of the start of noncompliance. However, when outside directors are examined separately, significantly higher director turnover is observed only for the pre-noncompliance period and not for the post-noncompliance period. These results suggest that directors are more likely to leave a firm when they perceive wrongdoing, while outside directors tend to leave before they could possibly be involved in the firm's wrongdoing.

This study makes several contributions to the literature. First, to my knowledge, this is the first study to focus on the time surrounding the commencement of noncompliance rather than the announcement or revelation of a negative event. It

extends the research that investigates negative events and director behaviour. Second, it contributes to our understanding of the internal governance mechanism between management and boards of directors, especially enhancing our observation of directors when a firm fails to comply with applicable regulations, laws or rules. Third, I exploit a unique data setting, i.e. the SEC's non-accounting enforcement actions, to explore directors' reaction to firms' negative events. I then assemble a hand-collected corporate governance dataset for these noncompliant firms and their compliant propensity-score-matched control firms. By applying comprehensive non-accounting data, I am less concerned about the capacity for generalizing the conclusion. Finally, my findings also have some policy implications. Dimmock and Gerken (2012) argue that there are shortcomings in the current governance system, wherein the majority of decisions regarding the fiduciary duty doctrine have developed in the director context but not on the exact nature and scope of officers' fiduciary duties. Consistent with this argument, my findings suggest that directors tend not to fulfil their expected disciplining role when they are confronted with management misconduct. To prevent firms from misconduct, it might be more efficient to hold misbehaving managers accountable rather than emphasize directors' disciplining role.

The rest of the chapter proceeds as follows. In Section 4.2, I review the literature and develop my hypothesis. Section 4.3 provides a description of the sample, data and methodology employed in the analysis. Section 4.4 presents and discusses the results of the empirical tests on the relationship between director turnover and noncompliance. Section 4.5 examines and demonstrates several alternative explanations. Section 4.6 concludes the chapter.

4.2 Literature Review and Hypothesis Development

While directorships provide substantial benefits to directors, there are also innate incentives and external forces encouraging them to stop serving on boards. Prior research has uncovered several determinants of director departure. For example, director turnover is more likely to be associated with negative stock returns (Yermack, 2004;Bar-Hava et al., 2013;Fahlenbrach et al., 2015); it tends to be the result of power struggles between management and director (Agrawal and Chen, 2011); it could be determined by directors' time and energy constraints (Masulis and Mobbs, 2014) and other directorship commitments (Fich and Shivdasani, 2006); a firm's poor operating performance, poor compensation and high risk are also found to affect director turnover (Bar-Hava et al., 2013;Asthana and Balsam, 2010).

A stream of research has investigated how negative corporate events impact director turnover. Results are mixed. Agrawal et al. (1999) examine a sample of firms that were charged with or suspected of fraud. They compare those firms that had committed fraud with a matched control sample, and find no evidence that firms that commit fraud experience higher director turnover. Using a sample of firms with litigation filings, Fich and Shivdasani (2007) also find no association between the revelation of fraud and director turnover, though they find that directors at firms that have committed fraud are more likely to lose their directorships at other firms. Similarly, Ertimur et al. (2012) find weak evidence of an association between director turnover and the announcement of firms' option backdating.

In contrast, Johnstone et al. (2011) report a positive association between the revelation of a material weakness in internal control and director turnover.Fahlenbrach et al. (2015) find that surprise director departure is more likely to be followed by the announcement of financial restatement, a security class action lawsuit or a relatively

poor merger and acquisition. Srinivasan (2005) finds that firms reporting income-decreasing restatements have higher director turnover than firms with income-increasing restatements and those with technical restatements.

Whether or not these studies find negative events to have an impact on director turnover, their findings are all based on the revelation, disclosure or announcement of the events. There are two potential concerns about this focus. First, since the revelation of these events is usually preceded by a long period of investigation, [2] it is possible that directors have taken action during the investigation period or even before the investigation when they anticipated it. As we can see from Figure 1, there are three important information events, i.e. the trigger date, informal investigation date and formal investigation date, after a violation of regulation or laws but before the announcement of the initial regulatory proceeding. This indicates that most of the research applying a negative event setting will potentially face problems in identifying the right event date. For example, as analysed by Karpoff et al. (2014), the initial dates associated with the events included in four popular databases (GAO, AA, SCAC, and AAER)[3] occur an average of 150 to 1,017 calendar days after the initial public disclosure of the financial misconduct.[4] Therefore, there could be confounding factors if identifying director turnover surrounding negative event disclosure dates.

[2] My untabulated results show that the average number of days between the end of noncompliance and the first enforcement action releases is 841, while the average length of time between noncompliance start and the first enforcement action releases is about 5.2 years. Similarly, Agrawal and Cooper (2014) document that the average (median) number of days between the first day of the quarter that is restated and the restatement announcement date is 733 days (586 days).

[3] GAO refers the Government Accountability Office's database of restatements; AA refers to Audit Analytics's database of restatements; SCAC refers to the Securities Class Action Clearinghouse database of securities class action lawsuits; AAERs refers to the SEC's Accounting and Auditing Enforcement Releases.

[4] Those initial revelation announcements could include the announcement of regulatory proceedings by regulators, the announcement of internal investigations, the revelation of SEC investigations of misconduct by firms, newspaper revelations, etc. Please see detailed discussion in Karpoff et al. (2014).

Second, director turnover around the revelation of negative events is more likely to be driven by external forces, such as regulatory, market or media pressure. Public announcement dates are often preceded by several other dates on which the public initially becomes aware of the ongoing negative events through other channels, such as media coverage and investigation announcements (Karpoff et al., 2014). This puts external pressure on directors, which might drive their departure. Therefore, research focusing on such dates might be helpful for our understanding of external governance mechanisms and the director labour market, but is constrained in terms of generating inferences about directors' response to management misconduct when the misconduct is actually ongoing.

Prior research shows that allegations of misconduct result in significant penalties in the form of losses in the value of a firm's equity (Murphy et al., 2009). Given the important role that a director is expected to play in disciplining managers, it is surprising that there is little research analysing directors' presence surrounding the time at which the misconduct first starts. In this chapter, I focus on the time point of the start of firm misconduct and aim to explore the presence of directors when they are confronted with the misconduct. I hypothesize that, other things equal, directors have strong incentives to leave noncompliant firms around the beginning of the violation period, and that the departure is likely even without intervention from external forces. There are three main arguments supporting my conjecture.

The first is that directors have strong incentives to maintain high reputations. Fama (1980) and Fama and Jensen (1983) posit that directors have a primary incentive to preserve and enhance their reputations as experts in decision control and monitoring in the labour market, and that the market prices their services according to their performance as referees. Directors' reputations will be harmed by being associated with

negative events, manifesting in a reduction in the current or future board seats (see, for examples, Srinivasan, 2005;Fich and Shivdasani, 2007;Fahlenbrach et al., 2015). If directors are serving on a board when the management is committing fraud, they may also be exposed to liability risk due to being involved in the misconduct or breaching their fiduciary duties in terms of monitoring. Brochet and Srinivasan (2014) show that about 11% of independent directors were named as defendants in a sample of securities class action lawsuits from 1996 to 2010. Therefore, to maintain reputation and avoid litigation risk, a director has an incentive to quit the board as soon as he/she notices that the firm is involved in wrongdoing.

The second argument is that a director may want to quit the board of a firm with troubles if there is a significant increase in their workload. For example, Vafeas (1999) demonstrates that the frequency of board meetings increases following poor stock returns. Most directors have heavy demands on their time, and they make strategic decisions on where to spend their limited time and energy (Masulis and Mobbs, 2014). Given the directors' dual role as advisers as well as monitors of management, a firm's management face a trade-off in disclosing information to the board: if they reveal information, they receive better advice; however, an informed board will also monitor them more intensively (Adams and Ferreira, 2007). Therefore, when managers want to conduct wrongdoing, they are more likely to hide information and engage in a range of signal-jamming strategies, which makes scrutiny more difficult (González et al., 2014). In that case, if directors want to monitor effectively, they will need to invest more energy and time in obtaining the right information due to the information barrier set up by the management. Moreover, directors face not only a significant increase in their workload, but also a high risk of a loss of reputation should they not be able to turn things around when the firm has been guilty of misconduct.

Third, a director tends to lose the directorship if she/he disputes the management. Agrawal and Chen (2011) analyse cases in which management and directors disagreed and directors left amidst dispute, and conclude that the conflicts appeared to be power struggles between the management and directors. Furthermore, according to Marshall (2010), a director who leaves a firm amid a dispute tends to suffer a net loss of board seats at other firms. Therefore, instead of challenging management, a director might be more likely to leave the firm.

Overall, I expect that these concerns about reputational cost, litigation risk, increased workload, and the consequence of disputing the management provide strong incentives for directors to leave firms that are guilty of misconduct. Therefore, I hypothesize that, other things equal, directors have strong incentives to leave noncompliant firms around the beginning of the violation period, and that departure is likely even without intervention from external forces.

Further, I expect that higher director turnover rates in noncompliant firms could occur prior to the start of noncompliance, for the following reasons. Directors may want to quit ahead of any problems, since their reputation will be contaminated, the litigation risk will be increased, and their workload will rise if they are sitting on the board while the management is committing fraud. This would be the dark side of the directors if they depart when the firms need them the most. Fahlenbrach et al. (2015) find evidence that outside directors are more likely to leave before bad news is announced, and the evidence is consistent with a scenario in which the independent director anticipates deteriorating performance at the firm and leaves to protect her reputation or because she anticipates a significantly higher workload. Asthana and Balsam (2010) also find that independent directors are more likely to resign when they expect a company to run into financial difficulties in the future. In my data setting, by focusing on internal governance

mechanism, I want to test whether the dark-side incentives that drive directors' departure prior to negative events exist or not.

Fahlenbrach et al. (2015) use restatement announcements and class action lawsuits publicly filed during the 12 months following directors' departure dates (or the annual meeting dates, whichever are available) to explore directors' predictions of and reactions to firms' negative events. However, a concern about their research design, which they acknowledge in their paper, is that directors who resign before a litigation or an earnings restatement could still see their reputations affected and even possibly suffer pecuniary losses and litigation risks, because quitting the board before noncompliance is revealed does not protect them from lawsuits if the misconduct occurred during their time on the board. Dou (2014) provides evidence to suggest that abandoning a firm before the disclosure of a negative event might not be a wise choice for a director since the penalties in the labour market for directors who leave are even higher than those for directors who remain. Therefore, the natural and rational response from directors should be to depart before they could possibly be entangled in the wrongdoing. However, in my data setting, in which I test this dark-side incentive prior to noncompliance, the key question that must be asked is whether directors can perceive upcoming wrongdoing that has probably not yet happened.

Anecdotal evidence indicates that concerns over future noncompliance could be the reason for directors' resignations. Two examples of reasons that directors gave for their resignation, which were disclosed publically in firms' 8-K filings, reflect this incentive. One example is as follows:

> 'I hereby resign as a Director of Fair, Isaac effective immediately. I am resigning because I disagree with the rest of the Board's willingness to grant 100,000 stock options to Tom Grudnowski in fiscal 2001. This was an incorrect decision for two principal reasons. First, the Company's 1992 Long-Term Incentive Plan limits the number of options which may be granted to any one employee to 50,000 a year. While it may be legal to

> grant Mr. Grudnowski 100,000 options, doing so would violate the spirit of the agreement among the Company, the Board and the shareholders embodied in the plan…'.[5]

Another example states that:

> 'Upon deliberation, I have decided to resign from the office of Chairman of the Board of Directors of AcuNetx, Inc., and as a member of the Board itself. My resignations will be effective immediately […] I have endeavored to coordinate and mediate concensus on the issues confronting us from time to time […] It does not work when the Board decides that it will not and cannot yet be fully Sarbanes-Oxley compliant, but allows the C.E.O. to announce to its shareholders that it will be Sarbanes-Oxley compliant and then reacts angrily when the Chairman notes that paying consulting fees to the Compensation Committee Chairman would be a violation of Sarbanes-Oxley…'.[6]

Empirical evidence also shows that directors have a range of strategies for keeping themselves informed, such as taking the initiative to ask the CEO questions, accessing executives, seeking a second opinion, checking the reliability of information (Nowak and McCabe, 2003), and using insiders as an additional source of information for the board (Raheja, 2005). Since directors are privy to private information, it is reasonable to assume that they are able, at least, to sense any wrong tone from the top and to judge the internal control system. Meanwhile, managers are more likely to engage in a range of signal-jamming strategies when they have something to hide (González et al., 2014), which could further warn the directors of potential noncompliance. Therefore, they may make a decision to leave the board before serious noncompliance issues emerge.

4.3 Sample Construction and Research Design[7]

To explore the association between director turnover and firm misconduct, I hand-collect a dataset of cases of the SEC implementing enforcement actions for firms

[5] Data source: the Form 8-K disclosed by the company on the SEC's electronic filing system (EDGAR) on June 1, 2001. https://www.sec.gov/Archives/edgar/data/814547/000095000501500212/0000950005-01-500212.txt
[6] Data source: the Form 8-K disclosed by the company on EDGAR on 5th May, 2006. https://www.sec.gov/Archives/edgar/data/1097575/000101968706001061/0001019687-06-001061.txt
[7] This section includes some discussion similar to that in Chapters 2 and 3, when necessary to ensure the integrity of this chapter. Data collection on noncompliance with securities laws or regulations is the same

that violated securities laws or regulations. This setting of noncompliance with securities laws provides several advantages for the investigation of my research question.

First, noncompliance with securities laws is an influential component among all types of firm misconduct. Most of the common misconduct that leads to SEC investigations involves the related parties, such as investors and consumers, who do business with the violating firm, which means there is a directly-related party whose benefits will be damaged by this violating behaviour.[8] Relative to other types of misconduct which do not directly affect the parties with whom the firm does business (such as violation of environmental laws), the related parties' misconduct usually triggers a larger loss of firm value (Karpoff and Lott, 1993;Karpoff, 2012;Murphy et al., 2009).[9] Therefore, investors as well as directors have major concerns over the firm when it is not complying with securities laws.

Second, identifying firm misconduct from external regulators gives the confidence that my research has a low Type I error rate.[10] This means firms without violations are less likely to be falsely included in my sample as noncompliant firms. Identifying firms from other sources or modelling firms' likelihood of committing fraud

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as that in Chapter 2, but I have added some discussion on data fitting for my research question in this chapter. The strategy and method for identifying the control sample is similar to that in Chapter 3; however, there is a second propensity score matching process, given the data availability on corporate governance in the control sample.

[8] Common conduct that may lead to SEC investigations include: (1) misrepresentation or omission of important information about securities; (2) manipulating the market prices of securities; (3) stealing customers' funds or securities; (4) violating broker-dealers' responsibility to treat customers fairly; (5) insider trading (violating a trust relationship by trading while in possession of material, non-public information about a security); and (6) selling unregistered securities. Resources come from the SEC's website: http://www.sec.gov/about/whatwedo.shtml.

[9] By reviewing different types of firms' noncompliance behavior, Karpoff (2012) concludes that the loss of market value far exceeds direct costs such as fines, penalties, and lawsuit settlements for some types of misconduct, which impose cost on their counterparties such as investors, employees, customers, suppliers, etc. However, for some other types of misconduct, which does not directly affect the parties with whom the firm does business, such as environmental violation, there appear to be small or negligible losses on top of the cost imposed by regulators and courts.

[10] Dechow et al. (2010) reason the pros and cons by using the SEC's Accounting and Auditing Enforcement Releases (AAERs) as a proxy for earnings quality. The same analogy applies in my setting.

has more chance of incorporating Type I errors. Meanwhile, the SEC has resource constraints which will lead to its enforcement decisions against the firms most likely guilty of serious misconduct, not the ones with insignificant effects on the related parties. This provides a powerful setting to examine directors' behaviour more clearly when they are confronted with severe principal-agent problems. Furthermore, the SEC's website provides comprehensive information on firms' noncompliance with security regulations and it is publicly available.[11]

Third, the SEC has the same regulatory power towards all registrants regardless of industry or size, which provides a good chance to generalize the conclusion from this study. In contrast, other types of misconduct do not have a universal regulator because the regulatory framework to which firms are subject also depends on which industry they operate in and what products they are producing. For instance, noncompliance with environmental regulation is mainly from the utilities and manufacturing sectors while noncompliance with product quality standards (measured by product recalls) varies with different products. Therefore, conclusions from identified misconduct from these specific settings might be hard to generalize.

There are three major stages for my data collection and sample construction. Collecting data on securities laws violation from the SEC's website is the first stage. I then match each noncompliant firm with a firm without a noncompliance issue to construct a control sample by a propensity score matching (PSM) method to make sure noncompliant and compliant firms are as similar as possible regarding the observable factors that affect a firm's misconduct and director turnover. Then I hand collect corporate governance data for both the noncompliance sample and control sample from

[11] The detailed discussion of securities laws noncompliance data is provided in Chapter 2.

each firm's proxy statements or 10-Ks and 10KSBs (in the case of small business issuers) when proxy statements are not available.[12]

4.3.1 Noncompliance with Securities Laws[13]

I collect information on noncompliance with securities laws using SEC enforcement actions. In the case of noncompliance, there are two types of action that the SEC can take: Federal Court Actions (civil actions) and Administrative Proceedings. The former are litigation releases concerning civil lawsuits brought by the SEC in a federal court, while the latter are orders and related materials released by the SEC when it brings non-judicial actions before an administrative-law judge. The SEC's decision to bring a civil action or administrative action may depend upon the type of sanction or relief that is being sought.[14] When the misconduct warrants it, the SEC can bring both types of proceedings. The SEC maintains an online publicly available database on litigation releases (hereinafter 'LR') and administrative proceedings (hereinafter 'AP') in the form of annual archives from 1995 onwards. I use this database to identify noncompliant firms (Please refer to Chapter 2 for information on sample selection). [15]

My sample includes enforcement actions brought by the SEC from 2003 to 2012. The data collection process for noncompliance events consists of five steps. The final

[12] Originally, I tried to employ BoardEx or Riskmetrics's corporate governance data instead of hand collection. However, only approximately 20% of my firms are covered by BoardEx. This is not a surprise because BoardEx initiated coverage of director and executive data for fewer than 100 U.S. companies in 1999. It has increased its coverage over time. The first main expansion of the database in 2000 added more than 1,500 large U.S. companies. The second expansion in 2003 added more than 2,000 companies (Chidambaran et al., 2010). My noncompliance events start from 1986, and over half of them are before 2003, therefore, I did not find a good coverage from BoardEx. Similarly, Riskmetic's data does not have a good coverage of my sample either.

[13] The full discussion of the noncompliance dataset is presented in Chapter 2. For the purpose of maintaining integrity and applicability, I repeat or rephrase some of the discussion in this chapter.

[14] For example, the Commission may bar someone from the brokerage industry in an administrative proceeding, but an order barring someone from acting as a corporate officer or director must be obtained in the federal court (SEC: http://www.sec.gov/about/whatwedo.shtml#.UyrILqh_uE4).

[15] There are two additional types of enforcement actions: opinions issued by Administrative Law Judges in contested administrative proceedings (ALJ Decisions) and opinions issued by the Commission on Appeal of Initial Decisions or disciplinary decisions issued by self-regulatory organizations such as NYSE or NASD (Commission Opinions). Since these two types of actions are not original enforcement actions related to firm misconduct, I do not include them in my sample.

sample incorporates 126 noncompliance events for 123 noncompliant firms. Please see more detailed description of this data-collecting process in Chapter 2. Table 1 describes the process of identifying relevant releases and final sample.

Table 2 reports summary statistics for the noncompliance events and firms. Panel A describes the distribution of the 126 noncompliance events across calendar years based on the violation-beginning years and violation-ending years. Relatively few noncompliance events commenced prior to 1995 and after 2009 in my sample. However, this does not necessarily mean noncompliance rarely happened in these years. Since my sample collection covers releases filed from 2003 through 2012, it is likely that noncompliance events occurring before 2003 were filed in years prior to 2003, thus not included in my sample. Likewise noncompliance events that commenced in more recent years have not yet been investigated by the SEC, and are thus not included in my sample. The period from 1999 through 2003 includes the commencement of more than half (59.5%) of the noncompliance events.

Panel B in Table 2 reports the industry distribution of the 123 noncompliant firms based on the industry classification scheme in Frankel et al. (2002) and Dechow et al. (2011). Noncompliant firms cluster in certain industries. For example, 57.73% of the noncompliant firms come from three industries: Durable Manufacturers (21.14%), Banks & Insurance (20.33%), and Computers (16.26%). Since Banks & Insurance have 20.13% proportion of COMPUSTAT population, this industry is not overrepresented in the noncompliance sample. However, both Durable Manufacturers and Computers compose only approximately 11% of the population on COMPUSTAT whereas their noncompliance rates are relatively higher. Meanwhile, Chemicals also has a higher noncompliance rate relative to its representation in the COMPUSTAT population.

Table 3 reports summarized characteristics for the 126 (123) noncompliance events (noncompliant firms). Panel A shows that approximately 60% of the noncompliance events have a violation period of less than 1,000 days while about 25% of the events have a duration between 1,000 days and 2,000 days. The mean (median) of the noncompliance event duration is 1,052 (653) days. Four acts form the basis for the SEC's investigations: the Securities Act of 1933, the Securities Exchange Act of 1934, the Investment Company Act of 1940, and the Investment Advisers Act of 1940. Noncompliance events can involve multiple acts and multiple subsections under one act. Table 3, Panel B reports the distribution of violation events by securities acts. Most of the violation events involve the Securities Act of 1933 (45.2%) and Securities Exchange Act of 1934 (85.7%). As shown in Panel C of Table 3, the mean (median) noncompliance event involves 2.44 (1.59) subsections of securities laws, and 42 events involve violations of a single subsection while the highest number of subsection violations is 8 (three cases). Panel D shows that 62.61% of the noncompliance events involve CEO and/or president, and 18.26% also involve other top management. The cases that involve CFO and general counsel/compliance officer count for 16.52% and 13.04%, respectively.

4.3.2 Identifying a Control Sample for Noncompliant Firms

My sample of noncompliant firms is based on observed, noncompliant behaviour, which creates a risk of selection bias because firms' noncompliance is a strategic choice that management make after weighing the costs and benefits (Robinson et al., 2011). A challenge in observational studies is that, while treated outcomes are observed, we cannot observe what the outcomes would have been in the untreated state (i.e. the absence of counterfactuals). This problem means that researchers are unable to compare the outcome difference between being treated and untreated for a given firm

to evaluate the effects of treatment (for more details, see Peel and Makepeace, 2012;Tucker, 2010).

In an approach that is similar to the one implemented in Chapter 3, I apply propensity score matching (PSM) to identify control firms, and implement several tests to examine covariate balance, which is one very important precondition for the validity of PSM. In my matching model, PSM is based on one-one nearest neighbour match with common and without replacement.

In terms of the specification of the PSM model, the selection of variables is a trade-off between efficiency and bias.[16] Since my noncompliance sample is small relative to the control population, it is important not to over-parameterize the model. Therefore, I only incorporate the factors predicted to affect both the noncompliance decision and director turnover. Masulis and Mobbs (2014) find that firm size is a natural source of directors' reputation incentives. Therefore, it has a large effect on the supply of outside director services. Financial distress, firm performance and leverage have also been found to influence directorship (see, for examples, Gilson, 1990;Yermack, 2004;Fich and Shivdasani, 2007;Johnstone et al., 2011;Fahlenbrach et al., 2015). Similarly, these factors have also been found to influence the probability of firm misconduct, the occurrence of lawsuits, and the quality of internal control (e.g. Dechow et al., 2011;Kedia and Rajgopal, 2011;Doyle et al., 2007;Ashbaugh-Skaife et al., 2007;Thevenot, 2012;Files, 2012;Rice and Weber, 2012;Nagy, 2010). Prior research also documents a positive association between litigation exposure and auditors' incentives to provide high audit quality (Schwartz and Soo, 1996;Khurana and Raman, 2004;Venkataraman et al., 2008). I also incorporate firm age into the model because a

[16] Please refer to the discussion in Chapter 3 for model specification when applying PSM.

firm's operating history is often treated as a financing risk factor (see, for example, Hanley and Hoberg, 2012).

The model is as follows:

$$Log\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 ROA_i + \beta_2 SIZE_i + \beta_3 LEVERAGE_i + \beta_4 LOSS_i + \beta_5 BIGN_i + \beta_6 AGE_i + \beta_7 YEAR + \beta_8 INDUSTRY, \quad (1)$$

where p_i is the latent probability that firm i fails to comply with securities laws (y_i=1). The vector of explanatory variables in equation (1) is calculated at year t. The definitions of the explanatory variables are as follows: ROA is operating income divided by total assets (COMPUSTAT item OIBDP/AT); $SIZE$ is the natural log of market capitalization (outstanding common stock times year-end share price (COMPUSTAT items CSHO $*$ PRCC_F); $LEVERAGE$ is the sum of debt in current liabilities and long-term debt divided by total assets (COMPUSTAT items (DLC + DLTT)/AT); $LOSS$ is an indicator variable taking a value of 1 if Income Before Extraordinary Items (COMPUSTAT item IB) is less than zero, and 0 otherwise; $BIGN$ is an indicator variable taking a value of 1 if the firm engages a Big Five auditor, and 0 otherwise (COMPUSTAT item AU); AGE is the natural log of firm age (calculated as the number of years to date that the firm has appeared on COMPUSTAT). I also include year and industry indicators in the regression to control for differences in securities law noncompliance over time and across industries. Tables 4 and 5 report the results from the logistic regression for PSM and the covariate balancing tests, respectively.

Table 4, Panel A reports parameter estimates and summary statistics for the logistic noncompliance model used to generate propensity scores for matching. The results are consistent with prior research. Coefficient estimates reveal that firms are more likely to violate securities laws if they are larger ($SIZE$), performing poorly (ROA), audited by small auditors ($BIGN$), and are young (AGE). The marginal effects

(calculated as proportionate change in implied probability) reported alongside the coefficients quantify the economic effect for each covariate. The probability of noncompliance declines by 10% when ROA increases from its first quartile to third quartile and all remaining covariates are set to their median value. The probability of noncompliance with securities laws increases by 108% when $SIZE$ (logarithm of market capitalization) increases from first quartile to third quartile and decreases by 58% for a comparable increase in AGE (logarithm of firm age). The probability of noncompliance with securities laws is almost 50% lower for firms with BIG 5 auditors. These effects are also statistically significant at the 1% level. Consistent with Panel B of Table 2, untabulated results also demonstrate that industries have uneven probabilities to violate securities laws. The Pseudo R^2 of the logistic regression is 14% and the likelihood ratio chi-square of it is statistically significant at the 1% level.

Panel B of Table 4 reports the distribution of propensity scores for the securities laws noncompliance sample and the entire control group population prior to matching. Comparing the two distributions reveals that noncompliant firms and control firms differ significantly in their probabilities of noncompliance before matching.

Columns (3) and (4) of Table 5 report the means of the covariates for the noncompliance group and the control group, respectively. Column (5) presents the standardized bias for each covariate in the pre-matching and post-matching samples, while column (6) presents the percentage reduction in covariate bias. [17] The t-tests are the parametric tests of differences in the covariate means between the samples, while the Wilcoxon test provides nonparametric comparisons. The t-tests reveal that, while ROA, $LEVERAGE$, $BIGN$, and AGE differed across the two samples prior to the

[17] For each covariate *x*, the standardized bias is defined as the difference between the sample means for the treatment and matched control samples, as a percentage of the square root of the average of the sample variances of the two samples.

matching, subsequent to matching the means are not statistically different. I follow Peel and Makepeace (2012) in considering standardized biases of less than $\pm 10\%$ after matching as acceptable, although the lower is the post-matching bias of each covariate, the better. All the covariates meet this criterion after matching, with the exception of *AGE*, which has a standardized bias of -20.6%. However, because *AGE* is the natural log of firm age, what I really want to achieve through this matching is that firm age is indifferent between noncompliant and control firms. I, therefore, recheck the differences in firm age between the after-matched two groups. Columns (9) to (11) show that the mean of differences in ages of paired noncompliant and control firms is as small as -0.309, and it is statistically insignificant. This indicates that my matching quality is good regarding all the variables incorporated in the model.

The pseudo-R^2s before and after matching are 0.138 and 0.046, respectively, indicating that the covariates explain the participation probability well before matching. After matching, there should be no systematic differences in the distribution of covariates between the two samples, and therefore the pseudo-R^2 should be low (Caliendo and Kopeinig, 2008). Furthermore, the likelihood ratio tests on the joint significance of all regressors in the logistic model are not rejected prior to matching but are rejected after the matching has been implemented. This also suggests that the matching quality is good. The Wilcoxon test provides similar evidence.

Collectively, the results in Table 5 demonstrate a substantial reduction in the differences between the pre-matched samples, providing confidence that the impact of noncompliance on director turnover can be estimated for firms with similar observed characteristics.

4.3.3 Corporate Governance Data Collection

Information on corporate governance for each noncompliant firm and its paired control firm is manually collected from proxy statements, or Form 10Ks or 10KSBs (Form 10KSBs in the case of small business issuers) when a proxy statement is not available. I extract corporate governance data for five years, centred on the start year of the noncompliance period.

I use the director's status on the board indicated in the proxy statements of consecutive years to identify director turnover for the years of my sample period.[18] Besides director turnover metrics, I also gather information on both individual characteristics of directors and firm-level corporate governance characteristics. According to Yermack (2004) and Srinivasan (2005), director age, gender, tenure, membership of key committees and stock ownership are associated with director turnover. Therefore, for individual-level data, I gather information including age, gender, years on the board, stock ownership, whether the director is the CEO, chairperson, CFO, an executive or non-executive, a member of a key committee. In addition, directors with legal expertise might respond differently to noncompliance than those without such expertise, as their natural focus of attention and interest may lead them to have a particular perception of legal risk (Langevoort, 2007); therefore, I also collect data on whether a director has a legal background from the director profiles disclosed in the proxy statements.

Firm-level corporate governance characteristics, such as board size and board structure, are widely discussed or controlled in previous research on corporate governance and director turnover (see, for example, Agrawal and Chadha, 2005;Hazarika et al., 2012). Therefore, I also collect data on key committees' sizes, the

[18] Please see the next section for a detailed discussion on how I measure director turnover.

duality of CEO and chairperson, whether the board is staggered, the number of outside directors with financial expertise, and the percentage of company shares that all directors and officers beneficially own. I also look for whether the reason for leaving is identified as 'DEATH' or 'HEALTH', because this is helpful for identifying directors' incentives for their departure.

During this process of collection, four noncompliant firms are dropped from my sample due to unavailable corporate governance data, resulting in 90 noncompliant firms with corporate governance data. Among their 90 paired control firms, only 76 have corporate governance data available. To minimize the loss of available observations, I select the second closest firm using PSM if the closest firm has no corporate governance data available, which provides 11 more control firms.[19] Thus, my final sample for analysis consists of 90 unique noncompliant and 87 unique control firms. The difference in the numbers of noncompliant firms and control firms means that there are three noncompliant firms with no matched control firm in any year within the five years that I collect data for. I keep these three firms in the analysis within the noncompliance sample, but exclude them when running paired tests. Since firms may not have data available for every year within the five-year window, my final sample includes 810 firm-year observations (390 for the noncompliance sample and 420 for the control sample), and 6,293 firm-year-director observations (3,034 for the noncompliance sample and 3,259 for the control sample). Panel A of Table 6 records this sample construction process.

Panel B of Table 6 provides summary statistics for the noncompliance sample and the control sample, and the differences in their respective governance characteristics. The summary statistics are at the firm-year level for the five-year

[19] I checked several alternative measures for the covariates balancing test. Untabulated results showed that the covariates balancing condition still held.

window, and are separately reported by firm-level governance structure and firm-level director attributes in rows (1) and (2). Both my noncompliance sample and my control sample have relatively smaller board sizes (7.3 and 7.4, respectively) than those in Fahlenbrach et al. (2015) and Duchin et al. (2010) (who report figures of approximately 9 and 9.5, respectively). This is not a surprise, because the datasets they employed were provided by the Investor Responsibility Research Center (IRRC), which mainly covers large firms.[20] Generally, row (1) of Panel B shows that noncompliant firms and control firms do not differ in terms of multiple important measures of governance structure, such as board size, duality of CEO and chairperson, whether board selection is staggered or not, whether the firm has three key committees (audit committee, compensation committee, and nomination committee), the sizes of the three key committees, and the percentage of company shares that all directors and officers beneficially own.

As shown in the last column of Panel B in Table 6, regarding firm-level directors' characteristics, the boards of the noncompliant firms and the control firms are similar in most of the attributes, including average age, number of outside directors with financial expertise, the number or percentage of directors with a legal background, and whether there is legal expertise on board. The noncompliant firms seem to be more likely to have a higher percentage of female directors and outside directors than the control firms. Furthermore, the median of the percentage of outside directors is 66.7% in both the noncompliance and control samples. Over half of the firms in both samples have no female directors.

[20] The IRRC's universe is drawn from the Standard & Poor's (S&P) 500 as well as the annual lists of the largest corporations in the publications of *Fortune, Forbes,* and *Businessweek.* The IRRC's sample expanded by several hundred firms in 1998 through the addition of some smaller firms and firms with high institutional ownership levels (Gompers et al., 2003). Therefore, this dataset mainly includes the largest firms and some specifically filtered small firms.

However, it is interesting to see that the noncompliant firms are more likely to have CFOs on their boards than the control firms. This difference is also economically meaningful. As we can see from row (2), 25.8% of the noncompliant firms have CFOs on their boards, while only 14.5% of the control firms have this attribute. It seems reasonable that there would be this difference, because the management will usually need a CFO on the board to facilitate and conceal their misconduct. This is consistent with the evidence in Feng et al. (2011), showing that CFOs are involved in accounting fraud because they succumb to pressure from CEOs. In general, the results from Panel B of Table 6 confirm that the noncompliance sample is very similar to the control sample regarding not only the covariates from the PSM model but also the overall corporate governance arrangement.

4.3.4 Directors' Turnover Measures

I first generate five key indicators to describe a director's status regarding their directorship on a board. The status each year is judged based on the records in the proxy statements from the previous year and the current year.[21] Using these indicators, I construct three sets of director turnover measures. The five key indicators are 'staying', 'newly joining', 'unnominated', 'departing' and 'unexpectedly departing'. Figure 2 provides a description of these indicators.

A director is defined as 'staying', with no change in their directorship, if they are listed in proxy statements of the previous year and the current year, and are defined as 'newly joining' if they were not listed in the proxy statement of the previous year but do appear in that of the current year. Likewise, if a director is listed in the current year's proxy statement but is mentioned as not having been nominated for board election for the following year, they are defined as 'unnominated' in the current year. A director

[21] Though the data are actually collected from proxy statements, 10Ks, and 10KSBs as appropriate, for the purpose of briefness, hereafter I will refer to the data source as proxy statements only.

who is not nominated is expected to leave the board in the next year. If a director was listed in the previous year's proxy statement but is not listed in the current year's, they are defined as a 'departing' director. Finally, if a director leaves during their serving year without being mentioned as not having been nominated in the previous year's proxy statement, and if the departure is not due to death or retirement, they are defined as an 'unexpectedly departing' director. Note that these categories are not mutually exclusive. For example, 'unexpectedly departing' directors are a subset of 'departing' directors, and 'unnominated' directors are a subset of 'staying' directors.

With these key indicators, I define three sets of director turnover measures. The first set of measures includes two variables: the number of departing directors and the number of unnominated directors, without differentiating outside from executive directors. It is meaningful to look at the two figures separately since the first measure captures the number of the directors who are not serving on the board any more, while the second measure captures the number of directors who are scheduled to leave the board.

The second set of measures proxies for unexpected director turnover, again without differentiating outside from executive directors. Directors have incentives to leave firms when they perceive that the latter are likely to violate laws. Since the penalties in the labour market are even higher for directors who serve on boards during firms' misconduct, but abandon their firms before the wrongdoing is detected, than for directors who remain during the negative events (Dou, 2014), it would be a rational choice for directors to leave risky firms as soon as possible, before potentially becoming entangled in the violations. Therefore, a direct test to examine whether directors anticipate and leave firms before they are affected by negative events can be run by using a proxy for unexpected or surprise departure. This is consistent with Fahlenbrach

et al. (2015) proposal, in which they focus mainly on surprise departures. Therefore, I investigate the unexpectedly departing directors' turnover as well.

I use a different method for identifying unexpected departures from that of Fahlenbrach et al. (2015). The latter have a large sample of director departures, and apply Cox proportional hazard regression to predict the survival function for a director, before using an arbitrary cutoff to estimate unexpected director turnover. I read through the proxy statements for consecutive years to identify unexpected departures. Usually, a firm informs investors well ahead of the normal expected departure date, by mentioning that the director is not nominated for board election for the following year. If there is no information to say that the director's service on the board will cease in the following year, but then the director is not on the following year's board, I identify this director's departure as unexpected. This set of variables includes a measure for the number of unexpectedly departing directors, as well as an indicator variable for them.

There is a trend of corporate governance reform that emphasizes the role of outside directors more than before. Relative to executive directors, outside directors have loose bonds with the firm and face different trade-offs when deciding whether to stay on a board or resign (Fahlenbrach et al., 2015). Therefore, it is worth investigating how outside directors alone respond to fraudulent behaviour. My third set of proxies is thus used for measuring the unexpected turnover of outside directors only. It consists of a measure for the number of unexpectedly departing outside directors, and an indicator variable for their turnover.

4.3.5 Research Design

Based on the matched-pair sample, I perform paired t-tests to analyse the difference in the director turnover rates, which are respectively proxied by the three sets of key director turnover measures, between the noncompliant firms and the control

firms. To maximize the chances of capturing director departures, my examination covers five years surrounding the start of an event period, i.e. from two years prior to noncompliance to two years post noncompliance start.

I identify two event dates in order to test my underlying prediction that directors have strong incentives to leave noncompliant firms around the start of the violation period, and that such departures are likely even without intervention from external forces. The first date is the year in which the violation period started. I apply this examination for the complete matched-pair sample. The second is the year of a shifted event date, which is defined as the violation start date plus six months. I apply this examination for the subset of cases in which the public announcement of the violation occurred at least two years after the violation start date.

The reason for implementing this design to test my prediction is as follows. First, there is some concern over using the start of the violation period as the event date. Although both anecdotal and empirical evidence show that directors, as firm insiders, have several channels for achieving insider information (Nowak and McCabe, 2003;Raheja, 2005), it might still be questionable whether directors can detect and respond to fraudulent behaviour at the point at which this behaviour first begins. Shifting the event date to a date after the noncompliance has started means that such fraudulent behaviour has been underway for a period of time, which means that the directors have a better chance of being aware of it. Furthermore, by requiring that the first public announcement of noncompliance occurred at least two years after the violation start date may exclude the effects of public announcements; therefore, the results will help us to understand whether directors detect and respond to fraudulent behaviour through private information channels.

For both of these focuses, I examine the difference in director turnover rates between noncompliant firms and control firms for four windows, i.e. window (t-2, t+2), window (t-2, t-1), window (t, t+1), and window (t+1, t+2). The first window provides the overall view on director turnover rates surrounding noncompliance events. Based on my prediction, I expect to see director turnover rates higher in noncompliant than control firms. Then, I separate the sample into observations prior to and post the start of noncompliance. The second window examines director turnover prior to the start of noncompliance while the other two windows examine director turnover post the start of noncompliance. If directors have private information alerting them to the risk that a violation will occur, and therefore choose to leave before that risk crystalizes to protect their reputations and minimize the costs to themselves, I expect to see that the higher director turnover rates in noncompliant firms are more pronounced prior to the start of noncompliance than afterwards. However, if directors cannot foresee upcoming violation events, they may choose to leave after the start of noncompliance but before it is publicly known about.

4.4 Results

This section reports the results for the two sets of matched-pairs univariate tests, by centring the analysis on the two different event dates mentioned in Section 4.3.5. The first set of tests reported in Table 7 examines a five-year window centred on the start year of the noncompliance period. For the second set of tests, I replicate the analysis in Table 7, focusing on the shifted event date.

4.4.1 Original Event Date

Table 7 reports mean values in the noncompliance and control samples, and the difference in means, for three sets of director turnover measures, focusing on the year in which the violation period started. I report the results in three panels: the number of

departing directors and the number of directors who were not nominated (Panel A); unexpectedly departing director turnover using both the number of such directors and an indicator of whether there was such a director in a given firm-year (Panel B); and unexpectedly departing outside director turnover, again using both the number of such directors and an indicator of whether there was such a director in the firm-year (Panel C).

Panel A of Table 7 shows that the numbers of departing directors and unnominated directors are both higher in the noncompliance group relative to the control group for all four windows that I examine. For the window centred on the noncompliance start year, i.e. window (t-2, t+2), the noncompliant firms on average have 0.687 (0.786) departing directors (unnominated directors), while the control firms on average have 0.45 (0.566) departing directors (unnominated directors), and the differences in both measures are significant at the 1% level. When looking at the window prior to the start of noncompliance, i.e. window (t-2, t-1), the noncompliant firms on average have 0.428 (0.596) departing directors (unnominated directors), while the control firms on average have 0.228 (0.368) departing directors (unnominated directors), and the differences in both measures are significant at the 5% level. For the two post-noncompliance windows, i.e. window (t, t+1) and window (t+1, t+2), both measures of director turnover are higher in noncompliant firms than control firms, though the differences are not statistically significant in window (t, t+1).

Panel B shows results for the differences in unexpected director turnover. Similarly to the results in Panel A, both measures, the number of unexpectedly departing directors and the indicator of whether there is an unexpectedly departing director in a given firm-year, are higher in the noncompliant than the control firms. Moreover, the

differences are significant at the 1% or 5% level, except in the case of one of the post-noncompliance windows, (t, t+1).

Panel C reports results for unexpected outside director turnover alone. Consistent with the other measures for director turnover shown in Panel A and Panel B, both the number and the indicator measure for unexpected outside director turnover for the window centred on the noncompliance start year are significantly higher in the noncompliant firms than in the control firms. Consistently, I find strong evidence (at the 1% significant level) using both measures for the window prior to the start of noncompliance. These differences are economically meaningful as well. For example, the chance of having an unexpectedly departing outside director in a noncompliant firm is 19.2%, while it is only 7.4% for control firms. The difference is more than 10%. However, interestingly, there is no significant difference in outside directors' unexpected departures in either of the two post-noncompliance windows. This evidence suggests that, given their loose bonds with firms (Fahlenbrach et al., 2015), outside directors tend to leave problematic firms before there is any possibility of their being involved in the firms' wrongdoings. This is consistent with the extant research showing that the labour market assigns greater penalties to pre-emptive directors who resign immediately before negative events become crystalized, than to directors who stay (Dou, 2014).

In general, those results are consistent with my prediction that, other things equal, directors have strong incentives to leave noncompliant firms around the start of the violation period. Furthermore, when looking at outside directors alone, the evidence of higher director turnover rates in noncompliant firms is more pronounced prior to the start of noncompliance than afterwards.

4.4.2 Shifted Event Date

Shifting the event date to six months later than the violation start date for a subset of cases in which the first public announcement of noncompliance occurred at least two years after the violation start date, this set of tests replicates the analysis in Table 7, and reports the results in Table 8.

In findings that are highly consistent with the results in Table 7, the noncompliant firms have significantly higher director turnover (regarding all six different measures) than the control firms in the window centred on the shifted event date [window (t-2, t+2)] and the window prior to the start of noncompliance [window (t-2, t-1)], and the evidence is in fact even more pronounced. For example, in the window (t-2, t+2), the number of departing directors increases to 0.763 for noncompliant firms in the shifted-event sample (Panel A of Table 8), from 0.687 for noncompliant firms in the original-event sample (Panel A of Table 7); in the window (t-2, t-1), the number of departing directors increases from 0.428 for noncompliant firms in the original-event sample (Panel A of Table 7) to 0.634 for noncompliant firms in the shifted-event sample (Panel A of Table 8). This trend happens for all the measures across the three panels in window (t-2, t+2) and window (t-2, t-1). Furthermore, all the results in the pre-event window become statistically significant at the 1% level, while some of the results in the same window in Table 7 were only significant at the 5% level.

Again, consistent with Table 7, although noncompliant firms generally have higher director turnover rates in the post-event window, the differences in the measures, in Panels A and B, between the noncompliant and control firms, are not statistically significant for window (t, t+1). When looking at unexpected outside director turnover alone, in Panel C of Table 8, neither of the two measures shows a significant difference between the noncompliant and control firms in either of the two post-event windows.

These results in Table 8 address the concern over using the start of the violation period as the event date, given that it is questionable whether directors would be able to detect and respond to fraudulent behaviour at the point at which it first begins, and they further confirm my prediction. Since this set of tests is only conducted within a subsample for which the first public announcement/disclosure of the firm's violation came two years after the start of the violation, it is more likely that the directors would have been informed through internal information channels and governance mechanisms, rather than through external forces. If the directors had been influenced by external forces and been better informed, we should have obtained more pronounced results in the full sample, where there was no requirement for the late release of public information, than in this subset. Further, we should not have seen much of a difference between the original and shifted event settings, if there were no internal information channel through which directors could be informed. However, I do find more pronounced results within this subsample, which provides confidence that my interpretation of the abnormal director turnover rates surrounding the start of the noncompliance event is grounded.

4.5 Robustness Checks and Alternative Explanations

4.5.1 Director Turnover and Corporate Changes

There are several possible explanations for higher director turnover in noncompliant firms. For example, it could be that there are significant changes in corporate control or corporate restructuring around the noncompliance events, which drive the changes of directors. It could also be possible that there are significant corporate governance changes that drive the director departures. This section addresses these two concerns.

First, if there were significant corporate restructuring happening, it is likely that we would also observe significant changes in CEOs. Using the measures for unexpected director departures, I replicate the analyses in Tables 7 and 8 for the subset of noncompliance cases in which there are no CEO turnovers. The results are reported in Table 9.

Panel A of Table 9 shows that, for the cases without CEO turnover, the numbers of unexpectedly departing directors and unexpectedly departing outside directors are both higher (mean differences are both 0.162) in the noncompliance group relative to the control group for the pre-noncompliance window, i.e. window (t-2, t-1), and the difference in the number of unexpectedly departing directors is statistically significant at the 5% level. Panel B of Table 9 reports the results from the tests conducted in a subset of the noncompliance sample and its matched-pair control sample. This subset of the noncompliance sample is filtered by the same criteria as used for Table 8, thus containing the cases for which the first public enforcement releases occurred at least two years after the start of noncompliance. The shifted event date in Panel B is six months after the violation start date, and Year t is defined as the year of the shifted event date. The results show that, for the cases without CEO turnover, the numbers of unexpectedly departing directors and unexpectedly departing outside directors are still both higher (on average, 0.326 more directors and 0.303 more outside directors depart from noncompliant firms) in the noncompliance group than in the control group for the pre-noncompliance window, i.e. window (t-2, t-1), and the difference is statistically significant at the 1% level. These findings are consistent with my main results in Tables 7 and 8.

For both of the subsamples in Panels A and B, not like the observed evidence without controlling CEO turnover in Table 7, the difference between the noncompliance

sample and the control sample is no longer significant for the post-noncompliance period. This indicates that, after noncompliance has started, both director turnover and CEO turnover are higher in the noncompliant firms than the control firms. This finding is consistent with Agrawal and Chen's (2011) finding that board disputes rarely occur just among (outside) directors and usually involve a firm's top management. The power struggle between the directors and the top management might result in internecine effects on both, explaining why the significantly higher director turnover rate in the noncompliant firms during the post-noncompliance period disappeared after controlling for CEO turnover. To further control for significant corporate events, such as restructuring and mergers and acquisitions, which may co-drive CEO and director turnover, I also follow Fahlenbrach et al. (2015)'s method of excluding firm-years in which more than five directors departed, as such departures are likely to have been due to a corporate control event. The inferences are not affected by the change.

Next, I test the governance changes between the pre-noncompliance period and the post-noncompliance period to find out how likely it is that the director turnover was driven by systematic corporate governance changes. To examine the changes in corporate governance characteristics, I calculate the differences in key corporate governance variables between years t-1 and t+1 to allow for some variability within corporate governance. Table 10 reports these results.

Columns (1) and (2) of Table 10 report the t-tests for the changes in several governance measures in the noncompliance and control samples, respectively; column (3) reports the paired t-test for the changes in the noncompliance sample relative to the changes in the control sample.

As shown in column (1), except for the two naturally time-variant variables, i.e. CEO's time on the board and directors' average time on the board, only two governance

characteristics changed from before to after the start of noncompliance at the 10% significance level. There are increases in the number of outside directors with financial expertise and in the percentage of female board members. However, when we compare these changes with the changes in the control samples, they are no longer significant. Interestingly, board size decreased post-noncompliance in the noncompliance sample, while it increased in the paired control sample, and this difference is significant at the 10% level. This shrinkage in board size in noncompliant firms is consistent with González et al. (2013), who find that directors are often not replaced when they resign, if the management has some wrongdoing to hide. This further confirms my conclusion that director turnover is mostly likely due to the potential wrongdoing and not systematic corporate governance changes. All the other governance characteristics remain stable from before to after the start of noncompliance, relative to the control sample.

4.5.2 Noncompliance with Different Levels of Severity

Given the benefits directors reap from sitting on boards, they may not readily give up their directorships when they perceive problems. I assume that director turnover should have a stronger association with more severe noncompliance behaviour for the following two reasons. First, since more severe noncompliance has its origins in or is caused by the behaviour of top management, it might be identified more easily by directors. Second, once directors perceive upcoming wrongdoing, they may not find it easy to leave, or they may only leave if they believe the wrongdoing is severe enough to affect their reputation, increase their workload significantly, and/or lead to the loss of other board seats.

I expect that violations over long periods will be related to more severe problems. Therefore, I divide the sample into two based on the median length of the violation

period. Column (1) in Table 11 presents the results for the paired sample for noncompliance events with a violation period longer than the median length (731 days) across all noncompliant firms, while column (2) presents those for the remainder of the noncompliance sample.

Panel A, B, C and D report the results for a five-year window centred on the start of noncompliance, the pre-noncompliance window, and the two post-noncompliance windows, respectively. Generally, across all the windows, noncompliant firms have higher director turnover than control firms in both the long-violation-period and the short-violation-period noncompliance samples, for all measures of director turnover. However, most of the differences in the short-violation-period noncompliance sample are no longer statistically significant. For the pre-noncompliance window, I consistently observe firms with a long period of noncompliance having significantly higher director turnover than the control firms, for all measures of director turnover. This sensitivity to noncompliance severity further confirms that noncompliance impacts on director turnover.

4.5.3 Other Alternative Explanations

There could be another alternative explanation for the evidence of unusually high director turnover rates surrounding noncompliance. Directors may be dismissed by management if they are reluctant to condone or aid their misconduct. However, this interpretation is unlikely because I do not observe consistent evidence of a significantly positive association between the strength of the management and director turnover. Those proxies for management power include the dual role of chairman and CEO, the years that the CEO has been on the board, and whether the board is a staggered one. Nevertheless, this study aims to examine whether or not directors are present when firms are doing wrong, and whether they have the chance to play the disciplining role

as expected. Therefore, it would not affect the inference from my findings even if this interpretation stood. However, this issue could be a very interesting one to explore in more depth so as to provide a better understanding of internal governance mechanisms.

Another alternative interpretation of my results is that director departures and the resulting disruption to board monitoring increases the probability that a violation will occur. This is true when management turnover is taking place. Usually, when a firm experiences management turnover, the new managers will want to implement new policies, and will not keep a close eye on previous policies. This creates loopholes in the management, which might result in noncompliance. However, since directors are not responsible for daily monitoring or the execution of policies, it is less likely that director turnover would have the same consequences. The disruption due to director turnover could result in weak or low-quality board monitoring with regards important investment strategies, but it is less likely that such departures would be severe enough to cause a firm to violate regulations. Meanwhile, if a firm has an unexpected departure of a director, it is likely to be more careful over complying with the regulations, since this unexpected departure might put the firm at the forefront of shareholder/media/regulator focus. Therefore, the chance of them violating regulations is small unless they already had the intention of doing so, in which case it would be very hard to argue that the subsequent violation was a result of the director's departure.

4.6 Conclusions

I investigate noncompliance effects on director turnover using a sample of firms that violated securities regulations and were targeted by the SEC's enforcement actions. I find, in general, that firms not complying with securities laws had significantly higher director turnover during the period in which noncompliance began than control firms. I also provide evidence to exclude several possible alternative explanations. These results

indicate that it is most likely that directors try to avoid any involvement when they perceive a risk of violations by insiders. Outside directors in particular tend to leave firms before becoming involved in any violations, rather than waiting until they are exposed to litigation risk.

My findings, in line with several other studies, imply that directors do not remain tightly bonded with the firms whose boards they sit on when such firms get into trouble. To prevent firms from misconduct, we may need to think about the shortcomings in the current governance system and how to hold management accountable, rather than putting such heavy emphasis on developing doctrines for directors' duties. Alternatively, from the perspective of optimal contracting theory where the spirit lies in finding theoretical ways to motivate agents to take appropriate actions (Grossman and Hart, 1983), improving current governance mechanism to hold directors' interests tightly bonded with the firm's would be a contributory topic to explore.

My study has limitations, which suggest some areas for future research as well. First, although the reverse causality, namely that director turnover causes violations rather than vice versa, does not stand up theoretically, I am limited by my data from actually providing empirical evidence to verify this. Further research could seek to rule such reverse causality out empirically. Second, there are several important points in time along the timeline of a negative event, such as the trigger date, the informal investigation date, the formal investigation date and the public announcement date. Given the burden of hand collection in this study, it was infeasible to test how directors reacted to each of these event dates. However, it could be a very interesting topic to look at in future research, if a more generalized sample could be assembled.

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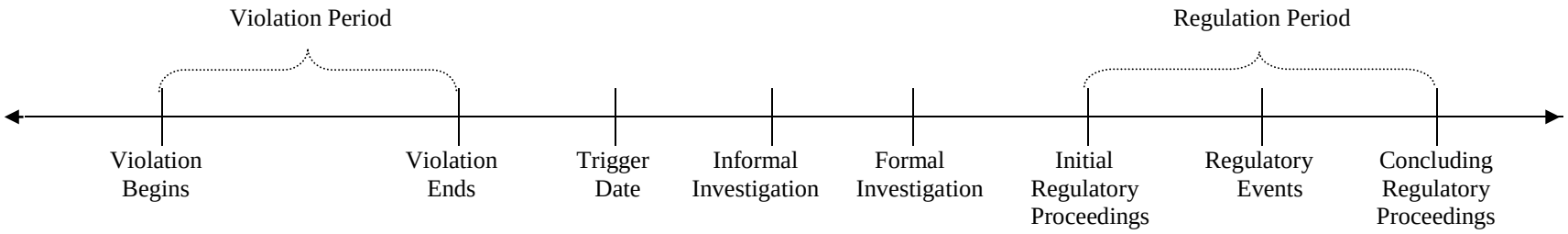

Figure1. Timeline of an SEC Enforcement Action as depicted in Karpoff et al. (2008a)

Notes: The violation period is the period during which the firm is alleged to have fraudulently managed earnings. Karpoff et al.(2008a,b) define trigger date as dates on which firm-initiated or other events reveal the existence of potential problems at the firm. Following a trigger event, the SEC gathers information through an informal inquiry that, if warranted, grows to a formal investigation. During the investigation period, the targeted firm may voluntarily issue a press release indicating that it is the target of an SEC informal inquiry or formal investigation. After an investigation, the SEC can decide to drop the case, proceed with an administrative or civil action, and/or refer it to the DOJ for parallel criminal prosecution. The SEC's decision to file charges against the firm marks the beginning of the regulation period.

Proxy statement for year t-1		Proxy statement for year t		Directorship in year t
Name listed	+	Name listed	=	Staying
Name not listed	+	Name listed	=	Newly joining
Name listed or not	+	Name listed but mentioned as not nominated for next year	=	Unnominated
Name listed	+	Name not listed	=	Departing
Name listed without mentioning as not nominated for next year	+	Leave during the serving year (exclude death/retirement)	=	Unexpectedly departing

Figure 2 Director's Status on the Board

Table 1
Sample Selection Process of Noncompliant Firms

Panel A: Sample selection of Enforcement Action Releases		
Number of Releases		
Total releases (2003-2012)		***10,923***
Total_LR(2003-2012)		*4,675*
Total_AP(2003-2012)		*6,248*
less: releases towards individual and categorized as AAER		5,904
less: other releases		1,212
Indexed releases		***3,754***
Panel B: Sample selection of firms against by Enforcement Actions		
Number of Firms		
Number of firms referred by indexed releases		4,129
Number of firms found in EDGAR		2,417
Number of firms with Compustat financial data		**768**
Panel C: Sample selection of relevant Enforcement Action Releases		
Number of Releases		
Indexed releases		***3,754***
Releases traced back from Compustat matched firms		1,551
less: duplicated releases		651
Unique releases traced back from Compustat matched firms		900
less: releases against firms delinquent in financial reports		368
Releases checked manually		**532**
Comprising: Total_LR	142	
Total_AP	390	
Panel D: Final sample of noncompliant firms		
Noncompliance events		**126**
Noncompliant firms		**123**

Note
This table reports the process of identifying relevant SEC's enforcement actions releases and the final noncompliance samples.
Total_Releases: the sum of SEC's enforcement releases in each year for the period from 2003 to 2012.
Indexed_Releases: the number of SEC's enforcement releases covered in my index file.
INDIV&AAER: the number of releases which are purely against individuals or which are categorized as AAER by the SEC.
Other Releases: the number of releases which are not relevant for identifying firms' noncompliant behaviours, such as releases for fair fund distributions, and which don't specify all the firms' names in the release titles.

Table 2
Summary Statistics for Frequency of Noncompliance Events and Noncompliant Firms by Year and Industry

Panel A: Year Frequency of Noncompliance Events

Vio_Beg	Freq	Vio_End	Freq
1986	1		
1994	2		
1995	1		
1996	5	1996	1
1997	5		
1998	4		
1999	13	1999	5
2000	15	2000	2
2001	22	2001	9
2002	15	2002	24
2003	10	2003	23
2004	7	2004	14
2005	4	2005	10
2006	8	2006	11
2007	5	2007	8
2008	3	2008	4
2009	1	2009	6
2010	2	2010	4
2011	2	2011	3
2012	1	2012	2
Total	126		126

Panel B: Industry Frequency of Noncompliant firms

Industry	Freq	Percent	Compustat
Mining & Construction	3	2.44	11.04
Refining & Extractive	4	3.25	7.18
Food & Tobacoo	4	3.25	1.93
Chemicals	7	5.69	1.84
Pharmaceuticals	7	5.69	9.46
Durable Manufacturers	26	21.14	11.24
Computers	20	16.26	11.18
Transportation	4	3.25	5.06
Utilities	4	3.25	4.26
Retail	7	5.69	6.49
Banks & Insurance	25	20.33	20.13
Service	12	9.76	7.25
Total	123	100.00	97.06

Note
This table reports summary statistics for frequency of securities laws noncompliance events/firms by year and industry.
Following Dechow et al (2011), Industries are based on the following SIC codes: Agriculture: 0100–0999; Mining & Construction: 1000–1299, 1400–1999; Food & Tobacco: 2000–2141;Textiles and Apparel: 2200–2399; Lumber, Furniture, & Printing: 2400–2796;Chemicals: 2800–2824, 2840–2899; Refining & Extractive: 1300–1399,2900–2999; Durable Manufacturers: 3000–3569, 3580–3669, 3680–3828, 3852-3999;Computers:3570–3579, 3670–3679, 7370–7379; Transportation: 4000–4899; Utilities: 4900–4999; Retail: 5000–5999; Services: 7000–7369, 7380–9999; Banks& Insurance: 6000–6999; Pharmaceuticals: 2830–2836, 3829–3851.
The calculation of Compustat industry proportion is based on the firms which have valid financial statement data in year 2012. I do a small correction for Dechow et al (2011), where they include 3829-3851 in both Durable Manufacturers and Pharmaceuticals.

Table 3

Summary Statistics for Noncompliance Events

Panel A: Frequency of Violation Days

Vio_Days	Freq	Percentage %
1-999	75	59.52
1000-1999	31	24.6
2000-2999	13	10.32
3000-3999	4	3.17
4000-4999	1	0.79
5000-5999	1	0.79
>6000	1	0.79
mean	1052.45	
median	653	
Total	126	100

Panel B: Frequency of Violated Acts

Vio_Acts	Vio_ dummy			Total
	0	1	.*	
Vio_33	67	57	2	126
Vio_34	16	108	2	126
Vio_ ICA40	119	5	2	126
Vio_ IAA40	120	4	2	126

Panel C: Frequency of Violated Subsections of Acts

Sub-sections	Freq	Percentage %
1	42	33.87
2	36	29.03
3	22	17.74
4	12	9.68
5	4	3.23
6	5	4.03
8	3	2.42
. *	2	1.59
Total	126	100

Panel D: Frequency of Involved Parties

Involved Parties	Freq	Percentage %
CEO/president	72	62.61
Law_person	15	13.04
CFO	19	16.52
Other_Top	21	18.26
Total	115**	.**

Note

This table reports summarized details for the 126 (123) noncompliance events (firms).

Vio_ dummy indicates if a specific Act was violated or not.

Vio_Acts indicates what Act was violated.

Vio_33 stands for the violated law was Securities Act of 1933.

Vio_34 stands for the violated law was Securities Exchange Act of 1934.

Vio_ICA40 stands for the violated law was Investment Company Act of 1940.

Vio_IAA40 stands for the violated law was Investment Advisers Act of 1940.

Sub-sections is the number of subsections of Acts that a noncompliance event violated.

Law_person is an indicator for the existence of a general counsel or compliance officer in the company.

Other_Top is an indicator for senior executives, senior officers, or vice presidents.

* For one of the two missing cases, the SEC issued a formal order of private investigation therefore this information is not publicly available. For the other case which involves insider trading, the violated acts information is missed without known reason.

** One noncompliance event might involve multiple parties; therefore the sum of the percentage is not 100%. There are 11 events have no information on the involved parties.

Table 4
Logistic Regression for Propensity Score

Panel A: Regression Results

Noncompliance	Coef.	Marginal effects	Pr > ChiSq
ROA	-0.494	-0.097	0.001
SIZE	0.245	1.078	0.001
LEVERAGE	-0.089	-0.024	0.670
LOSS	0.050	0.044	0.854
BIGN	-0.731	0.474	0.009
AGE	-0.913	-0.578	0.001
_CONS	-3.404		0.018
YEAR	Included		
INDUSTRY	Included		
N	15568		
Likelihood ratio	160.647		
(p-value)	(0.001)		
Pseudo R^2	0.138		

Panel B: Distribution of Fitted Conditional Probabilities (P-scores)

Sample	N	Mean	1st pct.	25th pct.	median	75th pct.	99th pct.
Control Group	15,472	0.0059	0.0004	0.0016	0.0029	0.0058	0.0528
Noncompliance	96	0.0472	0.0005	0.0037	0.0133	0.0405	0.5376

Note
This table reports logistic regression results for propensity scores.
The dependent variable is the logarithm of the odds of noncompliance. Noncompliance equals 1 if a firm is against by the SEC's enforcement actions; equals 0 if a firm is from COMPUSTAT potential control group.
All variables are measured at the fiscal year (COMPUSTAT identification) where the noncompliance beginning date lies.
Panel A contains regression results. Panel B provides distributional information of the fitted conditional probabilities (i.e. propensity scores) for two samples: the whole population for control group before matched and the noncompliance sample.
Marginal effects are calculated as proportionate change in implied probability for each variable changed from its quartile 1 value to quartile 3 value and setting the covariates' contributions to their median values.

Variable Definitions:
ROA = operating income divided by total asset;
$SIZE$ = the natural log of outstanding common stock times share price;
$LEVERAGE$ = the sum of debt in current liability and long term debt divided by total assets;
$LOSS$ = indicator variable taking the value of 1 if Income Before Extraordinary Items is less than zero, and 0 otherwise;
$BIGN$ = indicator variable taking the value of 1 if the auditor comes from Big Five, and 0 otherwise;
AGE = the natural log of firm's age;
$YEAR$ = the dummy variable for noncompliance beginning year;
$INDUSTRY$ = the dummy variable for two digits SIC code.

Table 5
Covariate Balancing Tests for Logistic Model

Variable	Unmatched/ Matched	Mean		%bias	%reduct bias	t-test		Wilcoxon test		
		Noncompliance	Control			t	p>|t|	mean of difference	t	p>|t|
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ROA	Unmatched	-0.634	-0.129	-41.6		-6.74	<.001			
	Matched	-0.574	-0.554	-1.6	96.2	-0.09	0.931	-0.019	-0.143	0.887
SIZE	Unmatched	5.268	4.999	9.1		1.05	0.294			
	Matched	5.373	5.452	-2.7	70.6	-0.17	0.866	-0.079	-0.208	0.836
LEVERAGE	Unmatched	0.386	0.252	25.5		3.03	0.002			
	Matched	0.378	0.335	8.1	68.1	0.48	0.629	0.043	0.618	0.538
LOSS	Unmatched	0.479	0.454	5		0.5	0.62			
	Matched	0.468	0.436	6.4	-26.4	0.44	0.662	0.032	0.537	0.593
BIGN	Unmatched	0.615	0.727	-24.1		-2.47	0.014			
	Matched	0.628	0.585	9.1	62.2	0.59	0.553	0.043	0.705	0.482
AGE	Unmatched	2.100	2.538	-48		-5.97	<.001			
	Matched	2.130	2.318	-20.6	57.2	-1.37	0.174	-0.188	-2.114	0.037
ExpAge	Unmatched	13.802	16.44	-19.4		-2.02	0.043			
	Matched	14.053	14.362	-2.3	88.3	-0.15	0.88	-0.309	-0.226	0.822
Pseudo R2	Unmatched	0.138		**MeanBias**	Unmatched		28.2			
	Matched	0.046			Matched		8.3			
LR chi2	Unmatched	163.57		**MedBias**	Unmatched		24.1			
	Matched	12.1			Matched		6.4			
p>chi2	Unmatched	0								
	Matched	0.208								

Note
This table reports the results for examining covariate balancing conditions for the matched 188 firms. PSM is based on one-one nearest neighbour match with common and without replacement. 94 noncompliant firms are matched. Variable definitions are the same as Table 3, except for ExpAge.
ExpAge is the exponential form of the variable AGE, i.e. the true age of firms.
%bias is standardized bias.
%reduct bias is the percentage reduction in covariate bias.

MeanBias is the mean of standardized bias.
MedBias is the median of standardized bias.

Table 6
Sample of Firms with Corporate Governance Data

Panel A: Firms with Available Corporate Governance Data

	Firm Obs.	Firm-Year Obs.	Firm-Year-Director Obs.
Noncompliant firms identified from the SEC's enforcement action	123	-	-
Less: firms without available financial data from Compustat	(27)	-	-
Less: Firms without matched control firms	(2)	-	-
Less: Firms without corporate governance information from EDGAR	(4)	-	-
Total noncompliant firms with corporate governance information	90	390	3034
Control firms matched by 1:1 nearest neighbour with available corporate governance information	76	-	-
Add: Control firms matched by 1:2 nearest neighbour with available corporate governance information	11	-	-
Total Control firms with corporate governance information	87	420	3259
Total firms with corporate governance information	177	810	6293

Panel B: Descriptive Statistics for Corporate Governance Data

	Noncompliance			Control			*t*-test for mean differences	
Variable	Obs.	Mean	Median	Obs.	Mean	Median	*t*-statistic	*p-value*
(1) Firm-Level Governance Structure								
BOARD_SIZE	387	7.277	7.000	420	7.348	7.000	0.280	0.783
DUALITY	389	0.692	1.000	416	0.638	1.000	-1.620	0.105
STAGGERED_BOARD	385	0.338	0.000	420	0.341	0.000	0.100	0.918
AUDIT_COMMITTEE_SIZE	342	2.879	3.000	413	2.891	3.000	0.100	0.921
COMPENSATION_COMMITTEE_SIZE	342	2.555	3.000	413	2.726	3.000	1.390	0.165
NOMINATION_COMMITTEE_SIZE	345	1.688	0.000	414	1.526	0.000	-1.020	0.310
NO._COMMITTEE	347	1.997	2.000	416	2.101	2.000	1.350	0.178
All_DIRECTORS_OFFICERS_SHARES	284	0.216	0.146	372	0.233	0.195	1.100	0.270
(2) Firm-Level Director Attributes								
AGE_AVERAGE	372	55.940	57.536	418	56.238	57.310	0.610	0.541

FEMALE_PERCENT	388	0.083	0.000	420	0.058	0.000	-3.180	0.002
SD_PERCENT	381	0.596	0.667	420	0.661	0.667	3.900	0.001
SD_FINANCIAL_EXPERT	336	0.471	0.000	420	0.414	0.000	-1.210	0.227
LAW_SUM	383	0.553	0.000	420	0.581	0.000	0.470	0.642
LAW_PERCENT	383	0.079	0.000	420	0.082	0.000	0.280	0.778
LAW_ON_BOARD	383	0.404	0.000	420	0.398	0.000	-0.190	0.848
CFO_ON_BOARD	388	0.258	0.000	420	0.145	0.000	-3.970	0.001

Note

This table reports corporate governance data collection and summary statistics for corporate governance attributes of noncompliance and control samples.
BOARD_SIZE is the number of directors on board.
DUALITY is a dummy variable that equals one if the CEO and the chairman in the firm is the same person, and zero otherwise.
STAGGERED_BOARD is a dummy variable that equals one if the directors of the board are divided into more than one class, and zero otherwise.
AUDIT_COMMITTEE_SIZE is the number of directors on audit committee of the board.
COMPENSATION_COMMITTEE_SIZE is the number of directors on compensation committee of the board.
NOMINATION_COMMITTEE_SIZE is the number of directors on nomination committee of the board.
All_DIRECTORS_OFFICERS_SHARES is the percentage of company shares that all directors and officers beneficially own.
AGE_AVERAGE is the average age of board of directors.
FEMALE_PERCENT is the percentage of female directors on the board.
SD_PERCENT is the percentage of non-executive directors on the board.
SD_FINANCIAL_EXPERT is the number of non-executive directors with financial expertise background.
LAW_SUM is the number of directors with law background.
LAW_PERCENT is the percentage of directors with law background on the board.
LAW_ON_BOARD is a dummy variable that equals one if there is at least one director with law background sitting on the board, and zero otherwise.
CFO_ON_BOARD is a dummy variable that equals one if company's CFO sitting on the board, and zero otherwise.

Table 7
Director Turnover Surrounding Noncompliance Start Year in Noncompliance and Control Samples

Windows	Noncompliance-mean	Control-mean	Mean difference	Paired t-test	p-value	Obs.
Panel A Director Turnover						
(1) DEPARTING DIRECTOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.687	0.450	0.237	3.466	0.001	369
Window pre noncompliance (t-2,t-1)	0.428	0.228	0.200	2.400	0.018	136
Window post noncompliance (t, t+1)	0.762	0.601	0.161	1.378	0.170	161
Window post noncompliance (t+1, t+2)	0.830	0.523	0.307	2.621	0.010	151
(2) UNNOMINATED DIRECTOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.786	0.566	0.220	2.920	0.004	369
Window pre noncompliance (t-2,t-1)	0.596	0.368	0.228	2.557	0.012	136
Window post noncompliance (t, t+1)	0.857	0.696	0.161	1.287	0.200	161
Window post noncompliance (t+1, t+2)	0.941	0.636	0.305	2.281	0.024	151
Panel B Unexpected-Departing Director Turnover						
(1) UNEXPECTED_SUM						
Window centred on noncompliance beginning year (t-2, t+2)	0.588	0.366	0.222	3.274	0.001	369
Window pre noncompliance (t-2,t-1)	0.426	0.191	0.235	2.729	0.007	136
Window post noncompliance (t, t+1)	0.640	0.503	0.137	1.198	0.233	161
Window post noncompliance (t+1, t+2)	0.702	0.397	0.305	2.665	0.009	151
(2) UNEXPECTED_INDICATOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.304	0.225	0.079	2.391	0.017	369
Window pre noncompliance (t-2,t-1)	0.291	0.154	0.103	2.138	0.034	136
Window post noncompliance (t, t+1)	0.335	0.323	0.012	0.238	0.812	161
Window post noncompliance (t+1, t+2)	0.391	0.272	0.119	2.116	0.036	151

Panel C Unexpected-Departing Outside Director Turnover						
(1) UNEXPECTED_SD_SUM						
Window centred on noncompliance beginning year (t-2, t+2)	0.277	0.163	0.114	2.305	0.022	369
Window pre noncompliance (t-2,t-1)	0.280	0.081	0.199	3.053	0.003	136
Window post noncompliance (t, t+1)	0.360	0.335	0.025	0.301	0.764	161
Window post noncompliance (t+1,t+2)	0.351	0.272	0.079	1.007	0.316	151
(2) UNEXPECTED_SD_INDICATOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.223	0.163	0.060	2.000	0.046	369
Window pre noncompliance (t-2,t-1)	0.192	0.074	0.118	2.813	0.006	136
Window post noncompliance (t, t+1)	0.217	0.236	-0.019	-0.400	0.692	161
Window post noncompliance (t+1,t+2)	0.245	0.199	0.046	0.896	0.372	151

Note

This table reports paired t-test for differences in main director turnover measures between noncompliance sample and its matched-pair control sample. year t is identified as the year when noncompliance starts.

DEPARTING DIRECTOR is the number of directors who is defined as departing in FIGURE 2.

UNNOMINATED DIRECTOR is the number of directors who is defined as unnominated in FIGURE 2.

UNEXPECTED_SUM is the number of directors who is defined as unexpectedly departing in FIGURE 2.

UNEXPECTED _INDICATOR is a dummy variable that equals one if there is one or more directors defines as unexpectedly departing in FIGURE 2; otherwise zero.

UNEXPECTED_SD_SUM is the number of outside directors who is defined as unexpectedly departing in FIGURE 2.

UNEXPECTED_SD_INDICATOR is a dummy variable that equals one if there is one or more non-executive directors defines as unexpectedly departing in FIGURE 2; otherwise zero.

Table 8
Director Turnover Surrounding Shifted Event Date in Noncompliance and Control Samples

Windows	Noncompliance-mean	Control-mean	Mean difference	Paired t-test	p-value	Obs.
Panel A Director Turnover						
(1) DEPARTING DIRECTOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.763	0.465	0.298	3.713	0.001	292
Window pre noncompliance (t-2,t-1)	0.634	0.269	0.365	3.204	0.002	107
Window post noncompliance (t, t+1)	0.785	0.597	0.188	1.420	0.158	128
Window post noncompliance (t+1, t+2)	0.847	0.508	0.339	2.650	0.009	121
(2) UNNOMINATED DIRECTOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.831	0.572	0.259	2.998	0.003	294
Window pre noncompliance (t-2,t-1)	0.768	0.398	0.370	3.061	0.003	108
Window post noncompliance (t, t+1)	0.885	0.682	0.203	1.455	0.148	128
Window post noncompliance (t+1, t+2)	0.925	0.605	0.320	2.204	0.030	122
Panel B Unexpectedly Departing Director Turnover						
(1) UNEXPECTED_SUM						
Window centred on noncompliance beginning year (t-2, t+2)	0.650	0.337	0.313	4.046	0.001	294
Window pre noncompliance (t-2,t-1)	0.611	0.185	0.426	3.571	0.001	108
Window post noncompliance (t, t+1)	0.695	0.450	0.195	1.594	0.114	128
Window post noncompliance (t+1, t+2)	0.691	0.347	0.344	2.862	0.005	122
(2) UNEXPECTED_INDICATOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.362	0.236	0.126	3.339	0.001	294
Window pre noncompliance (t-2,t-1)	0.352	0.148	0.204	3.483	0.001	108
Window post noncompliance (t, t+1)	0.326	0.310	0.016	0.276	0.783	128
Window post noncompliance (t+1, t+2)	0.398	0.250	0.148	2.367	0.020	122

Panel C Unexpectedly Departing Outside Director Turnover						
(1) UNEXPECTED_SD_SUM						
Window centred on noncompliance beginning year	0.379	0.219	0.160	2.787	0.002	294
Window pre noncompliance (t-2,t-1)	0.416	0.083	0.333	3.957	0.001	108
Window post noncompliance (t, t+1)	0.357	0.318	0.039	0.414	0.680	128
Window post noncompliance (t+1,t+2)	0.350	0.250	0.100	1.156	0.250	122
(2) UNEXPECTED_SD_INDICATOR						
Window centred on noncompliance beginning year (t-2, t+2)	0.250	0.165	0.085	2.461	0.014	294
Window pre noncompliance (t-2,t-1)	0.277	0.083	0.194	3.643	0.001	108
Window post noncompliance (t, t+1)	0.217	0.233	-0.016	-0.300	0.764	128
Window post noncompliance (t+1, t+2)	0.243	0.194	0.049	0.861	0.389	122

Note

This table reports paired t-test for differences in main director turnover measures between a subset of noncompliance sample and its matched-pair control sample. This subset of noncompliance sample is required to have the first public enforcement releases at least 2 years after the initiation of noncompliance. year t is identified as the year of a shifted event date which is 6 months later than the violation start date.

DEPARTING DIRECTOR is the number of directors who is defined as departing in FIGURE 2.

NOT-NOMINATED DIRECTOR is the number of directors who is defined as unnominated in FIGURE 2.

UNEXPECTED_SUM is the number of directors who is defined as unexpectedly departing in FIGURE 2.

UNEXPECTED _INDICATOR is a dummy variable that equals one if there is one or more directors defines as unexpectedly departing in FIGURE 2; otherwise zero.

UNEXPECTED_SD_SUM is the number of outside directors who is defined as unexpectedly departing in FIGURE 2.

UNEXPECTED_SD_INDICATOR is a dummy variable that equals one if there is one or more non-executive directors defines as unexpectedly departing in FIGURE 2; otherwise zero.

Table 9
Director Turnover Conditional on No CEO Turnover

Windows	Obs.	Mean difference	Paired t-test	p-value
Panel A Director Turnover Surrounding Noncompliance Start Year				
(1) UNEXPECTED_SUM_CEO				
Window centred on noncompliance beginning year (t-2, t+2)	288	0.108	1.694	0.091
Window pre noncompliance (t-2,t-1)	117	0.162	2.263	0.026
Window post noncompliance (t, t+1)	123	0.024	0.210	0.834
Window post noncompliance (t+1, t+2)	107	0.252	2.048	0.043
(2) UNEXPECTED_SD_SUM_CEO				
Window centred on noncompliance beginning year (t-2, t+2)	288	0.056	1.084	0.279
Window pre noncompliance (t-2,t-1)	117	0.162	2.626	0.279
Window post noncompliance (t, t+1)	123	-0.057	-0.620	0.537
Window post noncompliance (t+1, t+2)	107	0.065	0.717	0.475
Panel B Director Turnover Surrounding Shifted Event Year				
(1) UNEXPECTED_SUM_CEO				
Window centred on noncompliance beginning year (t-2, t+2)	229	0.175	2.373	0.019
Window pre noncompliance (t-2,t-1)	89	0.326	3.318	0.001
Window post noncompliance (t, t+1)	100	0.040	0.317	0.752
Window post noncompliance (t+1, t+2)	90	0.211	1.718	0.089
(2) UNEXPECTED_SD_SUM_CEO				
Window centred on noncompliance beginning year (t-2, t+2)	229	0.092	1.524	0.129
Window pre noncompliance (t-2,t-1)	89	0.303	3.843	0.001
Window post noncompliance (t, t+1)	100	-0.080	-0.783	0.436
Window post noncompliance (t+1, t+2)	90	0.033	0.354	0.724

Note
This table reports paired t-test for differences in director turnover conditional on no CEO turnover between noncompliance sample and its matched-pair control sample.
Panel A reports the results for all matched noncompliance samples. year t in Panel A is identified as the year when noncompliance starts.
Panel B reports paired t-test for differences in director turnover conditional on no CEO turnover between a subset of noncompliance sample and its matched-pair control sample. This subset of noncompliance sample is required to have the first public enforcement releases at least 2 years after the initiation of noncompliance. year t in Panel B is identified as the year of a shifted event date which is 6 months later than the violation start date.
UNEXPECTED_SUM_CEO is the number of directors who is defined as unexpectedly departing in FIGURE 2 and there is no CEO leaves the firm in the year.
UNEXPECTED_SD_SUM_CEO is the number of non-executive directors who is defined as unexpectedly departing in FIGURE 2 and there is no CEO leaves the firm in the year.

Table 10
Corporate Governance Changes around Noncompliance

Variable	(1) Change for Noncompliance (t+1)- (t-1)				(2) Change for Control (t+1)- (t-1)				(3) Noncompliance Change VS Control Change (t+1)- (t-1)			
	Mean	*t*-test	*p*-value	Obs.	Mean	*t*-test	*p*-value	Obs.	Mean	*paired t*-test	*p*-value	Obs.
CEO_TIME_ON_BOARD	1.011	3.555	0.001	178	1.145	3.128	0.002	186	-0.365	-0.750	0.456	159
CFO_ON_BOARD	-0.010	-0.377	0.706	205	0.010	0.631	0.529	195	-0.021	-0.650	0.518	195
LAW_ON_BOARD	0.000	0.000	1.000	203	0.036	1.706	0.090	196	-0.047	-1.480	0.139	193
LAW_SUM	0.039	1.089	0.277	203	0.036	1.094	0.275	196	-0.010	-0.220	0.824	193
LAW_PERCENT	-0.001	-0.150	0.881	203	0.007	1.314	0.190	196	-0.009	-1.180	0.241	193
AVERAGE_TIME_ON_BOARD	0.346	2.372	0.019	193	0.622	4.659	0.001	195	-0.231	-1.080	0.280	182
DUALITY	-0.005	-0.179	0.858	206	-0.021	-0.894	0.373	193	0.021	0.600	0.548	193
SD_FINANCIAL_EXPERT	0.086	1.936	0.055	175	0.087	2.929	0.004	196	-0.018	-0.300	0.764	167
FEMALE_PERCENT	0.008	1.818	0.071	205	0.003	1.044	0.298	196	0.005	0.810	0.422	195
SD_PERCENT	0.006	0.503	0.616	201	0.019	2.132	0.034	196	-0.013	-0.820	0.413	191
BOARD_SIZE	-0.059	-0.563	0.574	203	0.224	2.257	0.025	196	-0.280	-1.900	0.060	193
STAGGERED_BOARD	0.000	.	.	204	0.005	1.000	0.319	196	-0.005	-1.000	0.319	194
AUDIT_COMMITTEE_SIZE	0.073	1.058	0.291	177	0.047	0.861	0.390	191	0.037	0.390	0.694	163
COMPENSATION_COMMITTEE_SIZE	0.080	1.338	0.183	175	0.105	1.996	0.047	191	-0.031	-0.340	0.735	161
NOMINATION_COMMITTEE_SIZE	0.158	1.400	0.163	177	0.389	4.623	0.001	193	-0.103	-0.790	0.430	165

Note
This table reports the t-test for the changes of governance characteristics in noncompliance sample and control sample, and paired t-test for the changes in noncompliance sample relative to the changes in control sample.
CEO_TIME_ON_BOARD is the number of years since the CEO joined the board.
CFO_ON_BOARD is a dummy variable that equals one if company's CFO sitting on the board, and zero otherwise.
LAW_SUM is the number of directors with law background.
AVERAGE_TIME_ON_BOARD is the average number of years that board of directors have stayed on board.
DUALITY is a dummy variable that equals one if the CEO and the chairman in the firm is the same person, and zero otherwise.

SD_FINANCIAL_EXPERT is the number of non-executive directors with financial expertise background.
FEMALE_PERCENT is the percentage of female directors on the board.
SD_PERCENT is the percentage of non-executive directors on the board.
BOARD_SIZE is the number of directors on board.
STAGGERED_BOARD is a dummy variable that equals one if the directors of the board are divided into more than one class and zero otherwise.
AUDIT_COMMITTEE_SIZE is the number of directors on audit committee of the board.
COMPENSATION_COMMITTEE_SIZE is the number of directors on compensation committee of the board.
NOMINATION_COMMITTEE_SIZE is the number of directors on nomination committee of the board.

Table11
Director Turnover and Noncompliance Severity

Variable	(1) Long Noncompliance				(2) Short Noncompliance			
	Mean _diff	paired t-test	p-value	obs.	Mean _diff	paired t-test	p-value	obs.
Panel A Window centred on noncompliance beginning year (t-2,t+2)								
DEPARTING DIRECTOR	0.229	2.360	0.020	188	0.246	2.545	0.012	179
UNNOMINATED DIRECTOR	0.216	2.100	0.037	190	0.224	2.030	0.044	179
UNEXPECTED_SUM	0.268	3.050	0.003	190	0.173	1.660	0.099	179
UNEXPECTED_INDICATOR	0.142	3.110	0.002	190	0.011	0.240	0.812	179
UNEXPECTED_SD_SUM	0.163	2.508	0.013	190	0.061	0.821	0.413	179
UNEXPECTED_SD_INDICATOR	0.116	2.712	0.007	190	0.000	0.000	1.000	179
UNEXPECTED_SUM_CEO	0.174	2.100	0.037	155	0.030	0.308	0.759	133
UNEXPECTED_SD_SUM_CEO	0.123	1.817	0.071	155	-0.023	-0.289	0.773	133
Panel B Window pre noncompliance (t-2,t-1)								
DEPARTING DIRECTOR	0.258	1.750	0.085	62	0.151	1.660	0.101	73
UNNOMINATED DIRECTOR	0.318	2.220	0.030	63	0.151	1.350	0.181	73
UNEXPECTED_SUM	0.333	2.560	0.013	63	0.151	1.310	0.194	73
UNEXPECTED_INDICATOR	0.190	2.555	0.013	63	0.027	0.440	0.658	73
UNEXPECTED_SD_SUM	0.302	2.801	0.007	63	0.110	1.424	0.159	73
UNEXPECTED_SD_INDICATOR	0.190	2.681	0.009	63	0.055	1.160	0.251	73
UNEXPECTED_SUM_CEO	0.236	2.355	0.022	55	0.097	0.948	0.347	62
UNEXPECTED_SD_SUM_CEO	0.273	2.764	0.008	55	0.065	0.851	0.398	62
Panel C Window post noncompliance (t,t+1)								
DEPARTING DIRECTOR	0.058	0.380	0.705	86	0.280	1.550	0.125	75
UNNOMINATED DIRECTOR	0.128	0.770	0.443	86	0.200	1.043	0.300	75
UNEXPECTED_SUM	0.093	0.664	0.508	86	0.187	1.005	0.318	75
UNEXPECTED_INDICATOR	0.000	0.000	1.000	86	0.027	0.331	0.741	75
UNEXPECTED_SD_SUM	0.012	0.112	0.911	86	0.040	0.303	0.763	75
UNEXPECTED_SD_INDICATOR	-0.012	-0.185	0.854	86	-0.027	-0.376	0.708	75
UNEXPECTED_SUM_CEO	0.055	0.386	0.701	73	-0.020	-0.101	0.920	50
UNEXPECTED_SD_SUM_CEO	-0.027	-0.248	0.805	73	-0.100	-0.626	0.534	50
Panel D Window post noncompliance (t+1,t+2)								
DEPARTING DIRECTOR	0.313	2.010	0.048	83	0.299	1.680	0.098	67
UNNOMINATED DIRECTOR	0.310	1.770	0.081	84	0.299	1.440	0.155	67
UNEXPECTED_SUM	0.369	2.570	0.012	84	0.224	1.210	0.231	67
UNEXPECTED_INDICATOR	0.202	2.760	0.007	84	0.015	0.170	0.863	67
UNEXPECTED_SD_SUM	0.131	1.394	0.167	84	0.015	0.112	0.911	67
UNEXPECTED_SD_INDICATOR	0.107	1.581	0.118	84	-0.030	-0.376	0.709	67
UNEXPECTED_SUM_CEO	0.333	2.172	0.034	63	0.136	0.667	0.509	44
UNEXPECTED_SD_SUM_CEO	0.127	1.183	0.241	63	-0.023	-0.141	0.888	44

Note
This table reports paired t- test for differences in main director turnover measures between noncompliance sample and control sample by differentiating noncompliance sample into two settings according to median length of noncompliance period. Long noncompliance sample consists of noncompliance events with violating period equal and more than 731 days while short noncompliance sample consists of noncompliance events with violating period less than 731 days.
DEPARTING DIRECTOR is the number of directors who is defined as departing in FIGURE 2.
UNNOMINATED DIRECTOR is the number of directors who is defined as unnominated in FIGURE 2.
UNEXPECTED_SUM is the number of directors who is defined as unexpectedly departing in FIGURE 2.
UNEXPECTED _INDICATOR is a dummy variable that equals one if there is one or more directors defines as unexpectedly departing in FIGURE 2; otherwise zero.

UNEXPECTED_SUM_CEO is the number of directors who is defined as unexpectedly departing in FIGURE 2 and there is no CEO leaves the firm in the year.
UNEXPECTED_SD_SUM is the number of outside directors who is defined as unexpectedly departing in FIGURE 2.
UNEXPECTED_SD_INDICATOR is a dummy variable that equals one if there is one or more non-executive directors defines as unexpectedly departing in FIGURE 2; otherwise zero.
UNEXPECTED_SD_SUM_CEO is the number of non-executive directors who is defined as unexpectedly departing in FIGURE 2 and there is no CEO leaves the firm in the year.

Chapter 5 Conclusion

5.1 Summary and Conclusions

This thesis examines noncompliance effects from the perspective of internal control and internal governance. Noncompliance has attracted a great amount of attention from researchers, shareholders and regulators, and has dominated the headlines over the past two decades. Most of the research on noncompliance effects tends to have its investigations based on the public announcement or disclosure of the noncompliance event. Unlike the extant research, I investigate noncompliance effects surrounding the commencement of noncompliance events. The rationale for this focus is that understanding fraudulent behaviour at the time point of its commencement contributes to our understanding of the internal mechanisms guiding the noncompliant firm. It therefore further helps us to understand possible mechanisms that could detect and prevent fraudulent behaviour.

This thesis generates a noncompliance sample based on the SEC's enforcement actions in Chapter 2, and investigates noncompliance effects on financial reporting quality and director turnover surrounding the commencement of noncompliance events in Chapters 3 and 4, respectively. Each chapter contributes to the literature in several important ways by answering unique research questions. The findings in Chapters 3 and 4 consistently support my prediction that noncompliance behaviour has an impact on other internal mechanisms surrounding the beginning of the noncompliance.

In Chapter 2, I generate a noncompliance dataset based on the SEC's non-accounting enforcement actions. Most of the noncompliance events covered in my sample commenced between 1995 and 2009. The industry distribution of my

noncompliant firms is consistent with the higher-litigation-risk industries from Francis et al. (1994a; 1994b).

In Chapter 3, I examine whether there is a higher rate of financial reporting problems in noncompliance than in control firms surrounding the beginning of the noncompliance behaviour. I find a significant association between noncompliance and financial reporting problems, and the effect is more pronounced in the windows following the start of noncompliance. This study contributes to the literature mainly in three ways. First, compliance captures a different aspect of internal control quality, which has not been studied previously in research relating to internal control. This extends our understanding of internal control as an integrated system. Second, my study improves our understanding of noncompliance effects. Third, in contrast to prior research which suggests that the responsibility for financial reporting quality mainly lies with the CFO and/or accounting controls, I find that noncompliance also impacts on financial reporting quality. Finally, my findings provide evidence consistent with the current development of internal control policy.

In Chapter 4, I examine whether there are higher director turnover rates in noncompliant firms than control firms surrounding the beginning of the noncompliance behaviour. Extant literature suggests that there are several channels through which directors can obtain private information through their directorships. Directors have innate incentives to leave firms when they perceive them as likely to perform violations. I first test the director turnover rate surrounding the noncompliance start year. I then arbitrarily shift the event start date to a date which allows noncompliance to have been underway for a period of time but that is before the public announcement occurs. I find that, in general, noncompliant firms have a significantly higher director turnover rate around noncompliance start than control firms. However, outside directors tend to leave

noncompliant firms before noncompliance starts. The results for the shifted event date are consistent with the main tests and still significant for the pre-event date, and are more pronounced. I also provide evidence to exclude several possible alternative explanations.

My study contributes to several strands of literature. First, this study is the first to focus on the time surrounding the commencement of noncompliance. Second, my study contributes to the research investigating internal governance mechanisms between board and management, especially in the situation where the management needs to be monitored intensively. Third, I exploit a comprehensive data setting, i.e. the SEC's non-accounting enforcement actions, to explore directors' reactions to firms' negative events, while most of the related research explores the phenomenon either through a single type of negative event or by focusing mainly on accounting problems. Finally, this work also has policy implications. To prevent firms from misconduct, enhancing the director's role is only one mechanism. Enhancing internal control mechanisms which primarily hold management accountable might be more important than the role directors can play in such a noncompliance setting.

5.2 Suggestions for Future Research

Regarding my research question in Chapter 3, there are some issues that remain for further exploration. First, I only examine securities laws violations as examples of noncompliance. Further research could verify whether the associations I document persist for other types of noncompliance behaviour. Second, another factor that could affect my results is the possibility that monitoring intensity increases once noncompliance is detected. My research method and data availability do not allow me to rule out the role of monitoring intensity because my research is based on observed

behaviour and the measures are external indicators which depend on external parties' criteria. This could be a very interesting topic to look at in future research.

Regarding my research question in Chapter 4, there are some interesting issues to be examined further. First, my study aims to examine director response surrounding the commencement of noncompliance. However, given the data constraints, my examination is based on the noncompliance year. It would be interesting to investigate my research question in a more clearly identified sample. Second, there are several key time points along the time line of a negative event, such as when the first warning signal occurs, when the first internal or external investigation starts, and when the final decision is made by the regulatory agent. It would be very interesting to examine directors' behaviour at each key time point along this timeline so as to have a complete picture of how directors respond to management's fraudulent behaviour.

References

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