Risk perceptions, board networks, and directors' monitoring*

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Abstract

What makes independent directors perform their monitoring duty? One possible reason is that they are worried about being sanctioned by regulators if they do not monitor sufficiently well. Using unique features of the Chinese financial market, we estimate the extent to which independent directors' perceptions of the likelihood of receiving a regulatory penalty affect their monitoring. Our results suggest that they are more likely to vote against management after observing how another director in their board network received a regulatory penalty related to negligence. This effect is long-lasting and stronger if the observing and penalized directors share the same professional background or gender and if the observing director is at a firm that is more likely to be penalized. These results provide direct evidence suggesting that the possibility of receiving penalties is an important factor motivating directors.

Keywords: Director monitoring, regulatory penalties, board networks, board voting
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1. Introduction

One of the most important issues in corporate governance is the manner in which boards of directors monitor top management. Originally raised by Adam Smith in the *Wealth of Nations*, it has been addressed many times in the subsequent almost 250 years. The literature has more or less agreed that some of the time, boards do monitor management, although the extent to which this monitoring is optimal is unclear, as is the impact of the legal and regulatory environment on directors' monitoring.[1]

While the question of what boards do is fairly well understood, what is less clear is why they do what they do. Directors have a fiduciary responsibility to protect shareholders' interests and to comply with regulations, and they can face penalties if they fail to take this responsibility seriously. The possibility of being sanctioned is one potential factor that motivates directors to act in shareholders' interests and to monitor management diligently. Yet, measuring the extent to which the risk of being penalized for negligence increase directors' monitoring is a difficult empirical exercise. The same set of penalties normally apply to all firms in a country, so that even in the circumstances when one can observe directors' monitoring, one cannot know if this monitoring was motivated by the fear of penalties or some other reason.

In this paper we take advantage of two unique institutional features in China to estimate the impact of directors' perceived risk of regulatory sanctions on their monitoring. The first feature is that in China, the capital market regulator has implemented a system of penalties for directors who fail to perform their fiduciary responsibilities. Importantly, these penalties are public information. The second feature is that in China, the votes of directors on board proposals are also public information. Consequently, as argued by Jiang, Wan, and Zhao (2016), a director's negative vote (or an abstention from voting) is an important way in which Chinese directors monitor and discipline management, and sends a strong negative signal about the firm to the public markets. This voting information provides us

[1] The famous statement in Smith (1776) is: "The Directors of [joint stock] companies, however, being the managers of other people's money rather than their own, it cannot be expected that they should watch over it with the same anxious vigilance [as owners would]… Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company." (p. 700) See Hermalin and Weisbach (2003), Adams, Hermalin, and Weisbach (2010), and Adams (2017) for surveys of the voluminous recent literature on boards of directors.

with a direct measure for directors' monitoring.

Sanctioning one director will obviously influence her own behavior. However, a penalty for one director can also influence the behavior of other directors if such sanctions change their perceived risk that they could be penalized as well if they fail to fulfill their monitoring duty. Conceptually, this idea dates to Holmström (1982, 1999), who argued that agents can receive incentives indirectly if their efforts influence others' perceptions of their quality, and those perceptions affect their value in the marketplace. The mechanism through which these indirect incentives can affect behavior is that directors update their assessment of the risk of being penalized themselves following another director's penalty. Such changes in the perceived risk more likely if the director knows the penalized director personally, which directs more of her attention to the penalty event compared to penalties of directors who she does not know. In the psychology literature, this phenomenon is known as the "salience theory" and states that the impact of an observation on a person's priors depends on closeness of that observation to them personally.

There are at least two potential mechanisms how observing the other director's penalty can affect the perceived penalty risk for an independent director. First, the independent director might over-react to her observation and over-estimate the actual penalty risk due to the salience of the event (Bordalo, Gennaioli, and Shleifer, 2012). An alternative to this behavioral mechanism is observational learning (Bikhchandani, Hirshleifer, and Welch, 1998). In this perspective, the director increases her previously too low estimate of the penalty risk when her attention is directed to the salient penalty event. Even though all directors in China have to go through mandatory training before starting their duty in which their responsibilities and potential penalties are explained, it is not unlikely that they underweight penalty risk in their decision-making if they never had any personal exposure to a penalty. If directors increase their perceived risk of being penalized, either by behavioral over-reaction or observational learning, they likely perform better at their jobs, i.e., monitor management more diligently. Through this process, penalties on one director can provide indirect incentives for other directors to monitor management.

To identify directors' perceptions of the likelihood of facing penalties, our approach is to rely on the extent to which a director is "connected" to penalized directors through board networks. We construct a database of director networks that covers 3.7 million bilateral relationships, and link directors to one

another through common directorships they hold. Our focus is on the voting behavior of directors who are connected to penalized directors but do not receive a penalty themselves and are not affiliated with any firm in which a penalty occurred. To make sure that we do not capture any direct impact of the penalty, we ignore votes on proposals if any of the voting directors have received a penalty in the past.

Empirically, we estimate the way in which a director's perception of the probability of her being penalized affects the likelihood of her voting against management's proposals by comparing changes in the voting behavior of directors who are connected to penalized directors before and after the penalty occurred to those who are not connected to penalized directors. Because we compare those two groups of directors at the same point of time (using year-fixed effects), our results reflect changes in directors' voting behavior due to changes in her perceived risk while keeping the objective penalty risk constant.

Our estimates indicate that directors are twice as likely to vote against the management after a connected director received a regulatory penalty in the form of a monetary fine, a market ban, or both. This result is based on a sample that consists of 3,728 publicly traded Chinese firms between 2004 and 2019. These firms had a total of 19,209 independent directors, who met 263,276 times and considered 878,193 proposals. Of these 878,193 proposals, 2,394 had a "dissent", meaning that, according to public records, at least one director voted against the proposal or abstained from voting. Therefore, the dissension rate is only 0.27 percent, indicating that such public dissents are a fairly extreme way for directors to express displeasure with management.

When we analyze the time pattern of our effect, we find that directors who are connected to penalized directors and those who are not connected did not differ in their voting behavior before the penalty event. After the penalty event, connected directors are more than twice as likely to vote against the management. This effect is present for several years after the penalty event and we find no evidence that the directors' dissension rates reverse back to the levels before the penalty observation. This finding is more in line with observational learning than behavioral over-reaction, which should reverse back when the salience of the penalty event diminishes. We also find that our effect is stronger if the two connected directors have a higher overlap of their professional backgrounds, or if they have the same gender, which suggests that behavioral factors also play a role for the spillover effects. Consistent with the idea that

directors who work in firms for which the probability of receiving regulatory penalties is higher react more to the penalty observation, we show that directors in smaller firms or firms with low ROA, low analyst coverage, or high cash flow volatility are more likely to be penalized, and, consequently, react more to penalties of connected directors. We also document that independent directors who were penalized experience severe negative career effects: both the number of their independent directorships and the salary per independent directorship decreases after the penalty.[2]

Probably the most related paper to ours is Jiang, Wan, and Zhao (2016). These authors examine the voting behavior of independent directors in Chinese listed firms from 2004 to 2012. They focus on independent directors who participate in dissension proposals and study within-proposal variations. Jiang, Wan, and Zhao (2016) find that, for a given proposal, independent directors with greater reputation concern are more likely to dissent than other directors who also vote for the same proposal. While they focus on reputational concerns of independent directors, our main contribution is to combine a direct measure for behavioral change of independent directors, their likelihood to vote against the management, with a "shock" to directors' risk perceptions of the likelihood of facing penalties. Combining these two features enables us to provide novel evidence implying that the perceived likelihood to receive a regulatory penalty for negligence has a strong impact on how diligently independent directors perform their fiduciary responsibilities. Overall, the results suggest that regulatory penalties provide clear incentives for directors to monitor management.

This result complements the prior literature on director incentives, which mostly focused on monetary incentives, reputational concerns, intrinsic motivation, and time constraints. Harford (2003), for instance, documents that outside directors suffer financial losses because of losing positions when they do not monitor well, and Adams and Ferreira (2008) find that outside directors are less likely to be absent from board meeting if the board meeting fees are higher. Fama and Jensen (1983) discuss the role of reputation on directors, and many subsequent studies provide empirical evidence in favor of the reputational concern hypothesis (e.g., Kaplan and Reishus 1990; Fich and Shivdasani 2007; Masulis and

[2] These findings complement those in Johnson, Karpoff, and Wittry (2021) who show that directors who adopt poison pills suffer negative labor market consequences.

Mobbs 2014; Jiang, Wan, and Zhao 2016). Adams, Licht, and Sagiv (2011) consider the intrinsic motivations of directors, and document that the more directors endorse the entrepreneurial values, the more they will act in the interests of shareholders. Finally, the prior literature has shown that directors' time constraints play a role for their monitoring. For instance, Fich and Shivdasani (2006) find that firms with busy outside directors are associated with weak corporate governance, and Adams and Ferreira (2008) documents that busy directors spend less time at each firm.

More generally, our findings relate to the literature on how peer effects affect decision-making. D'Acunto, Weber, and Xie (2019), for instance, use a setting in China to show that peer punishments have a substantial impact on the decision-making of CEOs. Further supportive evidence for the importance of peer effects for individuals' behavior is, among others, provided by Shue (2013), Leary and Roberts (2014), and Ouimet and Tate (2020). Our results add to this literature by showing that peer punishment creates indirect incentives for directors to monitor management diligently.

2. Institutional Background

Starting from 1990, China's stock market has grown to 3,777 listed firms with a market capitalization of $9 trillion at the end of 2019, becoming the second largest market in the world and the largest in the Asia-Pacific region. As the market grew, the corporate governance of public firms became a topic that increasingly concerned regulators. Consequently, regulators in China have taken multiple efforts to enhance corporate governance over the last decades. Two reforms to improve corporate governance that we exploit in this paper are the establishment of an independent director system and the introduction of mandatory board meeting disclosure requirements.

2.1. Independent Directors in China

Until 2000, there was no legal obligation for listed firms in China to hire independent directors. In 2001, the China Securities Regulatory Commission (CSRC) required listed firms to establish an independent director system to enhance their corporate governance. These regulations require that at least one third of all directors are independent in listed firms. Furthermore, at least one independent director

must have an accounting background.

Board members and shareholders who solely or collectively hold more than 1% of the shares can nominate independent director candidates. After the disclosure of a candidate's independence declaration, the shareholders will vote during the general shareholder meeting and decide whom to employ. Each person can hold an independent directorship in at most five listed firms at the same time, and each independent directorship must not exceed six continuous years. However, a director can be rehired by the same firm several years after completing a six-year independent directorship.

Independent directors have the rights to propose external auditors, and to attend board and general shareholder meetings. Furthermore, they are required to issue their opinions on board-related topics. These topics include material related-party transactions, the nomination, appointment, and dismissal of directors and the top management team, compensation of directors and top management, inter-corporate or insider loans, hiring asset valuation agents, financial statements and periodic reports, changing the usage of publicly raised capital, asset restructurings, dividend policies, and so on.

2.2. Disclosure of Board Voting

An important feature of Chinese corporate governance that is not present in most other countries is that companies are required to disclose the actual votes in the boardroom about proposals brought to the board. This requirement was introduced in the *Shenzhen Stock Exchange Stock Listing Rules* and *Shanghai Stock Exchange Stock Listing Rules* in December 2004 in an effort to increase the quality of firms' corporate governance. Firms must disclose information on the board meeting date and the contents of discussed proposals, as well as the number of votes in favor and against these proposals. If there is any dissension, the firms also have to disclose the name of dissenting directors and their reasons for dissenting. However, this voting disclosure only applies to board meetings that discuss material business decisions.[3]

In addition, there is a second legal requirement that helps to identify directors' dissension votes. The CSRC mandates all listed firms to disclose any dissension by independent directors during the fiscal

[3] Material business decisions are defined by a list issued and updated by the regulators from time to time..

year in their annual reports since 2004.[4] This annual report disclosure requirement complements the board meetings disclosures: if a board meeting does not contain any material business decision, disclosing the number of votes in favor and against a proposal is not legally required, even if there are dissension votes. However, firms must disclose all dissensions of independent directors in their annual report.

We use information from both the annual reports and the board meetings disclosures instead of relying only on the dissension description in annual reports for two reasons. First, the annual reports only mention dissensions, but they do not provide any information on board meetings without dissension. Second, we observe that some dissensions are mentioned only in board meeting disclosures, but not in annual reports.[5] Since negative votes (or abstentions) are public information, they amount a relatively extreme statement by the director about the firm's management. Consequently, negative votes do not occur that frequently – there are only 3,494 cases of dissent among all 2.8 million publicly disclosed votes between 2004 and 2019.[6] Presumably, in many more cases, dissent was expressed privately but directors officially voted for the resolutions anyway, at least in the official votes that were publicly released.

2.3. Regulatory Penalties

In the Chinese capital market, investors mainly rely on the regulators to protect their interests.[7] Once a violation is suspected in a listed firm, it is investigated by the regulators. If the investigation reveals that there was indeed a violation, the regulators issue an administrative penalty to the firm and also to the individuals who were involved. If the violation is related to a failure to monitor properly, the regulator will typically also issue a penalty for the involved independent directors due to their negligence.

The most important regulations for the capital market are the *Securities Law* and the *Company Law*. The *Securities Law* regulates capital market participants and their behaviors, including listed firms,

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[4] See *Code No.2 of Public Company Disclosure, Format and Content of Annual Report*, §29, December 2004.

[5] A potential explanation is that when preparing annual reports, the board secretary overlooks this section or forgets about the dissensions in the previous year, and thus just leave this section the same as last year's reports.

[6] These are independent directors' votes. We do not consider votes from executive directors because they are not relevant for our study.

[7] This practice is different from the U.S., where litigation is a common instrument for shareholders to protect their interests. In December 2019, a revised *Securities Law of China* was enacted in China, which strengthened the legal rights of shareholders and could potentially lead to more shareholder litigations.

stock exchanges, securities company (e.g., investment banks, financial advisors), clearing agency, industry association etc. The *Securities Law* regulates their obligations for the issuance of securities, the trading of securities, mergers and acquisitions, and disclosure. For example, if a listed firm discloses a fraudulent financial statement to the public that causes damages to the investors, not only the firm, but also the controlling shareholders, directors, managers, or financial agents can be penalized depending on their role in the law's violation (*Securities Law* 2019, §85). The *Company Law* is a more general law that regulates a wide range of firms' activities throughout their life cycle, including the establishment of a company, general corporate governance, financing, accounting, liquidation, and so on. However, this law also regulates the requirements and obligations for directors and managers. For example, it states that "[d]irectors should be responsible for the consequences of any proposal passed in the board meeting, unless there is explicit evidence showing that he/she dissented" (*Company Law* 2013, §112). This statue makes clear that a dissent vote can indeed protect directors from potential penalties.

In terms of capital market supervision, China adopts a two-level system. The top-level regulator is the China Securities Regulatory Commission (CSRC), which has a similar role as the SEC in the U.S. The CSRC can issue administrative penalties to all securities market participants. The measures that the CSRC can take when they identify a violation include warnings, monetary fines, bans from the capital market, and the confiscation of illegal gains. The second-level regulators are the two stock exchanges, the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE). Those stock exchanges can issue disciplinary actions against the listed firms. The disciplinary actions include a public condemnation, which requires an explanation, correction; a public apology; an obligation for directors or managers to pass trainings or tests; limiting or suspending of trading services; or, most severely, reporting the violation to the CSRC. Because more severe cases are escalated to the CSRC, the punishments from the exchanges are typically mild. For this reason, we focus on the administrative penalties from CSRC in this study.

3. Sample Construction

3.1. Board Data

We obtain detailed information on directors from the CSMAR Corporate Governance database. Listed firms in China must disclose information on their directors and top managers in a standardized format in their annual reports, which are then collected and compiled by CSMAR. These data contain information on 149,740 unique directors and managers, who held 182,977 positions between 1999 and 2019. Among them, 20,655 persons are employed as independent directors. On average, each independent director holds 1.8 position, leading to 36,820 directorships. The average duration of each independent directorship is 3.8 years. In 2002, the average compensation for each independent directorship was about $3,900 per year, which rose to about $12,100 in 2019.

3.2. Regulatory Penalty Events

The CSMAR Event Study database collects all penalty events that were announced by the regulators or disclosed by listed firms. This database includes 7,607 penalty events from 1994 to 2019. There are three major types of punishments: warnings, monetary fines, and bans from the capital market. For our analysis, we restrict ourselves to the penalties and exclude cases in which directors received merely a warning. The CSMAR database reports the penalties as a textual description of the event. We use natural language processing to extract person-level punishment information from that text. We find 1,313 cases in which at least one director or manager faces a penalty, leading to 4,534 penalized persons. Among them, 4,177 received only a monetary fine, 96 received only a ban, and 261 received both. The average fine in our dataset is 154,032 CNY ($23,955). Of the 357 persons who were banned, 113 were banned forever and 244 were banned temporarily (on average, for 6.6 years).

We then match the names of these penalized directors to the director database. Most of these 4,534 penalized individuals are top managers or executive directors who do not hold multiple positions and cannot affect other director through the board network. There are 301 individuals, who are linked to 357 penalty events, who serve on multiple boards and generate potential spillover effects by changing the perceived risk of connected independent directors.[8] Of these 301 penalized directors, 201 are independent

[8] One director can be penalized multiple times. Therefore, the number of person-penalties are larger than the number of penalized persons.

directors and 100 are executive directors. In our baseline specification, we consider both penalties to independent directors and executive directors. While penalties for independent directors are clearly linked to improper monitoring, the vast majority of penalties to executive directors also involve monitoring failures by independent directors.[9]

To identify which independent directors are connected to the penalized directors, we calculate the pairwise overlap of employment periods for all people in the CSMAR dataset. This process generates 3.7 million bilateral relationships. We classify two persons as connected if they serve on the board of the same firm at the same time. We find that 1,114 independent directors are connected to penalized directors. The CSMAR dataset also includes data on directors' characteristics, such as age, gender, and a short biography. To determine the professional background of an independent director, we search for keywords in his/her bibliography. We distinguish the following backgrounds: academic, accounting, judicial, and government officers. Multiple backgrounds can apply to the same director. For example, if the phrase "accounting professor" appears in the bibliography, we classify this person as having an accounting and academic background.

3.3. Director-level Votes

Directors can express the following four types of opinions: consent, reservation, objection, and abstention. Additionally, directors have to offer an explanation if they do not consent. In practice, firms disclose the number of consents, objections, and abstentions, while reservations are not separately revealed.[10] A proposal can be passed only if the number of eligible votes and the consent ratio both exceed certain thresholds.[11] The number of eligible votes is calculated as:

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[9] The 100 penalized executive directors are linked to 116 penalty events. Reading the descriptions of these penalties reveals that 92 of them involve penalties for improper monitoring. In a robustness test, we either exclude all 116 penalty events related to executive directors or we exclude the 24 penalty events that do not involve penalties for improper monitoring (see Appendix E).

[10] The regulation prescribes that there are four types of opinion, but in practice, all firms treat reservation as consent or objection depending on the real intention of the director in order to calculate the consent ratio. Therefore, reservations are not separately revealed.

[11] These thresholds are suggested by the *Company Law*. Typically, a proposal can be passed with (1) eligible votes no less than half of the total number of directors and (2) consent ratio larger than 50%. For some critical decisions such as offering external guarantee or merger, the threshold is higher and is bound by specific rules proscribed in the firm policy. For example, "To offer an external guarantee, firm should acquire approvals from at least two thirds of

$$Eligible\ Votes = Consent + Objection$$

and the consent ratio is defined as:

$$Consent\ Ratio = \frac{Consent}{Eligible\ Votes}$$

Since both objections and abstentions are effectively public statements by a director against a particular proposal, we classify each type as vote against the proposal (which we refer to as "dissension vote"). This classification is consistent with Jiang, Wan, and Zhao (2016), who document that abstentions and objections have similar effects.

Because there exists no comprehensive database on the voting behavior of individual independent directors, we collect these data manually. To do so, we use board meeting disclosures and annual reports of all listed Chinese firms, which we obtain from *Wind Terminal*, a Chinese financial information provider. We first search for signs of dissension in 39,355 annual reports between 2004 and 2019. We extract the related section of the annual report ("independent director dissensions on firm affairs") and search for any signs that a dissension occurred in this section. Our code detects if the length of this section is unusually long (typically firms would only write something like "Independent directors have no dissension throughout the year" if there is no dissension) or if the name of any independent director is mentioned in this section. This approach leads to 1,314 annual reports that could potentially contain dissension votes. We then manually read these documents and collect the director-level votes.

Additionally, we consider the board meetings disclosure documents for 263,276 board meetings to ensure that we do not miss any dissensions. We exploit that firms disclose the voting outcomes in similar ways and search for expressions that could indicate that there was dissension.[12] Examples for such expressions are the verbs: "disagree", "dissent" and "abstain" or verb-noun combinations such as "express

board meeting participants and at least two thirds of independent directors." (37 Interactive Entertainment, April 2020).

[12] The paragraph that summarizes the voting outcome is similar to the following example: "In the votes, there are 8 consents, 1 objection. Director Mr. Pan disagrees. His reason is that the subsidiary firm is performing well and growing fast, and thus, firm should not sell this subsidiary" (Hubei Shuanghuan, November 25, 2003).

dissension" or "show objection".[13] We also extract the number of votes in favor and against each proposal, which must be disclosed in this document. Overall, we identify 7,235 board meeting disclosures with either non-zero dissent votes or any of the previously mentioned expressions. Again, we read these documents manually and collect the director-level votes. After removing duplicates between the board meetings disclosures and annual reports, we end up with 3,494 dissension votes from independent directors on 2,394 unique proposals.[14]

This process allows us to identify dissension votes. For non-dissension votes, we cannot rely on the annual reports because firms only have to mention dissension votes in the annual reports. In the board meetings disclosures, firms disclose meeting dates, proposal titles, and the voting outcome (e.g., five in favor votes, zero dissensions). In the 263,276 board meeting disclosures, there are an average of 3.3 proposals discussed in each board meeting, leading to a total of 878,193 proposals. We assume that all director votes are in favor of a proposal if we did not detect any indications for dissension in the annual reports and the board meetings disclosures in the previous step. Unfortunately, we cannot directly collect director-level votes in favor of proposals because firms typically do not disclose the names of the directors who vote in favor of a proposal.[15]

We end up with to a total of 2.8 million independent directors' votes on proposals, of which only 3,494 are dissension votes. Thus, the dissension rate is 0.12%, and dissensions occur in 0.51% of all meetings. If we aggregate within firms, 2.65% of all listed firms had dissensions in any given year, and 14.5% of all listed firms had at least one dissension during our sample period 2004 to 2019. We also classify all proposals according to their topic and find that 440,220 are related to finance, 288,148 to governance, 130,340 to personnel, and 19,485 to other topics.[16] Table 1 provides an overview on the

[13] The Chinese words we searched for are "反对" (objection), "弃权" (abstention), "提出异议" (raising dissension), and "表示反对" (expressing objection) etc.

[14] Appendix A provides more details about this data collection process.

[15] We could infer this information from the attendees list, but this information is also not always available and, if available, not reported in a standardized way. Directors may not participate in the voting of one proposal mainly for one of the two reasons: (1) they are absent from the meeting, or (2) they have conflict of interests with certain proposals. Thus, although we know that none of the present directors voted against a proposal, we cannot be sure who exactly voted in favor.

[16] Financial proposals include proposals related to investment decisions, accounting treatment, financing decisions, and financial reporting. Governance proposals include proposals related to internal control, related-party transactions,

distribution of the proposal topics and the corresponding dissension rates. Overall, dissensions seem to be fairly extreme ways for directors to express displeasure with management, which is also reflected by the negative stock market reaction to the publication of dissension votes (see Jiang, Wan, and Zhao, 2016, and Appendix C that replicates their event study for our sample).

4. Perceived Risk and Director Monitoring

While it is clear that sanctions have an impact on the penalized individual directors, what is harder to predict is the way that they affect other directors. The extent to which a more aggressive system of penalties can improve corporate governance depends on the way in which potential sanctions affect the behavior of directors who are not themselves penalized. However, identifying such effects is an extremely difficult empirical exercise since it is often difficult to establish causality between a possible penalty and an agent's actions.[17]

4.1. How Can Penalty Events affect the Perceived Risk of Observing Directors?

Our approach is to use director networks to measure the perceived penalty risk of directors. A penalty to one director could potentially affect behavior of non-penalized directors if this penalty changes their perceived risk of being penalized. This idea dates to Holmström (1982, 1999), who argued that agents can receive incentives indirectly if their efforts influence others' perceptions of their quality, and those perceptions affect their value in the marketplace.

What we exploit in our paper is that directors' perceived penalty risk increases more when the director who is punished is known personally to the directors whose actions are potentially affected. This hypothesis comes from an idea in the psychology literature known as "salience". This literature has

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business strategy, CSR, and shareholders' interests (e.g., profit allocation). Personnel proposals include hiring, promotion, and dismissal of directors and top managers, as well as compensation. For proposals that cannot be captured by our keywords, after carefully examination, we will classify them into $Other$. The classification is done by keyword matching.

[17] The same issues come up in other contexts. For example, despite many attempts, the large literature that tries to measure the effect of the death penalty or imprisonment on crime still has not reached agreement. For evidence on the effect of the death penalty, see Ehrlich (1975) and Durlauf, Fu, and Navarro (2012). For imprisonment, see Levitt (1996) and Drago, Galbiati, and Vertova (2009).

documented that the perceived likelihood of events increases if more attention is paid to them due to the so-called availability heuristic (Tversky and Kahneman 1973, 1974).[18] Availability refers to how easily people can think of similar events or occurrences, and one factor that affects this availability is salience. According to Taylor and Thompson (1982, p. 175), saliency "refers to the phenomenon that when one's attention is differentially directed to one portion of the environment rather than to others, the information contained in that portion will receive disproportionate weighting in subsequent judgments."[19] Or, as Tversky and Kahneman (1974, p. 1127) put it: "[...] the impact of seeing a house burning on the subjective probability of such accidents is probably greater than the impact of reading about a fire in the local paper." In our context, this idea means that a penalty for a someone who an independent director personally knows through her board network has a greater effect on her behavior than reading about director penalties in the news.

The notion of salience implies that directors will update their subjective likelihood that they will be penalized themselves when they observe penalties on directors with whom they have a personal connection. Even though all penalties are public information, it is unlikely that they have a substantial impact on the risk assessment of directors if they are not personally connected because then these penalties are not salient for them. Furthermore, the penalties are unlikely to contain any substantial new information for the independent directors because all of them had to undergo a comprehensive training, organized by the capital market regulator, before starting their positions. In these trainings, which also involve an exam, the independent directors are briefed about their responsibilities and the penalties for violations.

Using this logic, we identify the indirect incentives in the form of perceived risk by comparing changes in the behavior of directors who are connected to penalized directors via common directorships (in firms that are unrelated to the penalty) before and after the penalty to those who are not connected to penalized directors. Observed differences in behavior between the two groups of directors are consistent

[18] See DellaVigna (2009) for a survey of the literature on how psychological biases can affect the decision making of individuals and Malmendier (2018) for an overview of behavioural corporate finance.
[19] See Bordalo, Gennaioli, and Shleifer (2012) for a discussion of saliency theory and its applications to economics.

with the notion that the penalties on some directors lead connected directors to update their subjective assessment that they will be penalized themselves and thus will improve their behavior. We emphasize that these estimates are underestimates of the true impact of sanctions, since a sanction on any director can affect other directors' assessment of the likelihood they will be penalized, even if they do not personally know the directors who are directly affected.

In our empirical tests, we compare changes in the behavior of connected and unconnected directors in the same year to ensure that any behavioral changes are not caused by differences in the objective penalty risk (e.g., a stricter enforcement by capital market regulators). Changes in voting behavior could be driven by an over-reaction to the penalty of a connected director and, as a consequence, an over-estimation of penalty risk or by adjustments of previously incorrect risk perceptions due to observational learning, We provide a more comprehensive discussion of potential mechanisms and present related tests in Section 6.

4.2. Classifying Connections Among Directors

Since we want to estimate the indirect effect of sanctions on directors who are not personally affected, we classify directors based on their personal connections to penalized directors. To measure these personal connections, we use the existence of common directorships between two directors. Directors who serve on the same board know each other through the board, and it is likely that they also have other personal connections. Board meetings in China typically finish in one day, but it is common to have social events such as joint dinners before and/or after the formal meetings.

To ensure that we do not capture direct effects from the penalty, we only consider votes of directors who did not received a penalty themselves and are not affiliated with any firm in which a penalty occurred.[20] In addition, we ignore votes on proposals if any of the voting directors received a penalty in the past. After excluding board votes that are potentially directly affected by a penalty, we identify 988 independent directors who are connected to penalized directors but did not have any direct

[20] We exclude penalized firms permanently from our sample after the penalty because is impossible to know when the direct effect will disappear.

exposure to a penalty themselves. We consider 16,412 directors as control group because they are neither connected to a penalized director nor did they have any direct exposure to a penalty.

Figure 1 illustrates the way in which we classify directors.[21] Each circular dot represents a firm, and each triangular dot represents a person. The link between firms (indicated by circles) and persons (triangles) represents an existing employment arrangement. In the example, Mr. P was an independent director of both Firm G and Firm Y in 2013. In March, he received a CNY 300,000 ($48,000) fine because of his negligence in Firm G's financial fraud, so we classify Mr. P as a penalized director. Connected directors are all those who sit on a board with Mr. P at the time of the penalty. In our example, these are Dr. T1, Mr. T2, and Mr. T3, who also sit on the board of Firm G. Furthermore, Mr. T4 and Mr. T5 sit on the board of Firm Y, together with Mr. P. Thus, these five independent directors (Dr. T1, Mr. T2, Mr. T3, Mr. T4, and Mr. T5), colored in purple, are considered to be connected to and affected by Mr. P at the time of the penalty.

Mr. P and all the other directors of Firm G at the time of the penalty, Dr. T1, Mr. T2, and Mr. T3, had a direct exposure to the penalty. As explained above, we exclude all proposals in which any of these persons voted because we want to measure the spillover effect of regulatory penalties. Thus, neither proposals that are discussed by the boards of Firm G nor Firm Y are in our sample. The question we consider is the way in which the penalties at Firm G affect the votes for proposals at Firm J. In this firm, there is one director, Mr. T4, who is connected to Mr. P, and the two unconnected directors Mr. C1 and Mr. C2. Mr. T4 had no direct exposure to the penalty since he did not serve on the board of the penalty Firm G, but he is connected to Mr. P via their shared board position in Firm Y. Thus, Mr. T4 is considered to be connected, while Mr. C1 and Mr. C2 are in the control group. Our goal is to understand how the voting behavior of Mr. T4 differs from Mr. C1 and Mr. C2.

To provide a more comprehensive overview on our approach to classifying directors through networks, we also present an illustration of a larger part of the overall network in Figure 2. This snapshot from March 2013 contains about 20% of all directors in our sample. The notation is the same as Figure 1,

[21] The example in the Figure 1 is a real case, but we mask the director and firm names to protect the privacy and reputation of the individuals.

and the network shown in Figure 1 is a subset of the broader network.

4.3. Empirical Specification

To evaluate spillover effects of penalty events in board networks, we use a staggered difference-in-differences model. The first difference is between directors who connect with a penalized director and directors who do not, and the second difference refers to the voting behavior before and after the connected director is penalized.

While we have director-level data on dissension votes, firms do usually not disclose voting details or participants of board meetings if all directors voted in favor of the proposals. Because not all directors attend all board meetings and participate voting of all proposals, we cannot distinguish whether a director voted in favor of a proposal, or was absent during a meeting, or was avoided due to conflict of interests. Thus, we cannot conduct our analysis on the proposal level but have to collapse to the director-firm-quarter level, assuming that each director attends at least one board meeting per quarter. We code our main dependent variable, $Dissension_{i,j,t}$, as one if the independent director i voted against at least one proposal in firm j during quarter t. $Dissension_{i,j,t}$ is set to zero for independent directors for whom we did not detect any dissension during a quarter.[22] We estimate following model:

$$Dissension_{i,j,t} = \alpha + \beta Connected_{i,t} + \gamma X'_{j,t} + \mu Second\ Term_{i,t} + \delta_i + \delta_j + \delta_y + \varepsilon_{i,j,t}, \#(1)$$

where i, j, t and y indicate director, firm, quarter, and year, respectively. The dependent variable, $Dissension_{i,j,t}$, is a dummy variable that equals one if independent director i has at least one dissension vote in firm j during quarter t and otherwise zero. $Connected_{i,t}$ is a dummy variable that equals one if director i is connected to another director who was penalized before quarter t and zero otherwise.[23] $X'_{j,t}$ is a vector of time-varying firm characteristics. The director and firm fixed effects δ_i and δ_j control for any

[22] It would be unusual for an independent director not to attend any board meeting in a quarter since, at very least, the quarterly financial report needs to be approved by the board, which requires the independent directors to present. As a robustness test, we aggregate the data on the yearly level, assuming independent directors attend at least one board meeting per year, and the results are qualitatively similar to the results estimated by our baseline model.

[23] For example, if a penalized director received penalty in the second quarter of 2013, the variable *Connected* equals zero in and before the second quarter of 2013 and one afterwards for directors who share a board position with her.

time-invariant director and firm characteristics. The year fixed effects δ_y control for any year-specific effects. In most specifications, we also include firm times year fixed effects $\delta_{j,y}$, which additionally control for time-varying firm characteristics. We report t-statistics based on standard errors that are clustered at the director level.[24]

Our final sample has 351,119 firm-quarter-director observations between 2004 and 2019. It covers 3,505 listed firms and 17,400 independent directors, of whom 988 are connected to a penalized director without experiencing any direct penalty effects. Additional firm-level data for this sample, such as financial conditions, are obtained from CSMAR. We provide summary statistics of variables we use in Table 2.

5. Estimates of the Impact of Perceived Risk on Directors' Voting Behavior

5.1. Graphical Analysis

Before providing the formal estimates, we present a graphical analysis of trends in regulatory penalties and dissension votes in Figure 3. Both penalties and dissensions have increased substantially over our sample period. In 2004, there were less than 50 penalty events and about 200 dissension votes. By 2019, both the penalty events and dissension votes have increased by more than factor of four, to over 200 penalty events and nearly 1,000 dissension votes. Of course, a common trend of penalties and dissension votes is not evidence of a causal relationship but does provide an initial indication that there could be a link.

5.2. Predicting Dissensions – Main Specification

To evaluate the extent to which the correlation between penalties and dissensions is causal, we present estimates of Equation (1) that identify the impact of potential penalties on voting behavior through director connections. We report these estimates in Table 3. We start with a simplified model in column 1 that includes firm controls, firm fixed effects, director fixed effects, and year fixed effects. The

[24] We show that the results are robust when we cluster standard errors at the firm level, use two-way clustering at the director and firm level, or use two-way clustering at the firm and year level (See Appendix D).

coefficient estimate for the *Connected* dummy is 0.210, which is statistically significantly different from zero at the 5 percent level. This finding suggests that directors do alter their voting behavior as a result of penalties to other directors, and the effect is larger when the two directors are connected.

In column 2, we consider the idea that a director who is about to leave the firm is more likely to dissent (directors are limited to two terms). Therefore, we include a dummy variable indicating that a particular director is in her second term. The coefficient on the second term dummy is positive and marginally significant, indicating that directors do monitor more when the threat of losing a directorship is not present (because they have to retire soon anyway). The coefficient on *Connected* is essentially unchanged by the inclusion of the *Second Term* dummy.

In columns 3 and 4, we add firm times year fixed effects that control for all time-variant and time-invariant firm characteristics. Including these variables more than doubles the impact of a director's being connected to the penalized director. The coefficient on *Connected* increases from 0.210 in column 1 to 0.435 in column 3.

The magnitude of the estimated coefficients is substantial. The predicted probability of a dissent increases by 0.210 (column 1) or 0.435 (column 4) percentage points for directors who are connected to a penalized director, relative to the control group. Because the overall dissension rate in our sample is 0.290%, these coefficient estimates imply that the dissension probability increases by between 72% (=0.210/0.290) and 150% (=0.435/0.290) in relative terms. In other words, independent directors' willingness of expressing dissension approximately doubles after a connected director receives a regulatory penalty.

6. Can Behavioral Over-Reaction or Observational Learning Explain the Results?

A higher perceived penalty risk, which leads to more dissension votes, could be the result of an behavioral over-reaction when somebody who is personally known to the independent director receives a penalty. As a consequence of the salience of the penalty event, the director will over-estimate the risk of being penalized herself. Empirical evidence that decision-makers can overreact to salient risk is, for instance, provided by Dessaint and Matray (2017) who show that CEOs increase cash holdings when

hurricane risk becomes more salient to them, even if the objective risk of a hurricane strike does not change. An alternative explanation for the higher likelihood of dissention votes is that independent directors learn from the first-hand experience when a connected director is penalized. The salience of the penalty event of somebody who they know directs a lot of a director's attention to that event, and she might realize that her previous estimate for the risk of being penalized herself was too low. Although directors are aware of the penalty risk due to the training their receive before staring their tenure, it is well possible that they under-estimate this risk if they never observed that somebody who they knew received a penalty. In this perspective, observational learning, which can be defined as the "influence resulting from rational processing of information gained by observing others" (Bikhchandani, Hirshleifer, and Welch, 1998, p. 153), would lead to a rational adjustment of a previously too low estimate for the risk of being penalized themselves. Both mechanisms can coexist at the same time, and we shed some light on the relevance of these potential mechanisms for our results in this section.

6.1. Time Patterns of the Effect

We evaluate the time patterns of the changes in voting behavior for two reasons. First, the parallel trend assumption is a critical assumption when making causal inferences when applying the difference-in-differences methodology (see Wooldridge, 2002). Second, whether the change in voting behavior represents a long-term effect or reverts back quickly helps us to understand the underlying mechanics better. To investigate the time patterns of the treatment effects, we adjust the baseline model by replacing the single dummy for connected directors with multiple, time-dependent dummies as in Beck, Levine, and Levkov (2010). In addition, we estimate the model on the year-level instead of the quarter-level to reduce noise and show a longer pre- and post-period. Specifically, we estimate the following model:

$$Dissension_{i,j,t} = \alpha + \sum_{y=-5}^{-1} \beta_y D_{i,t}^{y} + \sum_{y=1}^{5} \beta_y D_{i,t}^{y} + \mu Second\ Term_{i,t} + \delta_i + \delta_{j,t} + \varepsilon_{i,j,t} \#(2)$$

where i, j, t, and y indicate director, firm, quarter, and year, respectively. $D_{i,t}^{y}$ is a series of dummy variables which equal one if the time difference between the current year and the regulatory penalty for a

connected director is y years, and zero otherwise. For the control group, $D_{i,t}^{y}$ is always zero. We omit $D_{i,t}^{0}$, i.e., the year of the penalty, and use it as the reference period. The other variables are defined in the same way as our baseline model.

The estimates of β are illustrated in Figure 4. Prior to the penalty, connected directors have a similar probability of voting against the management than the control directors. However, in the year after the penalty, the probability of a dissension increases by 0.4 to 0.6 percentage points. Taking the sample mean 0.29% as benchmark, this jump indicates that the likelihood of a dissension vote more than doubles after the penalty for the connected director. In addition, Figure 4 indicates that there is still a positive and statistically significant effect even five years after the penalty event. These estimates, which suggest that the change in behavior is relatively persistent over time, are more in line with an observational learning explanation. From a behavioral over-reaction perspective, we would expect to find a reversion of the voting behavior after some time because the salience of the penalty event diminishes over time, and so should the over-estimation of the penalty risk.

6.2. Common Backgrounds and Gender of Directors

Directors with a shared background and/or gender likely have more interactions with each other during board meetings and board social events and a closer relationship than other directors on the same board. In addition, whether directors react more to penalties of persons with a similar background or gender tells us something about the underlying mechanisms of our effect. From a rational observational learning perspective, we would not expect that background or gender matters since directors can learn and update their risk assessments whenever their attention is directed to a penalty event. From a behavioral over-reaction perspective, it is not unlikely that the perceived risk increases more when a director with a similar background is penalized.

We use several dummy variables to classify the background of each independent director based on her biography as academic, accounting, financial, judicial, or government. For instance, we define a director to have academic background if keywords such as “professor”, “lecturer”, or “research fellow”

are present in a person's bibliography.[25] One person can have multiple backgrounds. For example, an accounting professor has both an academic and accounting background. Among all 20,655 persons who have been appointed as independent director in CSMAR dataset, 43% have an academic background, 31% have an accounting background, 22% of have a financial background, 21% have a judicial background, and 29% have a background as government official. For 15% of independent directors, we cannot detect any of the above-mentioned five backgrounds in their biographies. Among the 988 connected directors, 538 (54%) share at least one background with the penalized director. Specifically, 304 (31%) of them share an academic background, 151 (15%) share an accounting background, 215 (22%) a financial background, 249 (25%) share a judicial background, and 175 (18%) share an government background. Based on this information, we construct the continuous variable *Background Overlap* as the number of common backgrounds between the penalized director and the observing director. For the control group director, this variable is set to zero. The dummy variable *Same Gender* equals one if the connected director and the penalized director are both male or female and zero otherwise. For control group directors, *Same Gender* is again set to zero. In our sample, 767 connected directors have the same gender as the penalized director. For 742 of those 767 pairs, both directors are male.

Table 4 presents estimates of the way indirect incentives vary by director background. The coefficient estimates for the interaction term of *Connected* * *Background Overlap* and *Connected* * *Same Gender* are both positive and statistically significant. The coefficients imply that a one standard deviation increase in the number of common backgrounds by the penalized director and the observing director is associated with a 0.20% (=1*0.195) increase in dissension probability, which is equivalent to 69% (=0.20/0.29) of the sample mean dissension rate. If the penalized and connected directors share the same gender, the increase in dissension probability is 0.18% (=0.43*0.418) higher than if they have different genders, which is equivalent to 62% (=0.18/0.29) of the sample mean dissension rate. These results, which suggest that indirect incentives from penalties are stronger between directors who share the same

[25] Similarly, a director has accounting background if keywords such as "audit", "ACCA", or "CPA" are found. A person has financial background if keywords such as "finance", "insurance", "CFA", "financial advisor", or "banker" are found. A person has judicial background if keywords such as "lawyer", "judge", "prosecutor", or "legal study" are found. A person has government background if keywords such as "mayor", "party secretary", and several other Chinese words describing different levels of officials are found.

background or gender, indicate that behavioral factors also play a role for our findings.

6.3. Firm-Level Penalty Risk

From a rational observational learning perspective, if for some reason a particular firm is unlikely to receive a penalty, then even if someone to whom one of the firm's directors is connected receives a penalty, the firm's director is unlikely to change their voting behavior. In contrast, from a behavioral over-reaction perspective, an independent director might be concerned and willing to adjust her actions even if the actual penalty risk for her is low. Understanding how the penalty risk of a director affects her reaction to the penalty event can thus help to shed some light on the underlying mechanism.

What factors potentially lead a firm to be subject to higher regulatory scrutiny and consequently a higher likelihood of being penalized? Presumably, regulatory sanctions are more likely when firms perform poorly, and since riskier firms have a higher probability of very poor performance, they are likely to be penalized than a less risky firms. In addition, firms in which there is a high degree of information asymmetry are potentially ones in which regulators are likely to find malfeasance. To evaluate the extent to which these hypotheses hold in the data, we estimate the following model to show the relevance of these firm traits to the likelihood of being penalized:

$$Penalty_{j,t} = \alpha + \mu X_{j,t}^{'} + \delta_j + \delta_t + \varepsilon_{j,t} \#(3)$$

where j and t index firm and year. $Penalty_{j,t}$ are various penalty measures: $Penalty_{Persons}$ is the number of firm j's insiders who received a penalty in year t; $Penalty_{Events}$ is the number of penalties that firm j received in year t; $Penalty_{Dum}$ equals one if firm j received any penalty in year t and zero otherwise. $X_{j,t}^{'}$ is a vector of firm characteristics at the beginning of year t. We include *ROA*, defined as EBITDA divided by total assets at the end of last fiscal year, to measure firm's profitability. As a measure of information asymmetry, we use firm size (the natural logarithm of total assets) and *High Coverage*, which is a dummy variable that equals one if the firm has an above average number of analysts that issue forecasts on the firm. We also calculate *CF Volatility* as a measure of the operational risk, which is the standard deviation of past five years' operating cash flow, scaled by total assets. We define *High CF Volatility* equal to one if

a firm has above average *CF Volatility* in that year and zero otherwise. We include firm fixed effects δ_j and year fixed effects δ_t and report robust standard errors clustered at the firm-level. We present estimates of this equation in Panel A of Table 5. This table indicates that the coefficient estimates for *ROA*, *Size*, *High Coverage*, and *High CF Volatility* are statistically significantly different from zero. These findings suggest that low profitability, a small size, and low analyst coverage are associated with higher penalty rates.

The fact that different types of firms have different penalization rates suggests that a rational director would update her prior in response to an observed penalty differently depending on the a priori likelihood of penalization. To evaluate whether this hypothesis holds in the data, we reestimate Equation (1) interacting *Connected* with the variables that appear to affect the likelihood of penalization. We present these estimates in Panel B of Table 5. The findings suggest that the variables that predict penalization rates also affect the effect of an observed penalty on the actions of connected directors. Quantitatively, a one standard-deviation increase in ROA leads to a 0.33% (=-4.723*0.07) lower increase in dissension probability for connected directors. A one standard-deviation increase in *Size* is associated with 0.19% (=-0.14*1.39) lower increases in the dissension probability for connected directors. If a firm has above-average analyst coverage, the increase in the dissension probability for the connected independent director is 0.26% lower than that of a connected independent director in a firm with below-average analyst coverage. If a firm has above-average cash flow volatility, the increase is 0.56% higher.

Overall, these results indicate that independent directors in firms with a higher risk of regulatory interventions monitor the management more tightly and are more likely to vote against management proposals after a connected director received a penalty. The fact that factors associated with the likelihood of penalization at the firm level affect the impact of penalization on connected directors on their voting behavior is more in line with a rational observational learning perspective about the true penalty risk and less with a behavioral over-reaction story.

6.4. Types of Proposal

As discussed, before, proposals can be classified into a number of types, with the largest type

being financial, governance and personnel. It is not unlikely that financial proposals are more likely related to some misconduct and are thus riskier for independent directors. Thus, we expect them to be more likely to vote against financial proposals after they observed a penalty event if the actual penalty risk is the driving force for their behavior. The distribution of each proposal type and the dissension rates are shown in Table 1. Now we consider votes on each type of proposal separate and estimate equations predicting dissensions of each type as a function of penalties, replacing the dependent variable in Eq. (1) with $Dissension_{Fin}$, $Dissension_{Gov}$, or $Dissension_{Per}$. These dummy variables equal one if the independent director votes against proposals that deal with financial, governance, or personnel topics, respectively, during a quarter and zero otherwise. Table 6 presents estimates of this specification. The estimated coefficients on $Connected$ are all positive and statistically significantly different from zero at conventional levels for financial and governance-related proposals, and marginally significant for personnel proposals. (t-statistic = 1.64). However, we cannot reject the cross-equation restriction that all three coefficients are the same as shown in column 4.

6.5. Career Consequences of Regulatory Penalties

How detrimental is a penalty for the career of an independent director? If there a severe career consequences from a penalty, observing how another director suffers those consequences can have a huge impact on independent directors' behavior. From an observational learning perspective, the penalty of a connect director does not only enable the independent director to adjust her risk assessment of receiving a penalty herself, but also her expectations how badly she would be affected by a penalty. A penalty can decrease the reputation of the director and provide a negative signal about her quality to current and potential future employers, which can make it more difficult for them to gain new independent directorships or even to keep their existing positions. Furthermore, they could have to accept lower paid directorships from less prestigious firms in the future.

To study the career consequences of penalties empirically, we obtain information on independent directors' compensation from the CSMAR database. Firms must disclose the compensation for each independent director in their annual reports, and CSMAR has collected these compensation data since

1999. We define $Total\ Salary_{i,t}$ to be the aggregate income from independent directorships of director i in each year t. A change in the total salary can come either from a change in the number of independent directorships or from a change in the compensation per directorship. To distinguish these two effects, we use the employment data of independent directors to calculate the number of independent directorships of director i in year t. Based on their total salary and their number of positions, we calculate the average salary per independent directorship. We then estimate the following model:

$$Ln(Y_{i,t}) = \alpha + \beta Penalizied_{i,t} + \delta_i + \delta_t + \varepsilon_{i,t}$$

where i and t denote director and year, respectively. $Y_{i,t}$ is one of our career measures, that is, $Total\ Salary_{i,t}$, $Positions_{i,t}$, or $Salary\ per\ Position_{i,t}$. $Penalized_{i,t}$ is a dummy that equals one if director i has been punished in any year before year t. We include director fixed effects δ_i and year fixed effects δ_t and estimate robust standard errors clustered at the director-level.

We report the estimates in Table 7. The estimated coefficients on $Penalized$ are negative and statistically significantly different from zero for all three measures. The coefficients imply that a penalty leads to a 55% decrease in total salary,[26] a 50% decrease in the number of independent directorships, and a 38% decrease in the salary per directorship relative to the sample average. Clearly, these estimates indicate that the effects of a penalty to a director are substantial. It seems reasonable for directors to intensify their monitoring efforts to avoid receiving a penalty themselves after observing how a connected director received a penalty and suffered those career consequences.

7. Conclusion

What makes independent directors perform their monitoring duty? Directors have a fiduciary responsibility to protect shareholders' interests and to comply with regulations, and they can face penalties if they fail to take this responsibility seriously. However, empirically identifying the extent to which directors' perceived risk of receiving a penalty affects their monitoring is difficult. It is usually

[26] The sample average *Ln(Total Salary)* is 10.53, equivalent to CNY 37,421 (=$e^{10.53}$) or US$ 5,813. After being penalized, it decreases to 9.725 (=10.53-0.805), equivalent to CNY 16,731 (=$e^{9.725}$) or US$ 2,600. Therefore, the drop in the total salary is 55% (=16,731/37,421-1). Calculations for columns 2 and 3 are similar.

impossible to know directors' perceptions about the likelihood of receiving a penalty or to observe the extent of their monitoring. One country for which we can measure both directors' perceptions of receiving a penalty and their monitoring is China. In contrast to most countries, China requires that both the regulatory penalties that directors receive and their votes on management proposals are public information. In this paper, we use this information to measure the indirect incentives that directors receive from the potential threat of penalties.

A key assumption we make is that, consistent with the behavioral economics literature, directors are subject to "salience". What this means in our context is that directors update their subjective assessment of the probability that they will receive a penalty more when someone they know receives a penalty than when a stranger does. This assumption allows us to estimate the indirect incentive effects of penalties by comparing the monitoring through dissension votes on proposals of directors who are connected to a penalized director via a common directorship (in a firm that is unaffected by the penalty) to those who are not connected. However, it is *a priori* not clear if such indirect incentive effects are empirically important. Can we identify a change in directors' behavior when other directors are penalized even if the objective penalty risk remains the same? What is the magnitude of indirect incentive effects? And are there any factors that affect this magnitude?

We estimate the effect of a penalty on connected directors using a network of boards that covers 149,740 Chinese directors and top managers of 3,505 companies. These companies had 878,193 proposals between 2004 and 2019, and a total of 2,829,808 individual votes. Dissents do not occur that often (only in 0.27 percent of cases) and likely mean that the director has a major concern with the management. The fact that there is a substantial increase in their incidence following penalties to directors suggests that that the indirect incentives faced by directors through potential penalties are consequential.

Our estimates indicate that being connected to a penalized director substantially increases the likelihood that a director dissents against a management proposal. Both observational learning and behavioral over-reaction seem to play a role for those changes of the perceived risk and subsequent changes in directors' voting behavior. In line with observational learning and directors' adjustments of previously too low risk assessments for being penalized, the change in voting behavior is long-lasting,

does not revert back for multiple years, and the effect is larger when the firm is riskier or poorly performing, so their directors are more likely to face penalties. Our estimates further indicate that receiving a penalty substantially decreases directors' future income from directorships, so observing how someone who they personally know receives a penalty enables them to learn how severe those consequences are, likely providing large incentives to avoid them and monitor management by dissenting on their proposals. More in line with a behavioral over-reaction, we find that the effects of penalties on the voting of independent directors are larger when the observing and the penalized director share the same processional background or gender.

Understanding what motivates directors to monitor is an important issue in corporate governance. This paper documents that the threat of regulatory penalties is an important such motivator. This finding aids in our understanding of boards and their actions, and also emphasizes the value of penalizing directors who do not fulfill their fiduciary responsibilities. These seems especially relevant for the banking industry for which individuals can be banned from serving as directors. While the empirical results we present here are from Chinese data, they are likely to be applicable more broadly. It is likely that, similar to the directors in our Chinese sample, when directors in other countries perceive higher risks of receiving a regulatory sanction, they increase their monitoring efforts in an effort to avoid being penalized.

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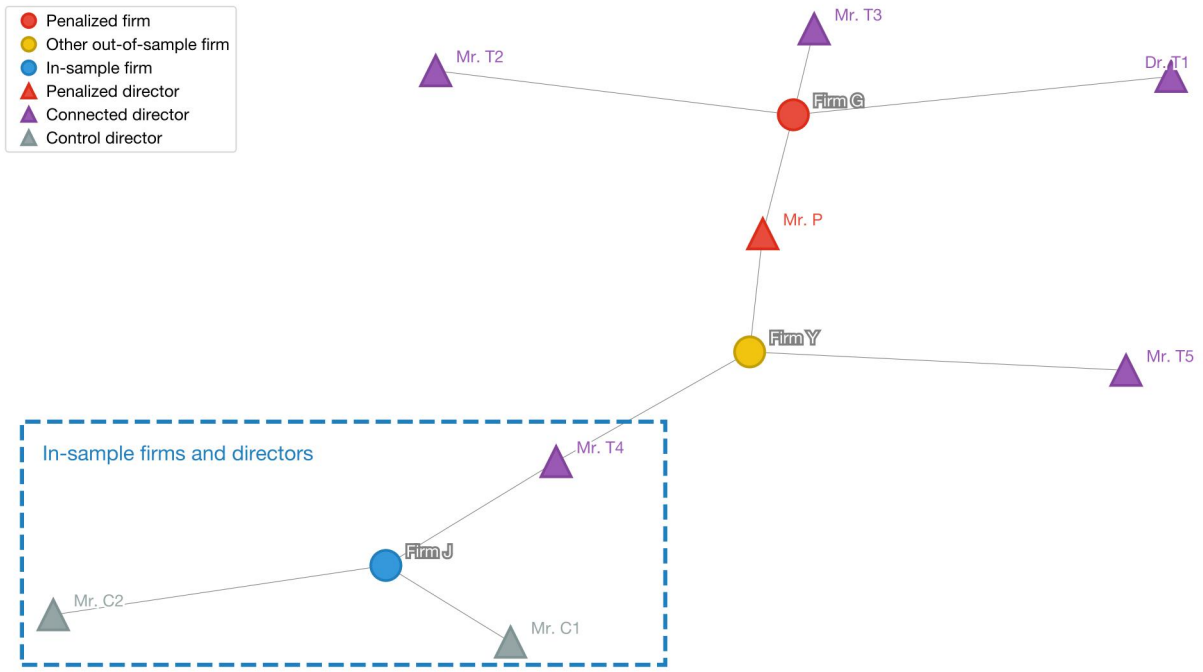

Figure 1. A Board Network and Penalty Spillovers

This figure shows how information about penalty can spill over to other directors through the board network. We construct this network based on real data. To protect the privacy of the involved directors, we mask their names. Red circles represent firms that have been penalized. Yellow circles represent other out-of-sample firms. Blue circles represent in-sample firms. A firm is dropped from the sample because one of the following reasons: 1) it has been penalized, 2) it has any penalized director, and/or 3) it has any director from a penalized board. Red triangles are the directors who have been penalized in and before March 2013. Purple triangles are the connected directors, who are on the same board with the penalized directors at the time of penalty. Grey triangles are the control directors. Lines represent the employment relation between directors (triangles) and firms (circles).

In this example, Mr. P is fined 300,000 CNY in March 2013 due to his negligence in Firm G (the red circles). At the time he was penalized, he served as independent director for Firm Y, leading his colleagues in this firm affected. Among these colleagues, Mr. T4 also served as independent directors for another Firm J (the blue circles). To avoid potential distortion of the presence of penalized director, we exclude Firm G and Firm Y (the yellow circles) from our sample.

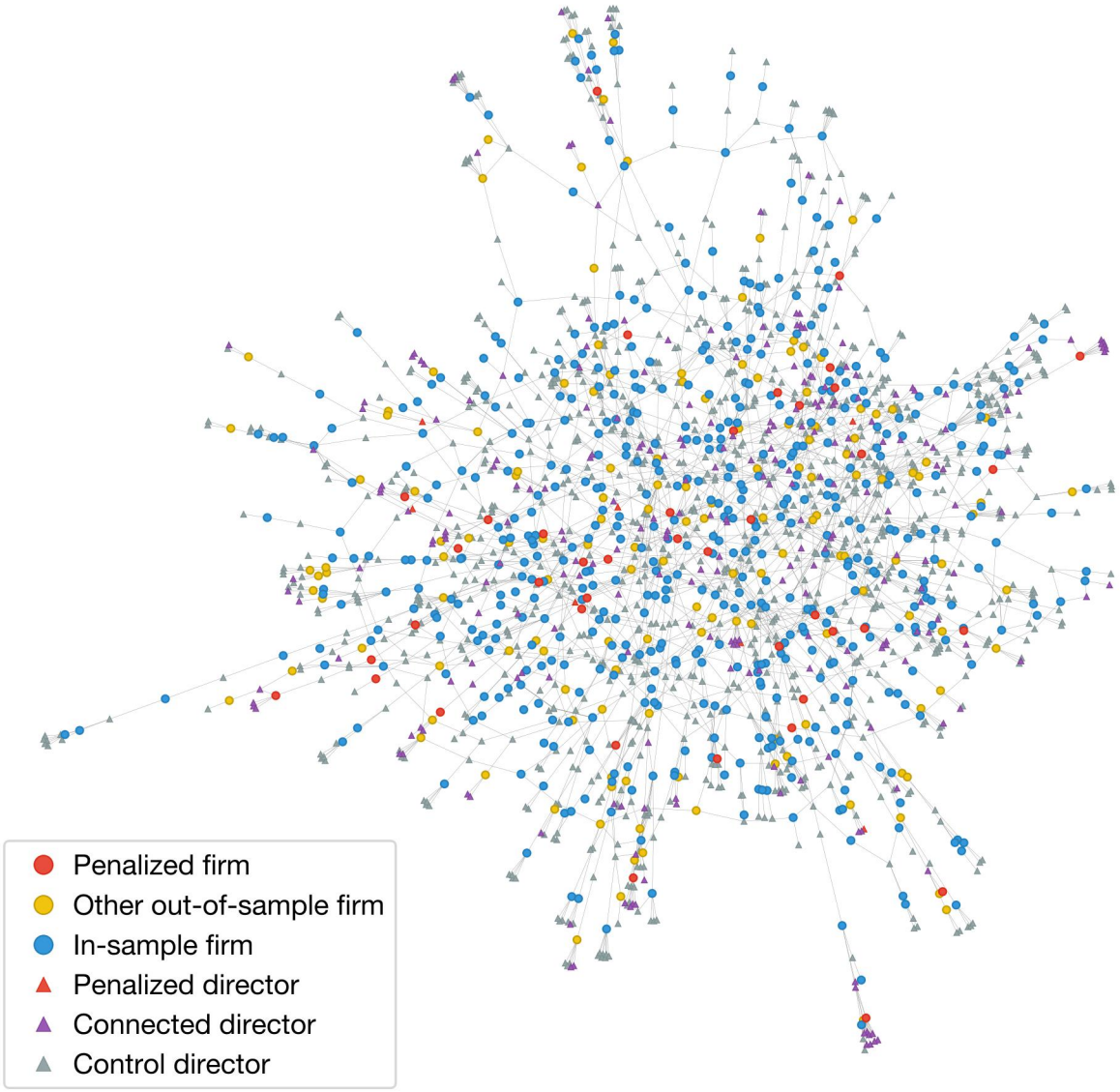

Figure 2. A Board Network with More Nodes

This figure shows part of the board network and directors' status in March 2013, including 20% nodes of the whole board network at that time. Red circles represent firms that have been penalized. Yellow circles represent other out-of-sample firms. Blue circles represent in-sample firms. A firm is dropped from the sample because one of the following reasons: 1) it has been penalized, 2) it has any penalized director, and/or 3) it has any director from a penalized board. Red triangles are the directors who have been penalized in and before March 2013. Purple triangles are the connected directors, who are on the same board with the penalized directors at the time of penalty. Grey triangles are the control directors. Lines represent the employment relation between directors (triangles) and firms (circles).

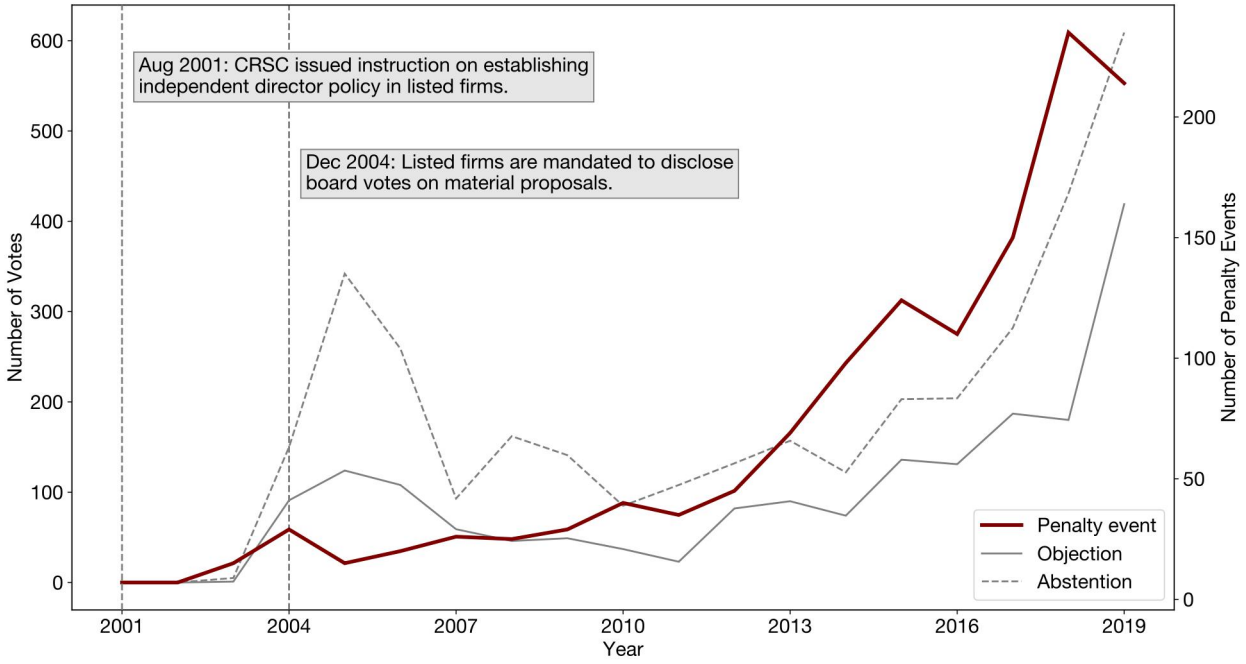

Figure 3. Dissensions and Penalties over Time

This figure shows the number of penalty events, dissenting votes, and abstentions from 2001 to 2019. Red line represents the number of penalty events in each year. The penalty events are defined as penalties with monetary punishment. Grey solid line represents the number of dissenting votes in each year and the grey dashed line represents the number of abstentions in each year.

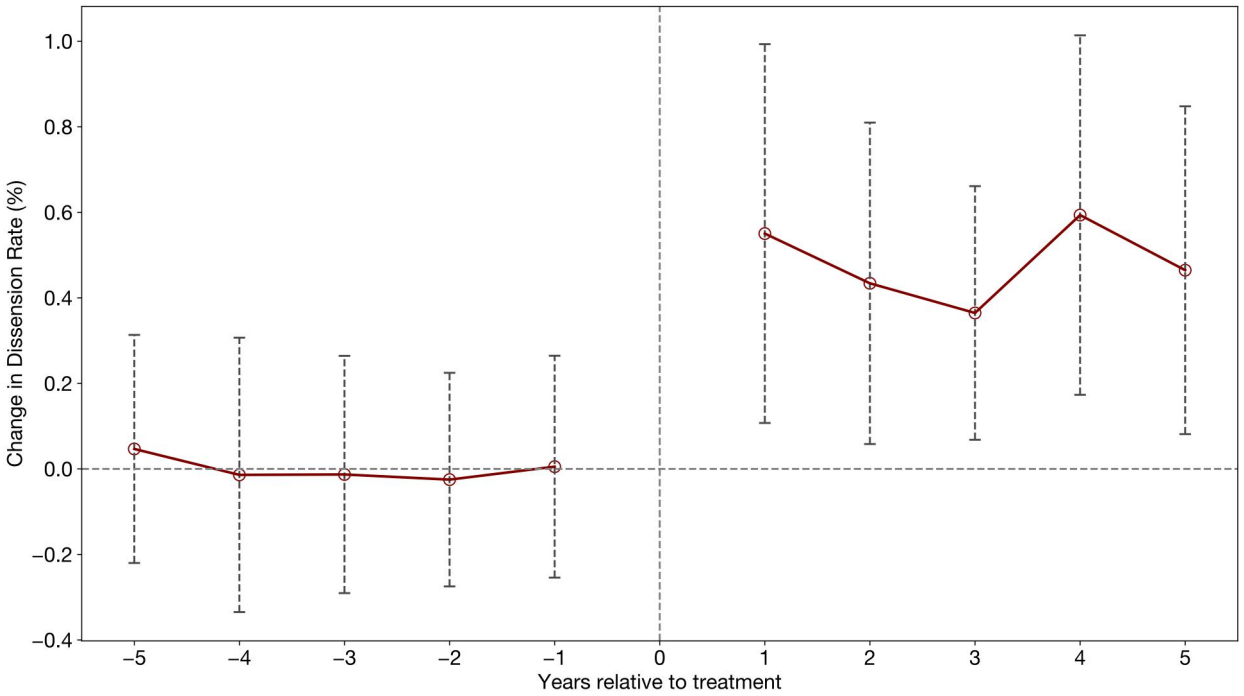

Figure 4. Time Dynamics

This figure illustrates the effect of a penalty observation on independent directors' voting behavior over time. The horizontal axis measures years relative to t0, which is the year in which the penalty event occurred. The vertical axis measures the change in dissension rate relative to the pre-treatment period average. The dashed lines represent 95% confidence intervals for each estimated coefficient. Standard errors are clustered at the director level.

Table 1. Dissension and Proposal Distribution

This table shows the dissension rate on different type of proposals. The data is reported at the proposal level. In column 1, we report the number of proposals for each type. In column 2, $Abstention$ reports the number of proposals with abstention and without objections from the independent directors. In column 3, $Objection$ reports the number of proposals with objections from the independent director. If one proposal simultaneously contains abstention and objection, it will be classified into a proposal with objection. In column 4, $Dissension$ is the sum of $Abstention$ and $Objection$, representing the number of proposals with any type of dissension.

Proposal Type	Number of Proposals (1)	Abstention (2)	Objection (3)	Dissension (4) =(2)+(3)	Dissension Rate (5) =(4)/(1)
		Panel A. Financial			
Investment	142,711	370	169	539	0.38%
Financing	118,670	208	96	304	0.26%
Reporting	106,765	202	88	290	0.27%
Accounting	72,074	135	56	191	0.27%
Subtotal	440,220	915	409	1,324	0.30%
		Panel B. Governance			
Shareholder Interest	116,310	141	111	252	0.22%
Internal Control	67,587	64	44	108	0.16%
Strategy	52,204	38	29	67	0.13%
Related-party Transaction	45,124	73	28	101	0.22%
CSR	6,923	2	0	2	0.03%
Subtotal	288,148	318	212	530	0.18%
		Panel C. Personnel			
Hiring, Promotion, Dismissal	88,842	189	141	330	0.37%
Compensation	41,498	58	28	86	0.21%
Subtotal	130,340	247	169	416	0.32%
		Panel D. Other			
Other	19,485	87	37	124	0.64%
Total	878,193	1,567	827	2,394	0.27%

Table 2. Summary Statistics of Variables

This table presents summary statistics. The sample period is from 2004 to 2019. Our sample is at the director-firm-quarter level. Continuous variables are winsorized at the 1% and 99%-level.

	Number of Obs.	Mean	Std. Dev.	P10	Median	P90
	Panel A. Director-firm-quarter level					
$Dissension$	351,119	0.29	5.40	0	0	0
$Dissension_{Fin}$	249,446	0.28	5.30	0	0	0
$Dissension_{Gov}$	214,766	0.14	3.72	0	0	0
$Dissension_{Per}$	162,299	0.15	3.86	0	0	0
$Connected$	351,119	0.04	0.19	0	0	0
$Second\ Term$	351,119	0.38	0.49	0	0	1
	Panel B. Firm-year level					
$Penalty_{Persons}$	27,887	0.14	1.58	0	0	0
$Penalty_{Events}$	27,887	0.02	0.15	0	0	0
$Penalty_{Dum}$	27,887	0.02	0.13	0	0	0
$Size$	27,514	21.83	1.39	20.34	21.63	23.58
$Cash\ Ratio$	27,507	0.19	0.15	0.05	0.15	0.39
ROA	27,514	0.04	0.07	-0.02	0.04	0.11
$Leverage$	26,572	0.05	0.08	0	0.01	0.16
$High\ Coverage$	19,664	0.32	0.47	0	0	1
$High\ CF\ Volatility$	19,664	0.34	0.48	0	0	1
	Panel C. Director-year level					
$Penalized$	100,898	0.01	0.08	0	0	0
$Ln(Total\ Salary)$	100,898	10.53	2.53	9.90	11	12.15
$Ln(Positions)$	100,898	1.42	0.86	1	1	3
$Ln(Salary\ per\ Firm)$	100,898	10.30	2.43	9.80	10.82	11.51
	Panel D. Director level					
$Background\ Overlap$	988	1.32	1	0	1	3
$Same\ Gender$	988	0.76	0.43	0	1	1

Table 3. The Estimated Impact of a Observing a Penalty on Independent Directors' Voting Behavior

This table presents estimates on how a penalty observation affects the voting behavior of independent directors. The dependent variable $Dissension$ equals one if the independent director has dissensions during a quarter and zero otherwise. $Connected$ equals one if a connected director received a penalty before this quarter and zero otherwise. Two directors are connected if they sit on the same board. Firms that received penalties and proposals in which any voting director received a penalty are excluded from the sample. All variables are defined in Appendix B. The standard errors are clustered at the director-level. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

	$Dissension$			
	(1)	(2)	(3)	(4)
Connected	0.210**	0.213**	0.435***	0.435***
	(2.05)	(2.08)	(3.46)	(3.45)
Size	-0.035	-0.034		
	(-0.90)	(-0.89)		
Cash Ratio	-0.629***	-0.619***		
	(-5.16)	(-5.10)		
ROA	-1.828***	-1.822***		
	(-4.95)	(-4.93)		
Leverage	0.121	0.124		
	(0.42)	(0.43)		
Second Term		0.044*		0.030
		(1.81)		(1.23)
Firm FE	Y	Y		
Year FE	Y	Y		
Firm-year FE			Y	Y
Director FE	Y	Y	Y	Y
N	339,947	339,947	351,119	351,119
Adjusted R2	0.081	0.081	0.160	0.160
Number of Directors	16,330	16,330	17,400	17,400

Table 4. Professional Background, Gender, and the Effect of Penalty Observations on Monitoring

This table presents evidence on how the same professional background and the same gender of the penalized and the observing director affect the effect of a penalty observation on monitoring. $Background\ Overlap$ is the number of shared backgrounds between the penalized and the observing director (academic, accounting, financial, judicial, and government background are considered). $Same\ Gender$ is a dummy variable that equals one if the penalized director and the observing director share the same gender. The dependent variable $Dissension$ equals one if the independent director has dissensions during a quarter and zero otherwise. $Connected$ equals one if a connected director received a penalty before this quarter and zero otherwise. Two directors are connected if they sit on the same board. Firms that received penalties and proposals in which any voting director received a penalty are excluded from the sample. All variables are defined in Appendix B. The standard errors are clustered at the director-level. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

	$Dissension$	
	(1)	(2)
Connected * Background Overlap	0.195**	
	(2.33)	
Connected * Same Gender		0.418**
		(2.13)
Connected	0.105	0.106
	(0.62)	(0.68)
Second Term	0.032	0.031
	(1.29)	(1.26)
Firm-year FE	Y	Y
Director FE	Y	Y
N	351,119	351,119
Adjusted R2	0.160	0.160
Number of Directors	17,400	17,400

Table 5. Penalty Risk and the Effect of Penalty Observations on Monitoring

This table presents on how penalty risk affects the effect of independent directors' penalty observations on their monitoring. Panel A is a firm-year level analysis that investigates which firm-level factors affect penalty risk. The dependent variables are $Penalty_{Persons}$, which is the number of firm insiders who got penalized in a specific year, $Penalty_{Events}$, which is the number of penalty events in a firm during a specific year, and $Penalty_{Dum}$, which is a dummy variable that equals one if there is any penalty event in the firm during a specific year and zero otherwise. The standard errors are clustered at the firm-level. Panel B is a director-firm-quarter level analysis that investigates how firm-level factors affect the voting behavior of connected directors. The dependent variable $Dissension$ equals one if the independent director has dissensions during a quarter and zero otherwise. $Connected$ equals one if a connected director received a penalty before this quarter and zero otherwise. Two directors are connected if they sit on the same board. Firms that received penalties and proposals in which any voting director received a penalty are excluded from the sample. All variables are defined in Appendix B. The standard errors are clustered at the director-level. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

Panel A. Which Firm-level Factors Affect Penalty Risk?

	$Penalty_{Persons}$	$Penalty_{Events}$	$Penalty_{Dum}$
	(1)	(2)	(3)
ROA	-0.936***	-0.128***	-0.091***
	(-3.42)	(-4.26)	(-4.35)
Size	-0.060**	-0.007***	-0.005***
	(-2.23)	(-2.99)	(-2.74)
High Coverage	-0.047**	-0.001	-0.002
	(-2.11)	(-0.30)	(-0.83)
High CF Volatility	0.150***	0.014***	0.012***
	(3.88)	(4.70)	(4.90)
Cash Ratio	-0.521***	-0.020	-0.025*
	(-3.26)	(-1.18)	(-1.89)
Leverage	0.312	0.016	-0.002
	(0.79)	(0.72)	(-0.13)
Firm FE	Y	Y	Y
Year FE	Y	Y	Y
N	27,887	27,887	27,887
Adjusted R2	0.041	0.058	0.052
Number of Firms	2,680	2,680	2,680

Panel B. How do Firm-level factors Affect the Voting Behavior of Connected Directors?

	Dissension			
	(1)	(2)	(3)	(4)
Connected * ROA	-4.723**			
	(-2.11)			
Connected * Size		-0.140**		
		(-2.55)		
Connected * High Coverage			-0.260**	
			(-2.10)	
Connected * High CF Volatility				0.563**
				(2.35)
Connected	0.634***	3.587***	0.538***	0.377**
	(3.38)	(2.75)	(3.52)	(2.53)
Second Term	0.030	0.029	0.030	0.039
	(1.23)	(1.17)	(1.22)	(1.31)
Firm-year FE	Y	Y	Y	Y
Director FE	Y	Y	Y	Y
N	351,119	351,119	351,119	250,297
Adjusted R2	0.160	0.160	0.160	0.159
Number of Directors	17,400	17,400	17,400	13,247

Table 6. The Effect of Penalty Observations on Monitoring Across Proposal Types

This table presents the effect of regulators' penalty events on directors' voting behavior for different types of proposals. The sample in Column 1 consists of financial proposals (including accounting treatment, financial reporting, investment, and financing). The sample in Column 2 consists of governance-related proposals (including internal control, related-party transaction, strategy, CSR, and shareholder meetings). The sample in Column 3 consists of personnel-related proposals (including appointment, dismiss, and compensation). The sample in Column 4 consists of all types of proposals. Fin is a dummy variable that equals one for financial proposals and zero otherwise. Gov is a dummy variable that equals one for governance-related proposals. The dependent variable $Dissension$ equals one if the independent director has dissensions during a quarter and zero otherwise. $Connected$ equals one if a connected director received a penalty before this quarter and zero otherwise. Two directors are connected if they sit on the same board. Firms that received penalties and proposals in which any voting director received a penalty are excluded from the sample. All variables are defined in Appendix B. The standard errors are clustered at the director-level. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

	$Dissension_{Fin}$	$Dissension_{Gov}$	$Dissension_{Per}$	$Dissension$
	(1)	(2)	(3)	(4)
Connected	0.338**	0.361**	0.244	0.313***
	(2.25)	(2.31)	(1.64)	(2.70)
Connected * Fin				-0.001
				(-0.02)
Connected * Gov				-0.016
				(-0.31)
Fin				0.096***
				(7.40)
Gov				0.004
				(0.38)
Second Term	-0.008	-0.004	0.057**	0.018
	(-0.27)	(-0.18)	(2.09)	(0.97)
Firm-year FE	Y	Y	Y	Y
Director FE	Y	Y	Y	Y
N	249,439	214,766	162,295	626,500
Adjusted R2	0.383	0.353	0.330	0.320
Number of Directors	16,176	16,027	15,964	16,301

Table 7. The Impact of Directors' Penalties on their Careers

This table presents estimates of the career consequences of penalty events for independent directors. The dependent variable are $Ln(Total\ Salary)$, which is the natural logarithm of one director's total compensation in a year across all firms (column 1), $Ln(Positions)$, which is the natural logarithm of total number of independent directorship that one person holds in a given year (column 2), and $Ln(Salary\ per\ Position)$, which is the natural logarithm of one director's compensation per firm in a year (column 3). $Penalized$ is a dummy variable that equals one after the director has received a penalty by the regulators and zero otherwise. The standard errors are clustered at the director-level. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

	$Ln(Total\ Salary)$	$Ln(Positions)$	$Ln(Salary\ per\ Position)$
	(1)	(2)	(3)
Penalized	-0.805***	-0.711***	-0.473***
	(-5.77)	(-11.27)	(-3.61)
Director FE	Y	Y	Y
Year FE	Y	Y	Y
N	100,898	100,898	100,898
Adjusted R2	0.287	0.562	0.267
Number of Directors	17,829	17,829	17,829

Appendix A. Technical Details in Searching Dissenting Votes

In this appendix, we describe how we construct the dissenting votes database in detail.

A.1. Retrieve disclosures from *Wind Terminal*

In the *Wind Terminal*, the "Firm Announcement" section contains all announcements of publicly listed firms. For board meeting disclosures, we impose two filters: (1) the title must contain "董事会" (board) and (2) the title must contain at least one of the following keywords: "会议" (meeting), "决议" (resolution), "专项说明" (special explanation, a type of disclosure required by CSRC when there is proposal related to material business decisions such as M&A or changing auditor), "意见" (opinion). That is to say, we are looking for combinations such as "董事会决议" (board resolution) or "董事会会议公告" (board meeting announcement). After applying these filters, the *Wind Terminal* will return a list of links that contain the original PDF versions of the disclosure statements. We use the Python "requests" package to download those PDF files, "pikepdf" to unify PDF encoding, and "pdfminer.six" to parse the text and translate the PDF files into plain text files. Another set of firm disclosures are annual reports. We search for disclosures for which the title contains "年报" or "年度报告" (annual report) and exclude those containing "摘要" (abstract version of annual report), "半年报", or "半年度报告" (interim/semi-annual report). The steps of converting the PDF to plain text is the same as for the board meeting disclosures. In the end, we get 39,355 text files of annual reports between 2004 and 2019 and 335,052 text files for board meeting disclosures announced between January 1, 2004 and June 30, 2020. Six additional months are included to avoid missing delayed disclosures.

A.2. Identifying potential dissension votes in board meetings disclosures

We use the regular expressions (Python "re" package) to extract text that potentially contains a dissension vote. Specifically, we do the following steps for each collected text file.

1. Number cleaning. Some disclosures show voting statistics in Chinese such as "两票反对" (two objections, where "两" is number two in Chinese). To simplify the identification of the number of each type of opinion, we first replace all Chinese numbers with Arabic numbers.

2. Drop certain characters. “Control characters” (or “non-printing character”) is a computer term describing characters that are used to control the format of text, without any underlying meaning. The most common control character is “\n”, which means changing to a new line. In translating the PDF to plain text, there are several misidentified control characters. For example, if the text like “1 objection” appears at the end of one line, leaving “1” in the first line and “objection” in the next line, it will probably be translated into “1 \n objection” in the text file, while the “\n” is a misidentified line break. Another type of formatting characters is symbols in disclosure templates. Some templates leave a pair of brackets to fill numbers in, such as “[1] objection”. By dropping all these formatting characters, we can get the correct phrase back.

3. Identify the number of each type of opinion. After cleaning the text, we can use regular expression to extract text such as “\d+票反对”, where “\d+” is a regular expression which means any non-negative Arabic numbers and “票反对” means objection votes. There are multiple similar expressions, such as “弃权票2” (abstention votes: 2) and “反对人数3” (number of directors with objection: 3). We iterate the process of applying the parsers and sampling to find missing patterns tens of times and stop when we cannot find any missing pattern among 30 randomly chosen files. After this step, we can identify those disclosures with non-zero dissension.

4. Identify phrases describing dissenting action. As a supplement, we also identify those files with patterns like “投出反对”, which is “vote objection” in English. Phrases containing an action and a dissension opinion are very likely associated with a real dissension. We perform the iteration processes similar as above to find a bunch of patterns. After this step, we can additionally identify disclosures that potentially contain dissension but are not identified in Step 3.

After all these steps, we find 7,235 board meeting disclosures that potentially contain any dissension.

A.3. Identifying potential dissension votes in annual reports

For annual reports, the text cleaning process is similar to the process we apply for board meeting disclosure (Section A.2). Then we apply regular expression technique (Python “re” package) to locate the

paragraph discussing independent directors' dissension in this fiscal year. The corresponding paragraph is under the section "（二）独立董事对公司有关事项提出异议的情况". In English, it is "Section 2. Situations of Independent Directors' Dissension on Firm Affairs". There are some variations of the phrasing. We first separate sections by section numbers and extract the desired section by keywords "独立董事" (independent directors) and "异议" (dissension) in the title.

Typically, when there is nothing to disclose, this paragraph is short, such as "不适用" (not applicable) or "报告期内独立董事对公司有关事项未提出异议" (there is no dissension expressed by independent directors in the reporting period). After going through several annual reports from various years, we decide to use 40 Chinese characters as the threshold. That is to say, if this paragraph is longer than 40 Chinese characters, we will mark it as a potential dissension document. This step gives us 1,314 annual reports that could potentially contain dissension votes.

A.4. Manual check

After all the above-mentioned steps, we have 8,549 documents to be manually checked. We work with three research assistants to read through these documents one by one and record the names of dissenting directors and the proposals with dissension. The we merge the directors' names with CSMAR's director background dataset to identify independent directors. In the end, we find 3,494 dissension votes. Since it is too time consuming to read manually all 374,407 documents, we randomly choose an additional 1,000 documents from the documents that we not classified as potentially including dissension votes. We then manually read them to check if our approach systematically misses dissension votes. However, we did not find any missing dissension votes in those 1,000 documents.

Appendix B. Variable Definitions

This table provides the definitions for all variables used in our analyses.

Variable	Definition	Source
$Dissension$	Equals one if the director has at least one disagreed or abstain opinion in the firm during the quarter and zero otherwise.	Manually collected, WIND
$Connected$	Equals one if a connected director received a penalty before this quarter and zero otherwise. Two directors are connected if they sit on the same board.	Self-constructed, CSMAR
$Second\ Term$	Equals one if the director is in the second term of independent directorship at this firm and zero otherwise.	CSMAR
$Size$	One-year lagged natural logarithm of total assets.	CSMAR
$Cash\ Ratio$	One-year lagged cash and cash equivalent divided by total assets.	CSMAR
ROA	One-year lagged EBITDA divided by total assets.	CSMAR
$Leverage$	One-year lagged long-term debt divided by total assets.	CSMAR
$High\ Coverage$	Equals one if the $Analyst\ Coverage$ is higher than the market average of a year and zero otherwise. $Analyst\ Coverage$ is number of institutions that have issued analyst reports for a firm in a year.	CSMAR
$High\ CF\ Volatility$	Equals one if the $CF\ Volatility$ is higher than the market average $CF\ Volatility$ of a number and zero otherwise. $CF\ Volatility$ is the standard deviation of past five years' operating cash flow, scaled by total assets at the end of last fiscal year.	CSMAR
$Total\ Salary$	The total annual compensation of a director in a year.	CSMAR
$Positions$	The number of independent directorships in a year.	CSMAR
$Salary\ per\ Positio$	Director's compensation per firm in a year.	CSMAR
$Background\ Over$	The number of social ties between penalized director and connected director. Social ties of academic, accounting, financial, judicial, and official are counted.	CSMAR
$Same\ Gender$	Equals one if penalized director and connected director are in same gender and zero otherwise	CSMAR
CAR_{ER}	The cumulative dividend-adjusted daily stock return minus value-weighted market returns.	CSMAR
CAR_{MM}	The cumulative daily abnormal returns. The daily stock return is estimate by market model with an estimation window from 250 to 20 trading days prior to the announcement. Each event should have at least 60 trading days in estimation window.	CSMAR
CAR_{FF}	The cumulative daily abnormal returns. The daily stock return is estimate by Fama-French 3-factor model with an estimation window from 250 to 20 trading days prior to the announcement. Each event should have at least 60 trading days in estimation window.	CSMAR
$Penalty_{Persons}$	The number of firm insiders who received a penalty in a specific year.	CSMAR
$Penalty_{Events}$	The number of penalties a firm received in a specific year.	CSMAR
$Penalty_{Dum}$	A dummy that equals one if there is any penalty event in a specific year and zero otherwise.	CSMAR

Appendix C: Market Reaction to Dissensions

When a director publicly votes against a management proposal, it is likely to send a strong negative signal to the market about the firm. Consistent with this idea, Jiang, Wan, and Zhao (2016) find that such dissenting votes lead to a negative stock market reaction. We perform an event study on dissenting votes to confirm that the Jiang, Wan, and Zhao finding holds in our sample as well.

We calculate three different abnormal return measures: CAR_{ER}, CAR_{MM}, and CAR_{FF}. CAR_{ER} is the cumulative daily realized return minus the daily market return. CAR_{MM} and CAR_{FF} are cumulative daily realized returns minus expected returns, calculated using either the market model or the Fama-French 3-factor model (Fama and French 1993), calibrated in the period 250 trading days to 20 trading days before the event. For each dissension disclosure, we require at least 60 trading days in the estimation window, otherwise such event is dropped. We present our findings based on different event windows, starting three days before the disclosure and three, five, or ten days thereafter. We use a three-day pre-window because the board meeting resolutions are typically disclosed one to three days after the board meeting, which implies that insiders know about the dissension one to three days before the market. We cluster the standard errors at firm level. The following table shows that, consistent with Jiang, Wan, and Zhao (2016), the market reacts negatively to the dissension disclosure. These effects are consistent across the different event windows. On average, the cumulative abnormal return is around -1%. This result suggests that disclosures of dissensions do in fact provide negative information to the market.

Appendix C.1. The Market Reaction to Dissensions

This table presents the market reaction before and after firm disclosing independent directors' dissensions. The $CAR_{ER}$is the stock return minus value-weighted market returns. CAR_{MM} and CAR_{FF} are estimated by market model and Fama-French 3-factor model with an estimation window from 250 to 20 trading days prior to the announcement, respectively. Each event should have at least 60 trading days in estimation window. The standard errors are clustered at the firm-level. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

	# of Events	# of Firms	[-10,-3]	[-3,3]	[-3,5]	[-3,10]
CAR_{ER}	1,157	517	-0.242	-1.057***	-1.174***	-1.197***
			(-0.55)	(-4.15)	(-4.07)	(-3.13)
CAR_{MM}	1,143	506	-0.383	-0.919***	-1.055***	-1.043**
			(-1.44)	(-3.44)	(-3.36)	(-2.44)
CAR_{FF}	1,143	506	-0.235	-0.553**	-0.772**	-0.969**
			(-0.98)	(-2.07)	(-2.52)	(-2.42)

Appendix D. Baseline Model Extension

This table presents alternative specifications for the effect of penalty events on directors' voting behavior. Specifically, we report results when we collapse our sample to the director-firm-year level instead of the director-firm-quarter level and when using two-way clustered standard errors. The dependent variable $Dissension$ equals one if the independent director has dissensions during a year (column 1) or a quarter (columns 2-4) and zero otherwise. $Connected$ equals one if a connected director received a penalty before this year (column 1) or this quarter (columns 2-4) and zero otherwise. Two directors are connected if they sit on the same board. Firms that received penalties and proposals in which any voting director received a penalty are excluded from the sample. All variables are defined in Appendix B. The standard errors are clustered at the director-level in Column 1; for Columns 2 to 4, the way in which we cluster the standard errors in shown in each column. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

	$Dissension$			
	Yearly Panel	Alternative Clustering		
	(1)	(2)	(3)	(4)
Connected	0.901***	0.435***	0.435***	0.435***
	(2.64)	(2.88)	(3.13)	(3.71)
Second Term	0.104	0.031	0.031	0.031
	(1.15)	(1.13)	(1.14)	(1.24)
Firm-year FE	Y	Y	Y	Y
Director FE	Y	Y	Y	Y
N	102,393	351,119	351,119	351,119
Adjusted R2	0.455	0.160	0.160	0.160
Number of Directors	17,400		17,400	
Number of Firms		3,505	3,505	3,505
Number of Years				16

Appendix E. Excluding Penalty Events

This table presents the network effect of regulators' penalty on connected directors' voting behavior when we exclude the 24 penalty events that are not directly related to monitoring (Columns 1 and 2) or all 116 penalty events that do not affect independent directors (Columns 3 and 4). The dependent variable $Dissension$ equals one if the independent director has dissensions during a quarter and zero otherwise. $Connected$ equals one if a connected director received a penalty before this quarter and zero otherwise. Two directors are connected if they sit on the same board. Firms that received penalties and proposals in which any voting director received a penalty are excluded from the sample. All variables are defined in Appendix B. The standard errors are clustered at director level. We report t-statistics in the parentheses. ***, ** , and * denote significant levels at 1%, 5%, and 10%.

	$Dissension$			
	Excl. Non-monitoring Penalties		Excl. Executive Director Penalties	
	(1)	(2)	(3)	(4)
Connected	0.426***	0.425***	0.361**	0.361**
	(3.24)	(3.24)	(2.51)	(2.51)
Second Term		0.032		0.025
		(1.32)		(1.00)
Firm-year FE	Y	Y	Y	Y
Director FE	Y	Y	Y	Y
N	346,557	346,557	337,412	337,412
Adjusted R2	0.157	0.157	0.161	0.161
Number of Directors	17,264	17,264	17,102	17,102