Does the criminalization of independent director's breaches of fiduciary duties increase shareholder value? Evidence from Singapore

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NANYANG TECHNOLOGICAL UNIVERSITY

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Does the Criminalization of Independent Directors' Breaches of Fiduciary Duties Increase Shareholder Value? Evidence from Singapore

Abstract

ABSTRACT: Whether a breach of directors' fiduciary duties should be treated as civil or criminal in nature is a controversial issue. In a recent court case, for the first time in Singapore, independent directors were arrested and criminally sanctioned for breaches of their fiduciary duties to exercise reasonable diligence in corporate disclosure. Exploring relevant events around this case, I examine whether criminalizing the breach of independent directors' fiduciary duties increases or decreases shareholder value. I find a significantly negative stock market reaction to the events associated with the criminal sanction of independent directors for firms with more independent directors. I explore three possible channels through which shareholder value is decreased. First, I examine whether independent directors become overcautious and request additional unnecessary disclosures which increase companies' disclosure costs. Second, I examine whether independent directors request additional directors' fees to compensate for the increased liabilities. Third, I examine whether the chilling effect of the court case is so strong that even competent independent directors leave the company. I find evidence consistent with the first story but no evidence consistent with the other two.

1. Introduction

Directors of publicly listed companies are subject to a broad range of fiduciary duties and liabilities to ensure they act in the interests of the company. In general, two broad types of duties are laid out in the company law, and more specific duties are detailed or supplemented in other statutory laws such as the securities law. The two general duties include the duty to act honestly and in good faith of the company, and the duty to exercise reasonable due diligence[1]. However, the important question of whether the breach of directors' fiduciary duties should be treated as civil or criminal in nature is still hotly debated. In the context of this issue, the most controversial part is probably whether independent directors' breach of duties to exercise due diligence should be criminally punished. In this paper, by exploring a unique setting in which independent directors were criminally sanctioned for failing to exercise due diligence in corporate disclosure for the first time in Singapore, I examine whether the criminalization of independent directors' breach of this duty increases or decreases shareholder value.

Independent directors' duty to use reasonable diligence is a cornerstone of corporate governance (e.g. Jensen 1993; Harris and Raviv 2008; Adams et al. 2010). The duty requires that independent directors exercise proper skills and care and attend to the board affairs with due diligence. However, whether independent directors have effectively discharged their duties has been questioned (e.g. Hwang and Kim 2009; Cohen et al. 2012). Over the past decade, independent directors are often blamed for failing to detect and prevent serious corporate failures and accounting scandals worldwide such as the collapse of Enron in the U.S., the Satyam case in India, and the

[1] The duty to use/exercise due care, the duty to use/exercise due diligence and the duty to use/exercise reasonable care and diligence are similar terms in law that can be used interchangeably.

China Aviation Oil scandal in Singapore. The occurrence of these notorious corporate scandals has prompted the media and the public to question the effectiveness of independent directors in corporate governance. More specifically, it has been argued that what independent directors should have done is to have diligently checked with the management on the company business issues and helped enforce proper and timely disclosure. In the most extreme situations where there are splits between the management and independent directors, the independent directors should have taken the responsibility to disclose relevant information to the market so that investors can make informed decisions. Therefore, how to increase the accountability of independent directors, and more specifically, how to improve independent directors' accountability in helping enforce proper and effective disclosures becomes an important concern of the regulators.

One possible channel considered by regulators to improve independent directors' accountability is to enforce criminal liabilities. Across different countries, criminal liabilities of directors are laid out in the statutory laws and usually include a fine, disqualification, or imprisonment. Apart from these explicitly stated criminal sanctions, the implicit punishments such as the criminal name and record are attached to the wrongdoer and could be detrimental to one's reputation and career (Austin 2004). The above features make criminal liabilities a more powerful deterrent over civil liabilities (Becker 1968; Esterbrook 1985; Joo 2007; MOF & ACRA 2012). By enforcing criminal liabilities on the breach of directors' duty to exercise due care, it is expected that directors would be deterred from committing offenses and shareholders' interest could be protected. More specifically, by enforcing criminal liabilities on the breach of independent directors' duty to exercise due care in corporate disclosure, it is

hoped that the private information held by the board is properly released to the market and that investors could make better judgments in their resource allocation decisions[2].

However, not all regulators or law commentators agree on the benefit of criminal liabilities. First, there is a debate on whether it is fair to impose criminal liabilities on independent directors who breach the duty to exercise due care. The main reason is that the breach of directors' duty to exercise due care does not require a fraudulent or dishonest intent. In legal terms, to defraud is defined as to deprive by deceit (Steel 2010), and dishonesty is usually defined as an intention to cause wrongful gain to one person or to cause wrongful loss to another person[3]. In both cases, there is an intention to deceive, and there is a consensus on imposing criminal liabilities on such offenses. In contrast, an honest person who has no intention to deceive or to gain may breach the duty to use reasonable diligence, and it may seem unfair to allege that an honest person is a criminal. As a result, imposing criminal liabilities to independent directors may cause them to request for a higher risk premium, and it may even deter competent independent directors from sitting on board. In either way, shareholder value is reduced. Further, although such breaches may cause losses to the company, civil penalties or remedies such as compensation for the losses may suffice to deter market misconducts (CLRFC 2002; Cranney 2013; The Business Times 2014a; The Business Times 2014b). Second, if the intention of the regulator is to improve corporate disclosure effectiveness, imposing criminal liabilities on those who unintentionally fail to disclose information properly may not lead to the intended results. The strong deterrent effect of criminal liabilities may cause independent directors to be overcautious in making corporate disclosures and result in too few

[2] See the court decision on Public Prosecutor v Peter Moe [2008] SGDC 343
[3] An example of the definition could be find in section 24 of the Penal Code Singapore.

useful disclosures and too many unnecessary disclosures (Tjio 2009). As a result, the ineffective disclosure may increase disclosure costs and decrease shareholders' value[4].

Overall, it is debatable whether the criminalization of independent directors' breach of duty to exercise reasonable diligence increases or decreases shareholder value. To examine this question, I explore the first Singapore court case, i.e. the Chuan Soon Huat case, in which independent directors were criminally sanctioned for failing to exercise due diligence in making corporate disclosures. Although the case does not involve any change in the written content of the statutory laws, it marks a significant change in the court's enforcement of the law. Before this case, independent directors in Singapore had never been criminally sanctioned for failing to exercise due diligence. In the early 2000s, a series of corporate scandals such as the China Aviation Oil scandal, the Citiraya case and the Accord Customer Care Solutions case, broke out in Singapore and raised the concern on corporate governance failures and triggered a change in court enforcement. In the sentencing of this first criminal sanction case in Singapore, the judge stated that public investors rely on the board to disclose material information. If an independent director fails to help enforce proper disclosure, then he lacks the requisite qualities to perform his duties to be a director and criminal punishment should be imposed. The purpose of using criminal liabilities is to deter market misconduct and to protect investors' interests (Public Prosecutor v Peter Moe 2008). This change in the court enforcement affects investors' expectation on whether criminal sanctions could be imposed on the breach of independent directors' fiduciary duties in Singapore, and thus provides an opportunity to study whether this criminalization increases or decreases shareholder value.

[4] For a review on the costs and benefits of disclosures, please see Leuz and Wysocki, 2016.

To examine the effect of criminalizing the breach of independent directors' fiduciary duties on shareholder value, I identify two events associated with the court case that are likely to significantly raise investors' expectation on independent directors' criminalization likelihood. I use a [-1, +1] three-trading-day event window centered on each event and adopt the Sefcik and Thompson (1986) event study approach to assess the market reactions to these two events. Firms with fewer independent directors are used as the benchmark group and firms with more independent directors are used as the treatment group, and I compare the market reaction difference between the two groups. The results show that the criminalization has a significantly negative impact on shareholder value and this negative impact mainly comes from the final conviction and sentencing of the court case. Specifically, on average, firms with more independent directors experience significantly more negative stock returns compared to firms with less independent directors around the date that the independent directors of the court case were convicted and sentenced.

Next, I investigate the possible channels through which shareholder value is decreased. First, facing the criminal liabilities on the breach of the duty to exercise due care in corporate disclosure, independent directors may become too risk-averse and thus request more corporate disclosures even if the information is proprietary. This additional disclosure of proprietary information could add cost to the company and hurt shareholders' interests. The event study analysis supports this argument. Specifically, the negative impact of the criminalization is significant only in highly competitive industries with high proprietary costs but not in less competitive industries. Second, independent directors may demand higher fees given that the criminalization increases independent directors' liabilities. However, adopting a difference-in-differences analysis, I do not find any evidence supporting this argument. Specifically,

I do not observe a significant difference in non-executive directors' fees before and after the conviction in firms with more independent directors relative to firms with less independent directors. Third, the strong chilling effect of the criminalization may deter even competent independent directors from sitting on board and thus increase independent directors' turnover rate. However, the statistics do not show a significant increase in independent directors' turnover rate after the criminal conviction of the independent directors for the court case. Overall, the above analyses indicate that the increase in disclosure costs is likely to be the main driver for the reduction in shareholder value.

This paper makes at least two important contributions. First, in many jurisdictions, there have been ongoing debates on the criminalization/decriminalization of directors' duties to exercise due care. Over the past decades, several countries such as the U.K., New Zealand, and Australia have decriminalized the breach of directors' duties to exercise due care and left it to civil penalties or remedies. There are two main arguments for the decriminalization. First, the strong deterrent effect of criminal liabilities should not be applied to those with no dishonest or fraudulent intent. Second, the criminal liabilities on such breaches have rarely been enforced. In Singapore, the regulators have considered following the U.K. approach to decriminalize directors' duties to exercise due care and diligence, but eventually they decided to retain the criminal liabilities. The reason is that criminal liabilities should be used as a deterrent given the heightened demand for good corporate governance. Further, the decriminalization may encourage market misconduct (MOF & ACRA 2012). This retention of criminal liabilities in Singapore is not unsupported by law commentators in other countries. For example, the decriminalization of directors' duties to exercise due care in Australia has received the criticism that civil penalties alone may not be

sufficient to penalize the wrongdoers in the most egregious cases and deter serious breaches (Cassidy 2013).

However, the current debate on the criminalization is mainly at the conceptual level, and there is little systematic empirical evidence on the impact of the criminalization of directors' duties to exercise due care on shareholder value. The main reason is probably that the criminal liabilities have rarely been enforced and there is no good setting to empirically test this question. To the best of my knowledge, this is the first paper to document empirical evidence on whether and how the criminalization of independent directors' breach of duty to exercise due care affects shareholder value.

Second, this paper contributes to the disclosure literature by providing additional evidence on the role played by the court in corporate disclosure. Transparency is believed to be an important pillar of corporate governance which affects shareholder value. Prior literature has extensive discussions on the benefits and costs of different transparency improving mechanisms, such as the requirement of mandatory disclosure and the adoption of a new set of accounting regulations (Healy and Palepu 2001; Beyer et al. 2010). However, less explored is the role played by non-reporting institutions on disclosure (Leuz and Wysocki 2016). By exploring the enforcement of criminal liabilities on the breach of disclosure duties, this paper provides additional evidence on the role played by the court in corporate disclosure and shareholder protection.

The rest of this paper is structured as follows. Section 2 describes the court case used in this paper. Section 3 develops the hypothesis. Section 4 specifies the event study approach, and section 5 presents the results on the impact of the

criminalization on shareholder value. Section 6 provides additional analyses on the possible channels through which shareholder value is affected, and section 7 concludes.

2. Background information on the court case

2.1. An overview of the Chuan Soon Huat case

The Chuan Soon Huat case is the first case in Singapore that independent directors were criminally sanctioned for failing to exercise due care and diligence. At the time that the case emerged, Chuan Soon Huat Industrial Group Ltd was a family-controlled firm listed on the Mainboard of the Singapore Exchange (SGX). In December 2003, the founder and executive chairman Lee Tian Teck suffered a stroke[5] and was not able to discharge any directors' duties since then. As a result, the effective control of the company changed, and this information should be disclosed under the Listing Rules. However, the board of directors failed to disclose this change in effective control until the Commercial Affairs Department (CAD)[6] stepped in on October 31, 2006. On the next day, the company made an announcement that its directors were assisting in the CAD investigation and that Lee Tian Teck had resigned with immediate effect. This announcement attracted little attention from the public until November 16, 2006, when six of the company's directors were arrested under the Securities and Futures Act (SFA) for failing to disclose material information[7]. The six directors included three executive directors, one non-executive non-independent director, and two independent directors. All except for the non-executive non-

[5] Lee Tian Teck suffered his first stroke in 1997 and one side of his body became paralysed. However, he was still able to discharge his duties with the help of the assistants until his second stroke in 2003. After the second stroke, he was not able to discharge any duties and he discontinued all his work in the company since then. As a result, the effective control of the company was changed.

[6] In Singapore, market misconducts are handled by the Monetary Authority of Singapore (MAS) and the CAD. Before 2015, the MAS administered the civil penalty regime whereas the CAD handled the criminal enforcement regime. Starting from 2015, the MAS and the CAD collaborate with each other in the investigation before they decide on the nature of the offense.

[7] Under the SFA, such breaches as intentional or reckless failure to notify the SGX of information required by the listing rules may result in criminal liabilities of a fine of up to 250,000 SGD and a jail term of up to seven years.

independent director were eventually charged and convicted for failing to use reasonable diligence in the discharge of their duties as company directors. The three executive directors were each fined 5,000 Singapore Dollars (SGD) and disqualified from being company directors for a 5-year period. The two independent directors were each fined 5,000 SGD and disqualified from being company directors for a 2-year period. The three executive directors and one independent director appealed against their convictions to the High Court. The appeals were eventually dismissed, but the lengths of the disbarment were reduced for the independent director and two executive directors[8].

In this case, no dishonest intent was found on the independent directors' part. Before the CAD stepped in, the independent directors were kept in the dark by the executive directors, and they were not fully aware of the true health conditions of the executive chairman. There was no intent for the independent directors to hide the information on the change in effective control of the company. However, upon the conviction and sentencing, the court contended that even though the independent directors had less information on Lee Tian Teck's true health condition, they should have taken actions to dig out the actual situation given the fact that Lee Tian Teck had been absent from board meetings for over two years. As part of their duties to exercise care and diligence, the independent directors should have asked tough questions until they got unambiguous answers from the executive directors.

2.2. Significance of the case

The Chuan Soon Huat case is the first case in Singapore that independent directors have been criminally punished for the breach of the duty to exercise due care

[8] One of the independent directors, Peter Moe, became an independent director again in 2013, i.e., five years after he was banned from being a director. Another independent director, Sng Keng Ling, does not serve as a(n) (independent) director again.

and diligence[9] and it conveys a clear message to the market that breaches of independent directors' fiduciary duties could be treated as criminal in nature. Before this case, it had long been stated in the law that breaches of directors' duties might render a director to both civil liabilities and criminal liabilities. Regarding the possibility of being criminally liable, the law itself neither distinguish between independent directors and dependent directors nor distinguish the duty to exercise due diligence from the duty to act honestly and in good faith of the company. However, the criminal sanctions had never been enforced on independent directors who breach their duty to exercise due care and diligence before the Chuan Soon Huat case. Even in the high-profile corporate disclosure scandals such as the China Aviation Oil scandal and the Accord Customer Care Solutions case, the independent directors were not arrested or charged although they were criticized by the public for not performing their corporate governance role (Financial Times, 2005). As a consequence, the general belief of the public was that independent directors were less culpable in corporate debacles and it seems to be unlikely that the breach of their duties to exercise due care in corporate disclosure would be criminally punished (Business Times Singapore, 2006; The Straits Times, 2007). The court enforcement is believed to be a response to the heightened demand for corporate governance improvement and the public criticism, and the decision to criminally punish the independent directors clearly marks the first enforcement case of the criminal liabilities.

2.3. Events identification

To identify relevant events to the Chuan Soon Huat case, I retrieved the Chuan Soon Huat case reports from the *LawNet*, which is a database provided by the

[9] Both dependent directors and independent directors were criminally sanctioned in this case. However, this is not the first case in which dependent directors were criminally convicted for failing to exercise due care and diligence. As early as in 2002, an executive director, Lim Weng Kee, was criminally punished for failing to exercise due care and diligence.

Singapore Academy of Law and covers comprehensive legal research information on both statutory law and case law. From the court case reports, I identified the dates that the Chuan Soon Huat case emerged and ended. Next, I used *Factiva* to search for relevant news reports that may affect investors' expectation on whether the independent directors would be criminally sanctioned. I used "Chuan Soon Huat" as the keyword and searched for relevant news reports within the period from January 1, 2006, to December 31, 2008. The search period is selected to fully cover the criminal prosecution period. Only events that contain new information and that are likely to significantly affect investors' expectation on the criminalization likelihood of independent directors' breach of duties are kept.

The case emerged in November of 2006. On November 1, 2006, the company issued an announcement through the SGX disclosure platform and stated that its directors were assisting in the CAD investigation. The investigation was related to certain statements made by the company in their 2004 and 2005 annual reports. The announcement itself attracted little media attention, and there was no news report on this announcement until November 16, 2006, when the directors were arrested. Further evidence shows that the market price of the Chuan Soon Huat stock did not change in the [-1, +1] three-trading-day event window centered on the announcement date[10]. Based on the above analysis, the first announcement on November 1, 2006, is deemed to be not a significant event, and I do not include it in the event list.

The first significant news came out on November 16, 2006, when six Chuan Soon Huat directors were arrested by the CAD under the continuous disclosure section of the SFA for not making timely disclosure on the effective change of control in the

[10] The Chuan Soon Huat Industrial Group stock was open to trading in this three-trading-day window but no transactions were made by the investors. The Chuan Soon Huat stock was not a frequently transacted stock, and it is not surprising that no transactions were made when there was no significant news.

company. The six directors included two independent directors, and this is the *first time* that independent directors were arrested for continuous corporate disclosure failure. Before this event, the general views of the public is that independent directors are less culpable for any debacles of a company. In contrast to the first announcement on November 1, the arrest of the directors appears to be a significant event for two reasons. First, in Singapore, the arrest is carried out when there is reasonable suspicion that the person has committed an offense. Although the arrest does not necessarily mean a criminal charge will follow, the conversion rate from being arrested by the CAD to being charged is very high[11]. Therefore, I expect that the arrest significantly *increases* investors' expectation on the criminalization likelihood of independent directors' breaches of duty. Second, the market price change of the Chuan Soon Huat stock indicates that the arrest is significant to the company. The media reported the arrest of the directors timely on the evening of the arrest date, and the market reacted immediately on the following trading day. The market price of the Chuan Soon Huat stock plunged 59% within one day. Before this date, there had long been no transactions for this stock and the stock was last traded by its investors at 27 cents on Aug 10, 2006. Based on the reasons mentioned above, I consider this event to be sufficiently important that it should be included in the event list. I denote this event as event 1.

On August 28, 2008, another news came out that the two independent directors and the three executive directors of Chuan Soon Huat were charged for failing to use reasonable diligence[12]. Given the high conversion rate from being arrested to being

[11] Based on a random sampling from *Factiva* of 20 cases in which people were arrested by the CAD, over 70% of the cases were eventually charged. There is no follow-up news on the remaining cases. To the extent that the newspaper does not always follow up a case, the actual conversion rate from being arrested by the CAD to being charged should be even higher.

[12] Although the name of the arrest and the name of the charge are not the same, which is a common practice, this does not affect the nature that the offense is treated as criminal.

charged in Singapore, this news should not be a significant event. The market price change of the Chuan Soon Huat stock further shows that the event is not significant. If the event significantly increases investors' expectation on the criminal sanction likelihood, I should observe a price drop for Chuan Soon Huat stock around this event date. However, during the [-1, +1] three-trading-day event window centered on August 28, 2008, the market price of the Chuan Soon Huat stock did not change, and no transactions were made by investors[13]. Based on the above arguments, I do not expect that the charge significantly increases investors' expectation on the likelihood that independent directors would be criminally sanctioned in Singapore, and thus I do not include this event in the list.

The second significant event date is October 7, 2008. On this date, it was reported that the Chuan Soon Huat directors were convicted and sentenced on October 6, 2008. All the five directors, including the two independent directors, were criminally punished by a fine of 5,000 SGD each and disqualified from being directors in any companies for two to five years. This event is significant in that this is the first court decision on the criminal conviction and sentencing on independent directors for their failure in exercising the duty of care and diligence. The court decision sends out a clear signal to the market that independent directors who breach their fiduciary duties to exercise care and diligence are criminally liable. Before this event, even though the CAD has shown its intention to criminalize independent directors' breaches of duties, it is still not clear to the market how the court would make the decision. The court's decision would increase the market's expectation on the criminalization likelihood

[13] Another reason why the charge against Chuan Soon Huat directors is not significant is that about 1 month before this date, it was reported that the independent directors in another company, Airocean, were charged for failing to disclose a material information to the market. July 31, 2008 is the first news on the Airocean case. Given that the charge against Airocean directors came before the charge against Chuan Soon Huat directors, the significance of the charge against Chuan Soon Huat directors is further reduced. More details on the Airocean case are provided in the robustness test section.

from some level below one to one. To be consistent with the prior section, again I look at the market price change of the Chuan Soon Huat stock in the [-1, +1] three-trading-day event window centered on October 7, 2008. In this event window, the market price of the stock remained to be 1 cent, but the bid price dropped from 1 cent to 0 whereas no ask price was offered and no transactions were made. Overall, I expect that the court decision would significantly *increase* investors' expectation on the criminal sanction likelihood of independent directors' breach of fiduciary duties, and thus include it in the event list. I denote this event as event 2.

In summary, I identify two relevant events that may significantly affect investors' expectation on whether independent directors in Singapore would be criminally sanctioned for the breach of duty to exercise due care and diligence. These two events include the arrest of the independent directors by the public enforcer and the conviction and sentencing decision made by the court. In the main analysis, I explore the effect of the criminalization on shareholder value by examining the market reactions around these two event dates. A summary of the two events is provided in Appendix A.

3. Hypothesis development

It is a controversial issue whether treating the breach of independent directors' duty to be diligent criminal rather than civil is beneficial to shareholders. On the one hand, imposing criminal liabilities on independent directors may help improve corporate governance. An important aspect independent directors could do to improve corporate governance is to help enforce proper and timely disclosures. However, it has frequently been criticized that independent directors are ineffective in doing their jobs (Hwang and Kim 2009; Cohen et al. 2012). One possible way to increase independent

directors' accountability is through the enforcement of criminal liabilities which deters them from being negligent. This deterrent effect is a, if not the most, frequently cited advantage of criminal sanctions over civil remedies (e.g. Becker 1968; Esterbrook 1985; Joo 2007). Civil liabilities are usually remedies that require payment of damages. In contrast, criminal liabilities are usually associated with a fine, disqualification or even jail. More importantly, if criminally convicted, the person is considered as having committed a crime, and his reputation will be seriously impaired by the criminal name and record[14]. By enforcing criminal liability on those who breach the duty to be diligent, independent directors' accountability is increased and consequently, shareholder value is likely to increase.

On the other hand, the criminalization of independent directors' breach of duty to exercise reasonable diligence may result in unintended consequences and decrease shareholder value. The main reason is that the breach of such duties does not require a fraudulent and dishonest intent, and attaching the criminal name to an honest person who has no fraudulent intention to cause any loss to others or cause any gain to himself seems to be unfair. More specifically, the criminal liabilities may serve too strong a deterrent for independent directors who breach their duties to use reasonable diligence. There are three possible channels through which the criminal liabilities imposed on the independent directors may decrease shareholders value. First, independent directors are not involved in the day-to-day operations of the company and have less information on the management of the company. Imposing criminal

[14] Another widely cited reason for why criminal liabilities have a greater deterrent effect is the difference between private enforcement and public enforcement. It is argued that private enforcement has become too costly and the resulting benefits are uncertain. In contrast, enforcement done by the public prosecutors may better punish serious infidelity and provide greater deterrence. However, the assumption underlying this argument is that public enforcers only enforce criminal liabilities. This assumption does not hold in Singapore and many other countries in which the public enforcer has taken up the duty to impose civil liabilities on directors. Therefore, the private enforcement and public enforcement argument does not apply to the difference between civil liabilities and criminal liabilities in Singapore.

liabilities for their breach of duties to use due care and diligence may cause them to interfere with the normal management procedures. Citing a controlling shareholder, "*Now the independents question every single thing. They do not bring much value to the business, but they question our commercial decisions*" (The Straits Times 2007). Specifically, on the disclosure issue, it is argued that criminal liabilities are not appropriate if the goal is to generate more useful corporate disclosures. The reason is that the chilling effect is so strong that independent directors would become too cautious in disclosure, which can lead to the disclosure of too much irrelevant or even proprietary information which could be costly to the company (Tjio 2009). Second, the criminalization imposes additional litigation risks to independent directors, and they may request for an increase in the directors' fees. Third, given the enormous burdens imposed on independent directors, even independent directors who are honest and competent may leave.

Due to the two countervailing forces, the overall effect of increased criminalization on shareholder value could be positive, negative or zero. To empirically test the overall effect of the criminalization, I separate the sample firms into two different groups, i.e. firms with more independent directors and firms with less independent directors. Since independent directors are the direct targets of the criminalization, I expect the effect of the criminalization, if any, is stronger for the firms with more independent directors. More specifically, the criminalization will change the independent directors' behavior and consequently affect firm value. In the most extreme case, if a company has zero independent directors, then the company should not be affected by the case. I state the null hypothesis as follows.

Hypothesis: The stock market reactions to the events that increase the criminal sanction likelihood of independent directors are the same for firms with a large number versus a small number of independent directors.

4. Event study research design

4.1. Sample selection and data description

The first event occurred in November of 2006 and the second event occurred in October of 2008. I start with all publicly listed firms on the SGX Mainboard[15] within the period from year 2006 to year 2008 and download the daily dividend inclusive stock return data from *DataStream*. I exclude firms listed on the Catalist board for two reasons. First, the Catalist firms is a different group of firms that are subject to a different set of regulations. The Catalist board is designed for small and fast-growing firms and the listing on the Catalist does not need to satisfy any quantitative requirements. After the IPO, Mainboard firms are directly supervised by the SGX whereas Catalist firms are supervised by their sponsors. Second, there is little variation in the number of independent directors in Catalist firms. Only about 11% Catalist firms have more than three independent directors on the board[16]. Next, I exclude equities that are not major securities or primary quotes of the company. I confine the sample to major securities because a company may issue more than one type of equity, and major security is the most frequently traded. I limit the sample to primary quotes because some companies may be listed on more than one market or exchange, and investors' expectations are mainly captured by the primary quotes. I further exclude REITs from the sample because investors of REITs receive passive income and therefore the impact of the criminalization may not be well captured by the stock

[15] There are two securities trading boards in Singapore, namely, the Mainboard and the Catalist board. Catalist board is designed to foster smaller firms looking for growth capital.
[16] Three is the median of the number of independent directors in the full sample including both Catalist and Mainboard firms.

market reaction. The company directly involved in the case, Chuan Soon Huat Industrial Group Ltd, is also excluded from the sample because the market reaction towards this firm reflects not only the general impact of the criminalization on the whole market but also the direct impact of increased litigation risk on this company. After imposing the above procedures, I obtain a sample of 626 unique firms from 2006 to 2008.

Information on the board of directors is manually collected from the annual reports. The main variable is a dummy variable indicating whether the firm has a large number of independent directors on the board. I define IND as the total number of independent directors on the board. The key variable HIGH_IND is a dummy variable that equals one if IND is greater than the median of all firms in the year, and 0 otherwise. After dropping firms with missing one-year-lagged value on the number of independent directors, the final sample contains 603 unique firms listed on the Mainboard. Unless specified otherwise, this sample is used in the event study analysis, and all independent variables in the event study are measured at year t-1.

4.2. Event study methodology

The three-step regression methodology is a frequently adopted event study methodology. Specifically, the methodology includes the following three steps.

Step 1: In an *estimation period*, estimate α_j and β_j using regression (1) below

$$\tilde{R}_{jt} = \alpha_j + \beta_j \tilde{R}_{mt} + \tilde{\epsilon}_{jt} \quad (1)$$

where $\tilde{R}_{jt}$ is the daily dividend inclusive stock return for firm j on day t, and $\tilde{R}_{mt}$ is the daily dividend inclusive return of the equally weighted market portfolio on day t.

Step 2: In the *event period*, use the estimated coefficients $\widehat{\alpha_j}$ and $\widehat{\beta_j}$ from (1) to calculate the prediction error

$$\widehat{\tilde{\varepsilon}_{jt}} = R_{jt} - (\widehat{\alpha_j} + \widehat{\beta_j} R_{mt}) \quad (2)$$

Step 3: Average $\widehat{\tilde{\varepsilon}_{jt}}$ (denote the average as $\widehat{\gamma_j}$) over the event period and regress $\widehat{\gamma_j}$ on the firm characteristics vector

$$\hat{\gamma} = \mu F + \epsilon \quad (3)$$

where F is a (K+1)×J matrix consisting of the constant vector and K vectors of firm characteristics X_1, X_2,…, X_K.

From step 3, $\mu = [\mu_0, \mu_1, \mu_2, \dots, \mu_K]'$ is obtained, where μ_k is the cross sectional difference in stock market reactions to the events between the firms with firm characteristic $f_k = 1$ and the firms with $f_k = 0$.

The above three-step regression methodology leads to valid inferences only if the disturbances are cross-sectionally *IID*. However, this *IID* assumption is unlikely to hold in the setting of this paper because of perfect event-clustering. To address this limitation, the following alternative regression approach is proposed by Sefcik and Thompson (1986).

Step 1: Create K+1 sets of portfolio weights $(F'F)^{-1}F'$, where K is the number of different types of firm characteristics and F is the (K+1)×J matrix of individual firm characteristics.

Step 2: Calculate K+1 portfolio returns using weight $(F'F)^{-1}F'$

Step 3: For each portfolio, run the following time series regression

$$\tilde{R}_{pt} = \alpha_p + \beta_p \tilde{R}_{mt} + \gamma_p EVENT + \tilde{u}_{pt} \quad (4)$$

where EVENT = 1 if day t falls in the event period, 0 otherwise.

The estimated coefficients γ_p from the K+1 regressions of (4) are identical to μ_k in (3), but the Sefcik and Thompson methodology relaxes the *IID* assumption and is more appropriate in the setting of this paper. In this study, I apply the Sefcik and Thompson (1986) methodology in assessing the market reaction difference between

different types of firms. The sample period starts from 180 trading days prior to the event window of the first event date to the last trading day of the last event window. The cumulative stock return around each event is measured over the [-1, +1] three-trading-day event window centred on the event date.

In the event study analysis, I assess the market reaction to the two events that are likely to significantly increase the market's expectation on the criminalization likelihood of independent directors and examine whether the criminalization has any impact on shareholder value.

5. Event study results

5.1. Main results

Panel A of Table 2 shows that the market reaction is significantly negative for firms with more independent directors relative to firms with less independent directors over the conviction and sentencing but not the arrest. The insignificant effect of the arrest is possibly due to the fact that the public prosecutor such as the CAD and the court are two different government agencies. The decision for the CAD to criminally prosecute the independent directors does not necessarily indicate that the court has the same intention to punish the independent directors criminally. It is particularly true when there is no precedent case, and the consensus between the public prosecutor and the court on such cases has not been established. Therefore, upon the arrest of the independent directors, even though the CAD has shown its intention to enforce criminal liabilities on the independent directors, it is still not clear to the market how the court would make its final decisions. It is not until the conviction and sentencing date that it is unambiguous to the market that criminal liabilities may apply to independent directors who breach their duties. Over the three-trading-day event window of the conviction and sentencing, the market reaction towards firms with more

independent directors is significantly negative (-4.70%) relative to firms with less independent directors. If I combine the two events, Panel B of Table 2 shows that the combined market reaction over the two events is still significantly negative (-4.46%) for firms with more independent directors. The results indicate that the criminalization of independent directors' breaches of fiduciary duty to exercise due care decreases shareholders' value. An alternative explanation for the negative impact is that some companies may have economic relationships with Chuan Soon Huat, and thus any negative event to Chuan Soon Huat may have negative impacts on these companies as well. However, I do not think this story is plausible for two reasons. First, Chuan Soon Huat is a penny stock, and the company itself should have a negligible impact on other firms in the market. Second, even if there are some listed firms that have economic relationships with the company, these firms should systematically have a large number of independent directors to explain the observed negative results. Overall, I believe the alternative story is not plausible. Another alternative explanation for the negative impact could be that the criminalization of independent directors in the event shocked the financial market because investors suddenly realized that independent directors could be "villains". However, it is less likely for this story to hold in this setting for the following reasons. First, as mentioned earlier, the reason why the court suddenly imposed criminal liabilities on independent directors is that the general public blamed independent directors for being responsible for a series of high-profile accounting scandals and requested for better corporate governance. Therefore, the criminalization is a response to the investors' concern on the effectiveness of independent directors rather than a trigger of the investors' concern. Second, our main results come from the final conviction and sentencing. Before this date, the investors have already learned the fact that independent directors in Chuan Soon Huat failed to exercise their duties.

If the effect comes from the possibility that investors suddenly realized that independent directors could be "villains", we should observe a strong market reaction around the event when the case first emerged rather than when the independent directors were punished.

5.2. Sensitivity checks

To further assure that I have successfully captured the impact of the criminalization, I perform some sensitivity checks to show the robustness of the above-observed main results.

First, as mentioned in the events identification section, about two weeks before the arrest, the company made an announcement stating that the directors were assisting the CAD in their investigations. Further, before the conviction and sentencing, the public prosecutors charged against the directors. In the earlier section, I have argued that the assistance in the CAD investigation and the charge do not seem to be significant in affecting investors' expectation on the criminalization likelihood. However, to address the concern that I have made the wrong inferences, I take both the investigation assistance step and the charge step into consideration. Before including the charge in the event list, it is important to take a note that during the whole Chuan Soon Huat case prosecution period, another similar case emerged in 2008. On July 31, 2008, three independent directors and one executive director in Airocean, a publicly listed company on the SGX Mainboard, were charged for disclosure failures. This is the first and also the only event relevant to the Airocean case during the whole prosecution period of the Chuan Soon Huat case. Given the charge against Airocean independent directors, it is unlikely that the similar charge against Chuan Soon Huat independent directors has any impact on affecting the market's expectation on the

criminal sanction likelihood of independent directors in Singapore. Therefore, I include the assistance in the CAD investigation, denoted as event 0, and the charge against Airocean directors, denoted as event 1.5, in the event list and redo the market reaction analysis. The tabulated results in Table 3 show that the results are qualitatively similar as in the main analysis.

Second, to address the concern that the difference in market returns is not due to the difference in the number of independent directors but due to other factors correlated with the number of independent directors, I add the firm-level market capitalization and the book to market ratio as controls because these two are the commonly recognized factors that could affect stock returns. Table 4 shows that the results are qualitatively the same after controlling for these two factors.

Third, I check whether the results are explained by any confounding events. After checking the news over the two event windows, I find that there is one event that could potentially contribute to the main event study results. The year 2008 falls in the period of the last global financial crisis. On Monday, October 6, 2008, it was reported by the Singapore newspapers that the US Congress passed the financial bailout plan on the US date of Friday, October 3, 2008[17]. The bailout plan is a significant market-level news that could affect the stock market globally. If all firms in the Singapore market are similarly affected, this news is not a concern because I have controlled for the market-level factors using firms with less independent directors as the benchmark. However, to address the concern that firms in certain sectors such as the financial sector may be more affected by the financial crisis-related news and that these sectors happen to have more independent directors, I add industry dummies into the regression. Results in Table 5 show robustness.

[17] The Singapore timezone is 13 hours ahead of the Washington timezone.

Fourth, I perform a pseudo-event study to rule out the possibility that the significant findings are due to the volatility of the stock market. Specifically, for each of the two events in the main analysis, I create a pseudo-event date which is one calendar month earlier than the actual event date. The pseudo-event study results tabulated in Table 6 show that the market reaction around the pseudo-events is not significantly different between firms with more independent directors and firms with less independent directors.

6. Additional analyses on possible channels through which the criminalization decreases shareholder value

The above event study results indicate that the criminalization of independent directors' breaches of duties has a negative impact on shareholder value. In this section, I perform additional analyses to explore possible channels through which shareholder value is decreased. Three possible channels are examined, i.e. the increase in disclosure cost, the increase in directors' fees, and the increase in independent directors' turnover rate.

6.1. Channel one: increase in additional disclosure cost

The criminalization may cause independent directors to be overcautious, and consequently, they may request the management to disclose more information to the market even if the disclosure is unnecessary or proprietary. As a result, the company suffers additional disclosure cost, and shareholder value is decreased. If this is a possible channel, I expect that the negative effect of the criminalization is stronger in firms that are prone to incur more cost from additional disclosure. I use the degree of industry-level competition as a proxy for the proprietary disclosure cost. Prior literature indicates that proprietary cost becomes a concern when there are competitors

(Verrecchia 1983; Healy and Lundholm 1996). Therefore, I expect that the negative impact of criminalization on shareholder value is more easily detected in the high competition industries where proprietary cost is high. I use the Herfindahl-Hirschman Index (HHI) as a measure of industry competition. For each industry, I define HHI as $HHI = \sum_{i=1}^{n} {}^{s_i}/_{S}$, where s_i is the sales of firm i, and S is the aggregated industry-level sales. A high HHI close to 1 indicates low competition and a low HHI close to 0 indicates high competition. The results in Table 7 show that the market reaction towards firms with more independent directors is significantly negative relative to firms with less independent directors in the high competition industries (i.e. low HHI), but the market reaction difference is insignificant in the low competition industries (i.e. high HHI). The results are consistent with the prediction that the increase in disclosure cost is a channel through which the criminalization decreases shareholder value.[18]

6.2. Channel two: increase in directors' fees

Another possible channel through which the criminalization may decrease shareholder value is that independent directors may request for a higher remuneration to compensate for the increased risk they face. To examine this possibility, I manually collect information on directors' fees from the annual reports, and I examine whether there is any increase in the directors' fees after the conviction and sentencing. Ideally, I should examine whether there is any increase in the independent directors' compensation. However, such detailed information is not disclosed in Singapore. Therefore, I use total directors' fees subject to shareholders' approval as an alternative proxy. There are two reasons why this proxy is reasonable. First, in Singapore, both executive directors and non-executive directors may receive directors' fees, but only

[18] In the future I also plan to directly examine the impact of criminalization on ex post corporate disclosure behaviour in a separate paper.

non-executive directors' fees are subject to shareholders' approval at the annual general meeting. Second, in Singapore, directors' fees is the main source of remuneration for non-executive directors. Therefore, it is appropriate to use the proposed amount of directors' fees that is subject to shareholders' approval as a proxy for non-executive directors' remuneration. Since independent directors is a sub-group of non-executive directors, if independent directors request for a higher fee after the criminalization, I expect that the total amount of non-executive directors' fees also increases for firms with more independent directors.

There are two alternative approaches through which directors' fees are proposed and determined. The first approach is to propose and approve the payment of directors' fees at the end of each year after the directors have rendered their services. The second approach is to propose and approve the amount of directors' fees at the beginning of each year, i.e. at the end of last year, before the directors render their services. Under the first approach, the proposed directors' fees are determined based on the concurrent year firm characteristics and financial conditions. Under the second approach, the proposed fees are determined based on the last year firm characteristics and financial conditions. Over the sample period of this study, about 86% firm-year fee observations are determined under the first approach. To reconcile the difference between these two approaches, I define FEE as the amount of directors' fees proposed at the end of year t, regardless of whether the fee is proposed as payment for services rendered in year t or for services to be rendered in year t+1. Following this definition, FEE in year t is determined based on the firm characteristics and financial conditions in year t.

To examine whether there is any fee increase for independent directors after the criminalization, I consider the following regression.

$$\begin{aligned} \text{LN\_FEE} = {} & \text{HIGH\_IND} + \text{POST} + \text{HIGH\_IND} * \text{POST} + \text{NED} + \text{BOARDSIZE} \\ & + \text{LN\_MV} + \text{BTM} + \text{ROA} + \text{RETURN} + \text{LEV} + \text{Industry dummies} \\ & + \text{Year dummies} \end{aligned} \quad (5)$$

where LN_FEE is the natural log of FEE, and HIGH_IND is as defined earlier. I keep three years before the conviction and three years after the conviction as the sample period for the fee change analysis. POST captures whether the year is before or after the conviction, and I define POST to be 1 for the years 2008, 2009, and 2010, and 0 for the years 2005, 2006 and 2007. If independent directors request for a higher fee after the conviction, I expect that FEE increases more for firms with more independent directors, i.e. the coefficient on HIGH_IND*POST should be significantly positive. NED is the number of total non-executive directors, and BOARDSIZE measures the total number of directors on the board. Both the NED and BOARDSIZE information are manually collected from the annual reports. Following prior literature (Goh and Gupta 2015), I add firm characteristics measuring size, growth opportunities, profitability and liquidity as controls. Relevant financial information is retrieved from DataStream. Unlike the market reaction analysis, in the fee change analysis, both dependent and all independent variables are measured in year t. Observations in the IPO year are dropped. To compare the fee change before and after the conviction, I further require firms to have at least one observation in the pre-period and at least one observation in the post-period to keep the sample relatively stable. As a result, 480 unique Mainboard firms are left. The loss of sample is mainly due to the delisting or suspension of firms over the 6-year sample period.

As shown in Table 8, the coefficient on HIGH_IND*POST is not significant, indicating that there is no significant increase in independent directors' fees after the criminalization. One possible reason could be that the Governance Code does not

encourage a high fee for non-executive directors because the independence of non-executive directors may be compromised due to over-compensation.

6.3. Channel three: increase in independent directors' turnover

The third channel through which shareholder value is decreased could be that the strong chilling effect of the criminalization deters even competent independent directors from sitting on the board. As a result, independent directors resign from the board. To capture this possibility, I examine the turnover rate of independent directors before and after the criminalization. Independent directors' turnover rate is measured as the total number of independent directors who left in year t scaled by the total number of independent directors at the end of year t - 1. The turnover rate is measured by firm-year. To compare the change in turnover rate before and after the conviction, I further require firms to have at least one observation in the three-year pre-period and at least one observation in the three-year post-period to keep the sample relatively stable.

The turnover rates are provided in Figure 1. I plot the average value of independent directors' turnover rate across all firms in each year and include dependent directors' turnover rate as a benchmark. As shown in the chart, there is a general decrease in dependent directors' turnover rate. For independent directors, there is a small spike in 2009 after the conviction, but overall the average turnover rate drops in the three-year period after the conviction. Therefore, there is no evidence that the independent directors' turnover rate increases after the criminalization[19].

7. Conclusion

[19] Untabulated results show that there is also no change in the equilibrium number of independent directors after the criminalization.

How to improve independent directors' accountability is an important corporate governance issue. In this paper, I examine whether the criminalization of independent directors' breach of fiduciary duty to exercise due care and diligence is an effective approach to increasing independent directors' accountability and hence shareholder value. This question is hotly debated in law, but there is little supporting empirical evidence due to lack of relevant data. To examine this question, I take advantage of a unique setting in Singapore where the court enforced criminal liabilities on independent directors for their breaches of fiduciary duties. I identify events associated with the increased criminalization likelihood and examine the market reactions to these events. The results suggest that the criminalization decreases firm value.

Further, I explore three possible channels through which the shareholder value is decreased. First, I examine whether independent directors become overcautious and request for additional but irrelevant disclosure. Second, I test whether independent directors request for a higher fee to compensate for the increased liability. Third, I examine whether even competent independent directors are deterred from sitting on the board. I find that the increase in disclosure cost is likely to be the underlying driver for shareholder value reduction. In contrast, the decriminalization does not seem to have significant impacts on independent directors' fees and turnover rate.

Overall, this study suggests that the criminalization of independent directors' breach of the duty to exercise care and diligence is probably too strong a deterrent which may decrease shareholder value. Further, holding independent directors more accountable for corporate disclosure may add unintended costs to the company. Given the above evidence, regulators may need to reconsider their criminalization decisions if their intention is to improve corporate governance and protect shareholder value.

This paper has several limitations. First, I use a Singapore setting to test the net benefit of the criminalization. However, the finding in the Singapore setting may not be generalized to all other institutional settings. For example, the net benefit of the criminalization may depend on the availability of other deterring mechanisms. Singapore is a country with strong investor protection, and the benefit of the deterrent effect from the criminalization may not be as large as in countries with weak investor protection, where the alternative deterring mechanisms are less available. Therefore, the net effect of the criminalization in countries with weak investor protection may differ. It is always difficult to determine whether the results found in one country can be generalized to other countries without doing tests. Future studies may explore more on how the effect of criminalization differs across different institutional settings. Second, as discussed in the paper, there can be countervailing forces from both the benefit and the cost of the criminalization. In this paper, I focus more on the channels through which criminal liabilities can destroy firm value because I found a negative impact of the criminalization on firm value. However, it is worth noting that the benefit of the criminalization may differ across different types of firms as well. Conceptually, the benefit of the criminalization comes from the possibility that it could increase independent directors' accountability in board affairs, e.g., improving the corporate disclosure quality. Arguably, if independent directors of a firm are already performing their duties well, the firm would benefit less from the criminalization. In contrast, if the independent directors are not well performing their duties, the firm could benefit more from the criminalization. However, at this stage, it is difficult to measure whether the independent directors are performing well enough. Future studies can explore more on this issue. Third, due to data limitation, it is difficult for the paper to show the real effect of the criminalization on firms' disclosure behavior. It would be

interesting for future studies to further look into whether the criminalization leads to an increase in additional unnecessary disclosures.

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Appendix A. Event list

Event No.	Event Date	Event Description
1	Nov 16, 2006	***Arrest*** Chuan Soon Huat Industrial Group Ltd made an announcement that six directors of the company were arrested under section 203 (continuous disclosure), read with section 331 of the Securities and Futures Act. They were placed on police bail of 50,000 Singapore Dollars each. The six arrested included the managing director Lee Thian Soon, two executive directors Lim Kiang Soon and Lee Siew Hoe, the non-executive and non-independent director Geoffrey Aldridge and two independent directors Sng Keng Ling and Peter Moe. The arrested directors were accused of not making a timely disclosure on the change in the effective control of the company. Specifically, its former executive chairman, Lee Tian Tack, suffered a stroke in December 2003 and was not able to discharge any board duties after that, but he stayed on the board as chairman in the company until his resignation in early November 2006.
2	Oct 7, 2008	***Conviction and Sentencing*** It was reported by the newspaper that the managing director Lee Thian Soon, two former executive directors Lee Siew Hoe and Lim Kiang Soon, and two former independent directors Peter Moe and Sng Keng Ling were each fined 5,000 SGD on October 6, 2008 after admitting that they failed to exercise reasonable diligence in the discharge of their directors' duties. The managing director and the two former executive directors were each prohibited from being company directors for five years. The two former independent directors were each disqualified from holding directorships for two years.

Appendix B. Variable definitions

IND	Total number of independent directors on the board; firm-year observations.
HIGH_IND	A dummy variable that equals 1 if the number of independent directors in a year is greater than the median in the year, and 0 otherwise; firm-year observations.
NED	Total number of non-executive directors on the board; firm-year observations.
BOARDSIZE	Total number of directors on the board; firm-year observations.
HHI	The Herfindahl-Hirschman Index. For each industry, I define HHI as $HHI = \sum_{i=1}^{n} {s_i}/{S}$, where s_i is the sales of firm i, and S is the aggregated industry-level sales.
HIGH_HHI	A dummy variable that equals 1 if the HHI of a firm in a year is greater than the median of all firms in the year, and 0 otherwise.
LN_FEE	The natural log of the proposed directors' fees at the end of each year; winsorized at the top 1% level; firm-year observations.
LN_MV	The natural log of the market capitalization; winsorized at the top 1% level; firm-year observations.
HIGH_MV	A dummy variable that equals 1 if the market capitalization of a firm is greater than the median of all firms in the year, and 0 otherwise; firm-year observations.
BTM	Book value of equity/market value of equity; winsorized at the top 1% level; firm-year observations.
HIGH_BTM	A dummy variable that equals 1 if the book to market ratio of a firm is greater than the median of all firms in the year, and 0 otherwise; firm-year observations.
ROA	Return on assets; winsorized at both top and bottom 1% level; firm-year observations.
RETURN	The annual stock return over the year; winsorized at the top 1% level; firm-year observations.
LEV	Total liabilities/total equities; winsorized at the top 1% level; firm-year observations.
$EVENT_i$	A dummy variable that equals 1 over total number of trading days in the event i window, and 0 otherwise. By definition, $EVENT_i$ = 1/3 in the three-trading-day window of event i, and 0 in non-event i windows. Coefficient on $EVENT_i$ represents the cumulative abnormal return over the three-trading-day window of event i.
$EVENT_{i-j}$	A dummy variable that equals 1 over total number of trading days in the event i to event j window, and 0 otherwise, e.g., $EVENT_{1-2}$ =1/6 in the three-trading day event window of $EVENT_1$ and $EVENT_2$, and 0 otherwise.
POST	A dummy equals 1 if year is 2008, 2009, and 2010, 0 if year is 2005, 2006, and 2007.
IND_turnover_rate	Total number of independent directors that leave the company during the year/total number of independent directors at the end of last year; firm-year observations.

DD_turnover_rate	Total number of dependent directors that leave the company during the year /total number of independent directors at the end of last year; firm-year observations.

Table 1. Descriptive statistics

Panel A.1 Event study summary statistics (from 2006 to 2008)

				Quantiles				
Variable	N	Mean	S.D.	Min	0.25	Mdn	0.75	Max
IND	1623	3.23	1.37	0	2	3	4	11
HIGH_IND	1623	0.26	0.44	0	0	0	1	1
HIGH_HHI	1623	0.43	0.49	0	0	0	1	1
HIGH_MV	1622	0.58	0.49	0	0	1	1	1
HIGH_BTM	1569	0.51	0.5	0	0	1	1	1

Panel A.2 Event study correlation table (from 2006 to 2008)

	IND	*HIGH_IND*	*HIGH_HHI*	*HIGH_MV*	*HIGH_BTM*
IND	1				
HIGH_IND	0.7493***	1			
HIGH_HHI	0.0305	0.0416*	1		
HIGH_MV	0.2961***	0.2981***	0.0280	1	
HIGH_BTM	-0.1326***	-0.1211***	0.0676***	-0.2606***	1

Panel B.1 Directors' fee analysis summary statistics (from 2005 to 2010)

				Quantiles				
Variable	N	Mean	S.D.	Min	0.25	Mdn	0.75	Max
LN_FEE	2674	12.06	0.86	0	11.61	12.04	12.47	14.14
HIGH_IND	2674	0.25	0.43	0	0	0	1	1
NED	2674	4.37	1.93	0	3	4	5	14
BOARDSIZE	2674	6.93	1.9	3	6	6	8	15
LN_MV	2674	18.74	1.72	13.82	17.57	18.43	19.59	23.85
BTM	2674	1.66	3.51	0	0.55	0.99	1.58	51.45
ROA	2674	5.87	12.28	-78.61	2.41	6.37	10.99	45.86
RETURN	2674	0.16	0.62	-0.91	-0.25	0.03	0.37	2.44
LEV	2674	1.18	1.86	0	0.37	0.75	1.28	16.51

Panel B.2 Directors' fee analysis summary statistics (from 2005 to 2010)

	LN_FEE	*HIGH_IND*	*NED*	*BOARDSIZE*	*LN_MV*	*BTM*	*ROA*	*RETURN*	*LEV*
LN_FEE	1								
HIGH_IND	0.3879***	1							
NED	0.5219***	0.6136***	1						
BOARDSIZE	0.4590***	0.5548***	0.7699***	1					
LN_MV	0.5445***	0.4742***	0.5819***	0.5791***	1				
BTM	-0.0258	-0.0314	-0.0082	0.0037	-0.1621***	1			
ROA	0.0658***	0.0262	0.0530***	0.0953***	0.2685***	-0.0898***	1		
RETURN	-0.016	0.0062	0.0149	0.0375	0.1843***	-0.1610***	0.1699***	1	
LEV	0.1376***	0.1049***	0.1671***	0.1384***	0.1177***	-0.0812***	-0.1365***	0.0194	1

Panel A provides descriptive statistics on the variables used in the event study analysis. Panel B provides descriptive statistics on the fee change analysis. *, **, and *** denote significance level at 10%, 5%, and 1% (two-tailed), respectively. See Appendix B for variable definition.

Table 2. Stock market reactions: main analysis

Panel A. Market reaction to individual event

VARIABLES	(1) cons	(2) *HIGH_IND*
$EVENT_1$	-0.0002	0.0020
	(-0.060)	(0.344)
$EVENT_2$	0.0036	-0.0470***
	(0.496)	(-4.226)

Panel B. Combined market reaction to all events

VARIABLES	(1) cons	(2) *HIGH_IND*
$EVENT_{1-2}$	0.0033	-0.0446*
	(0.407)	(-1.928)

Table 2 provides the univariate market reaction results for the main analysis. Event 1 is the arrest. Event 2 is the conviction and sentencing. Event 1-2 includes event 1 and event 2. Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. See Appendix B for variable definitions. Robust t-statistics in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 3. Stock market reactions: add investigation assistance and charge

Panel A. Market reaction to individual events

VARIABLES	(1) cons	(2) *HIGH_IND*
$EVENT_0$	-0.0004	-0.0092
	(-0.090)	(-0.767)
$EVENT_1$	-0.0002	0.0019
	(-0.060)	(0.337)
$EVENT_{1.5}$	0.0003	0.0029
	(0.075)	(0.277)
$EVENT_2$	0.0036	-0.0470***
	(0.496)	(-4.224)

Panel B. Combined market reaction to all events

VARIABLES	(1) cons	(2) *HIGH_IND*
$EVENT_{0\text{-}2}$	0.0033	-0.0510*
	(0.315)	(-1.677)

Table 3 provides the univariate market reaction results for the robustness check 1. Event 0 is the assistance in the CAD investigation. Event 1.5 is the charge against Airocean directors. Event 0-2 includes event 0, event 1, event 1.5 and event 2. Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. Robust t-statistics in parentheses. *, **, and *** denote significance level at 10%, 5%, and 1% (two-tailed), respectively. See Appendix B for variable definitions.

Table 4. Stock market reactions: add MV and BTM as controls

Panel A. Market reaction to individual events

VARIABLES	(1) cons	(2) *HIGH_IND*	(3) *HIGH_MV*	(4) *HIGH_BTM*
$EVENT_1$	-0.0033	0.0029	0.0038	-0.0024
	(-0.427)	(0.461)	(0.473)	(-0.362)
$EVENT_2$	0.0270*	-0.0378***	-0.0296*	-0.0222**
	(1.744)	(-7.160)	(-1.932)	(-2.100)

Panel B. Combined market reaction to all events

VARIABLES	(1) cons	(2) *HIGH_IND*	(3) *HIGH_MV*	(4) *HIGH_BTM*
$EVENT_{1-2}$	0.0233	-0.0344*	-0.0254	-0.0244*
	(1.115)	(-1.882)	(-1.178)	(-1.651)

Table 4 provides the multivariate market reaction results for the robustness check 2. HIGH_MV and HIGH_BTM are added to address the concern that they may contribute to the observed difference in stock returns. Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. Robust t-statistics in parentheses. *, **, and *** denote significance level at 10%, 5%, and 1% (two-tailed), respectively. See Appendix B for variable definitions.

Table 5. Stock market reactions: add industry controls

Panel A. Market reaction to individual events

VARIABLES	(1) cons	(2) *HIGH_IND*	(3) *Industry dummies*
$EVENT_1$	0.0019	0.0062	
	(0.115)	(1.139)	yes
$EVENT_2$	-0.0121	-0.0444***	
	(-0.217)	(-5.814)	

Panel B. Combined market reaction to all events

VARIABLES	(1) cons	(2) *HIGH_IND*	(3) *Industry dummies*
$EVENT_{1-2}$	-0.0101	-0.0377*	yes
	(-0.175)	(-1.691)	

Table 5 provides the multivariate market reaction results for the robustness check 3. Industry dummies are added to address the concern the observed difference in stock returns may be due to any confounding events. Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. Robust t-statistics in parentheses. *, **, and *** denote significance level at 10%, 5%, and 1% (two-tailed), respectively. See Appendix B for variable definitions.

Table 6. Stock market reactions: Pseudo-event test

Panel A. Combined market reaction to all events: Univariate

VARIABLES	(1) cons	(2) *HIGH_IND*
$EVENT_{1-2}$	-0.0035	0.0114
	(-0.876)	(0.619)

Panel B. Combined market reaction to all events: Multivariate

VARIABLES	(1) cons	(2) *HIGH_IND*	(3) *HIGH_MV*	(4) *HIGH_BTM*
$EVENT_{1-2}$	-0.0001	0.0120	-0.0005	-0.0076
	(-0.009)	(0.629)	(-0.021)	(-0.746)

Table 6 provides both the univariate and multivariate market reaction results for the robustness check 4. For each actual event, I create a pseudo-event dated one calendar month earlier than the actual event date. Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. Robust t-statistics in parentheses. *, **, and *** denote significance level at 10%, 5%, and 1% (two-tailed), respectively. See Appendix B for variable definition.

Table 7: Stock market reactions: high HHI group and low HHI group

Panel A.1. Combined market reaction to all events within high HHI group: Univariate

VARIABLES	(1) cons	(2) *HIGH_IND*
$EVENT_{1-2}$	0.0115	-0.0412
	(0.926)	(-1.478)

Panel A.2. Combined market reaction to all events within high HHI group: Multivariate

VARIABLES	(1) cons	(2) *HIGH_IND*	(3) *HIGH_MV*	(4) *HIGH_BTM*
$EVENT_{1-2}$	0.0387**	-0.0331	-0.0281	-0.0309**
	(2.477)	(-1.413)	(-1.466)	(-2.266)

Panel B.1. Combined market reaction to all events within low HHI group: Univariate

VARIABLES	(1) cons	(2) *HIGH_IND*
$EVENT_{1-2}$	-0.0017	-0.0493*
	(-0.141)	(-1.935)

Panel B.2. Combined market reaction to all events within low HHI group: Multivariate

VARIABLES	(1) cons	(2) *HIGH_IND*	(3) *HIGH_MV*	(4) *HIGH_BTM*
$EVENT_{1-2}$	0.0103	-0.0387*	-0.0183	-0.0193
	(0.375)	(-1.894)	(-0.612)	(-0.825)

Table 7 provides both the univariate and multivariate market reaction results within high HHI group and within low HHI group. Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. Robust t-statistics in parentheses. *, **, and *** denote significance level at 10%, 5%, and 1% (two-tailed), respectively. See Appendix B for variable definition.

Table 8. Change in directors' fees before and after the conviction

VARIABLES	(1) *LN_FEE*
HIGH_IND	0.0897**
	(2.056)
POST	0.0651
	(1.438)
*HIGH_IND*POST*	**-0.0235**
	(-0.383)
NED	0.1241***
	(9.458)
BOARDSIZE	0.0007
	(0.068)
LN_MV	0.2077***
	(16.000)
BTM	0.0070**
	(2.419)
ROA	-0.0022
	(-1.519)
RETURN	-0.0945***
	(-4.151)
LEV	0.0215***
	(4.241)
Constant	7.4351***
	(29.579)
Observations	2,674
R-squared	0.392

Industry and year dummies are controlled. Standard errors are clustered by firm. Robust t-statistics in parentheses. *, **, and *** denote significance level at 10%, 5%, and 1% (two-tailed), respectively. See Appendix B for variable definitions.

Figure 1: Average directors' turnover rate from 2005 to 2010

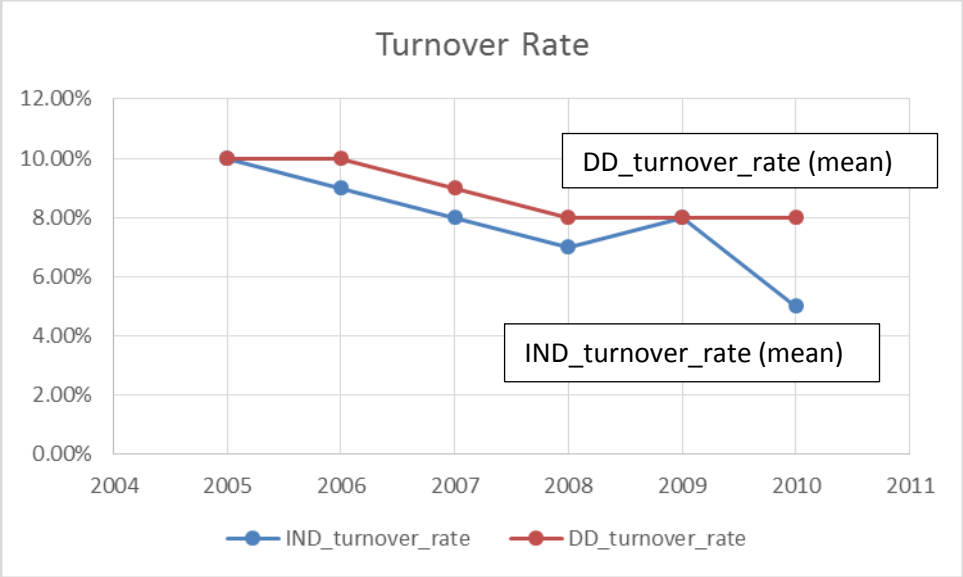

Figure 1 plots the average independent directors' turnover rate across all firms from 2005 to 2010. The average value of independent directors' turnover rate is the line below. The average value of dependent directors' turnover rate is the upper line. Dependent directors' turnover rate is included as a benchmark. Supporting statistics of figure 1 is provided in the table below.

Supporting statistics of Figure 1

year	IND_turnover_rate (mean)	DD_turnover_rate (mean)	Unique firm observations
2005	10.00%	10.00%	424
2006	9.00%	10.00%	466
2007	8.00%	9.00%	498
2008	7.00%	8.00%	498
2009	8.00%	8.00%	477
2010	5.00%	8.00%	463